EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

September 5, 2018

Mary Nichols
Chair, California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Chair Nichols,

The atmospheric loss of over six billion cubic feet of natural gas from the Aliso Canyon storage facility in 2015 and 2016 was a grave disaster that has had lasting impacts on the public health of the local community and has contributed to climate change. Even without the benefit of findings from a formal root cause analysis, it appears clear that the blame for the damage caused by Aliso canyon falls on a mix of shortcomings – including improper operations and maintenance practices by SoCalGas, and outdated regulations and governmental oversight.

EDF has reviewed the proposed mitigation plan developed and submitted for public review and appreciates the opportunity to provide these comments. We provide these comments with the understanding that the mitigation plan was the product of a series of multi-party negotiations attached to pending litigation, the complexity of which was colored by the fact that during this process several ongoing private-party lawsuits and deliberations on related pieces of legislation were taking place. We further observe that the released of the mitigation plan is just a start – with development and dispersal of a series of proposed mitigation funds to follow.

As a high level observation, we observe and appreciate the effort by the settling parties to develop a comprehensive mitigation package that generates emissions reductions at least equivalent to the 109,000 metric tons of methane released during the Aliso Canyon leakage event, on top of penalties. This is in alignment with comments EDF provided to the Air Board in 2016. Furthermore, mitigation of environmental damage in Southern California through supplemental environmental projects is also a vital component, and can go a long way to improving the public health and welfare of Los Angeles' citizens. However, the plan as written includes some key shortcomings and lost opportunities – and whether that be a product of the complexity of the description of the settlement causing confusion about what is actually proposed, or a shortcoming in the actual proposal itself – the proposed mitigation document should be augmented in a few key ways. The following comments touch on each of these areas.

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1) **The mitigation plan should be augmented with additional clarity around what is actually proposed**

Upon review of the written contents of the mitigation plan, in particular around the funding of biogas facilities in the central valley, it remains unclear what is actually proposed. After conversations with CARB staff however, it is our understanding that the entirety of the $26.5 million funding stream to construct dairy projects for methane mitigation will be returned to the Aliso fund over the course of a 10-year time span. As a result, it is our understanding that the entirety of the $26.5 million will become available for use in mitigation projects within the Los Angeles basin as it is returned – subject to yet to be developed dispersal guidelines. Furthermore, the $10 million identified in the mitigation plan related to the loan actually represents the interest payments that will be made by dairy operators on that $26.5 million loan – and is thus in addition to the $26.5 million. As a result, it is our understanding that the $10 million will also become useable within the Aliso fund as it is repaid – subject to future dispersal requirements – making the total return to the Aliso fund for use in the future at $36.5 million plus whatever is explicitly called out in the mitigation plan currently.

If the above mentioned characterization is correct, EDF agrees with this formulation and construction of the mitigation plan as it relates to the development of a loan fund for methane mitigation. However, EDF also observes that additional work can and should be done – and should be a part of the mitigation plan - to deliver environmental benefits while the repayment of the loan fund plus interest payments are made. If we have mischaracterized our understanding, then we suggest that additional clarity be provided to interested stakeholders about the nature of the agreement and how funds are being allocated.

2) **Monetary penalties and requirements for local supplemental and GHG mitigation projects send a clear signal that a repeat of a leak at Aliso Canyon is not tolerable, but do not go far enough**

As discussed above, when taken comprehensively, the Aliso Canyon Consent Decree filed on August 8, which includes the proposed Mitigation Agreement, is a positive step towards achieving emissions reductions in California and mitigating the damage caused by the Aliso Canyon well failure. The damage created both physical and financial harm to all residents in Southern California, and created an emergency situation where residents lived under the threat of blackouts and curtailments of other vital services. We do not yet know the full extent of the health and environmental damage caused by this leak. With this context in mind ARB's intent to dedicate a large portion of funds $45.3 million to generate emissions reductions, environmental enhancements and study health impacts in Los Angeles, plus putting the extra $36.5 million to use in Southern California from repayment of the loan fund plus interest, is laudable. For example, the "Aliso Fund" portion of the mitigation program includes funds for electric school buses in heavily polluted areas, improving air filtration in public schools, increasing access to asthma clinics, enhancing air quality monitoring networks, and performing localized lead abatement.

As it relates to the civil penalty itself, on its face the size of monetary penalties imposed on SoCalGas appear to send a clear signal that the practices which led to Aliso Canyon's massive methane leak are not tolerated in California. SoCalGas clearly failed in its operation, management and emergency response preparedness at Aliso Canyon – so its shareholders should be held accountable, both by ARB and by other investigating agencies. Digging a little into the penalty however, the 112-day leak, extending from before Thanksgiving to past Valentine's day, represents one of the longest duration environmental pollution events in modern memory. At a civil penalty of $21 million, this represents a penalty of $187,500 per day, well below the available civil penalty thresholds set forth in the CA Health and Safety Code Section 42400. Accordingly, EDF asserts that a higher penalty, and resulting mitigation fund, may have been appropriate. To the extent that the entire $26.5 million loan fund and $10 million in interest are to be returned to the Aliso fund for use in Southern California later, the amount of mitigation possible through this settlement will be increased, and the value returned from the overall settlement will be increased – so EDF respectfully requests clarification to ensure this is the case.

With regard to the proposal to require greenhouse gas emissions reductions on a ton-for-ton basis based on methane, EDF supports the approach in part because it is what we proposed in a letter we sent to CARB in 2016. By going after methane, the mitigation plan can be certain to fully mitigate the amount of climate damage from the leak as opposed to getting caught up in a debate over the appropriate global warming potential (GWP) for methane. However, in our 2016 letter, we suggested that methane mitigation be accomplished first in areas impacted by the gas leak – such as in the Los Angeles basin. Given the public perception that Aliso canyon cannot be operated without imperiling the well-being of the surrounding community, we assert that if CARB could not find sufficient cost-effective methane reductions in the basin (and as a result is pursuing those methane reductions outside the basin), it should simultaneously identify and pursue investments that reduce carbon, energy system constraints, and the risks of curtailment that the Aliso canyon failure caused, at the same time as it pursues methane reductions outside the basin.

While we understand that the mitigation plan reached a negotiated dollar figure and may not have had the opportunity to go higher, we believe the set-aside of $7.6 million as a contingency fund for use to mitigate emissions in the event the dairy projects don't pan out misses the mark. Specifically, rather than leaving $7.6 million in a mitigation reserve sub-account and letting it sit for upwards of 10-years, the mitigation program should put that money to use to immediately cut pollution. In particular, the money in the mitigation reserve sub-account could be used to implement projects in the Los Angeles area that result in things like gas demand reduction, methane emissions reduction, or urban heat reduction. If the $7.6 million in the reserve sub-account were needed later because the dairy mitigation fell short, the program administrator could use a portion of the $26.5 million loan repayment or $10 million in loan interest payments to refill the mitigation reserve sub-account.

**3) Lack of leak detection and repair standards at biogas generation facilities, and in the pipelines more generally is a missed opportunity in the mitigation agreement**

To the extent that the Aliso mitigation plan targets methane reductions in the central valley as the central component of its greenhouse gas reduction strategy, EDF observes that leak reduction strategies warrant consideration. In particular, the mitigation plan should require and implement stringent leak detection and repair standards throughout the biogas value chain – including at biogas generation facilities and throughout the pipeline network, to ensure that full GHG reductions are achieved. To put a finer point on it, we assert that leak detection and repair standards at biogas generation facilities are needed to ensure GHG emissions reductions are achieved. Also, SoCalGas should be required to fully implement the CPUC SB 1371[1] best practices framework for methane leak detection as part of the proposed mitigation plan.

Employing these leak reduction suggestions would ensure that the mitigation plan both achieves full mitigation of the 109,000 tons of methane emitted from the Aliso Canyon incident and further the achievement of California's long-term climate goals.

***a)* Leak detection and repair standards at biogas generation facilities are needed**

As part of the SB 1383[2] implementation framework, and the state's Short Lived Climate Pollutant Plan, biogas collection and generation has been adopted by CARB as an important step to reduce methane emissions from dairy farms. However, to ensure that emissions reductions are achieved, it is necessary that the collection and processing systems at biogas generation facilities, and the pipelines through which the biogas is transmitted are leak-free to avoid the release of methane into the atmosphere. Accordingly, EDF asserts even if on-balance there is a net reduction in methane emissions from projects as they go from an unmitigated to mitigated state, without stringent leak prevention, repair and reduction standards, the investment in methane reductions through the production of biogas will be undermined.

In reviewing facility permits, local regulations, or greenhouse gas accounting protocols that govern current biogas collection systems at dairies in California, we have yet to see any standards that make it unlawful for biogas facilities to leak. For example, neither the Climate Action Reserve U.S. Livestock Project Protocol Version 4.0, nor the CalEPA's Dairy Digester Permitting Manual, nor the San Joaquin Valley Air Pollution Control District Dairy Permitting explicitly require leak reduction, repair or monitoring at these facilities. With no comprehensive standards to ensure that these biogas facilities are preventing leaks, biogas can continue to emit methane into the air, such as through pipeline equipment malfunctions, malfunctioning flares, or at the digester itself. Thus, while collection system gas meters may register gas flow into pipelines, additional methane will be released into the air.

In fact, a recent study by University of California, Riverside climate scientist Francesca Hopkins found that "leakage is practically inevitable in the absence of proper monitoring and

[1] Senate Bill 1371 (Leno, 2014) directed the CPUC to establish best practices for methane leak detection. The CPUC's Rulemaking (R.15-01-008) have established a series of best practices which SoCalGas must comply with in Decision (D.)17-06-015.

[2] Senate Bill 1383 (Lara, 2016) created new rules for Short Lived Climate Pollutants.

maintenance."[3] In support, Hopkins' team, using the Hyperspectral Thermal Emission Spectrometer developed by NASA's Jet Propulsion Laboratory, found large methane plumes leaking from manure digesters in the San Joaquin Valley.[4] This most recent science underscores the importance of oversight in the form of monitoring and maintenance to prevent these methane plumes from escaping at digesters – and supports the need for standards to be placed on each and every biogas generation facility covered by the settlement. Put another way, even if the biogas facilities covered by the agreement reduce some methane emissions that would have been emitted to the atmosphere, allowing them to leak (and not capture their full methane burden) is antithetical to the goals and purpose of the overall reduction effort. It is therefore important that stringent standards for controlling leakage are a part of any investment in biogas, or accounting protocol for certifying reductions of emissions from biogas operations intending to reduce GHG emissions.

***b) Failure on the part of SoCalGas to implement leak reduction standards is incompatible with emissions reductions goals of the settlement – and should therefore be required as part of this settlement***

At the state level, stringent leakage control standards associated with SB 1371 implementation are an important part of overall effort to ensure regulated utilities are using industry best practices. Unfortunately though, SoCalGas has consistently refused to implement certain portions of SB 1371 that require leakage control in pipelines through which some of the captured biogas will likely be delivered. Furthermore, SoCalGas has refused to implement new, state of the art mobile mounted leak detection equipment in its service territory which would enable for faster and cheaper identification of major leaks. As a result, at the exact same time that the mitigation agreement is structured to allow SoCalGas to generate and inject more biogas into its system, the utility is arguing that it should be exempt from some of the state's stringent leak detection and control standards – creating an untenable result which needs to be remedied.

One concrete example of SoCalGas' refusal to implement leak standards developed by the CPUC is seen in the utilities' refusal (even though it is a requirement to do so unless there is a compelling showing otherwise) to shift from 5-year inspection cycles to 3-year cycles for major portions of its utility service infrastructure related certain types of plastic and steel pipe. SoCalGas' refusal to conform with this important part of the SB 1371 leakage control framework (Best Practice 15) is an outlier amongst the other utilities in so far as SoCalGas is the only gas utility in California to take this position. Furthermore, SoCalGas' refusal to shift from a 5-year to a 3-year inspection interval comes at an emissions cost – with SoCalGas' own Best Practice Report demonstrating that a 3-year inspection interval would achieve reductions of 193,106 MCF natural gas losses by 2030 – about 3% of the needed mitigation amount. CARB could use this opportunity, in coordination with the CPUC, to hold SoCalGas accountable for this refusal.

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[3] https://www.nasw.org/article/california-models-regulations-high-emission-industries
[4] https://www.nasw.org/article/california-models-regulations-high-emission-industries

Another concrete example of SoCalGas' refusal to implement leak standards developed by the CPUC is seen in the utilities' refusal to deploy mobile mounted enhanced methane detection equipment in its service territory for routine inspection in accordance with Best Practice 17. Whereas Pacific Gas and Electric Company (PG&E) and other utilities across the United States are already using highly sensitive equipment capable of detecting low level leakage, as well as deploy that equipment on vehicles so as to aid in faster system-wide inspections, SoCalGas plans to utilize only hand-held equipment for regular leak surveys, and pilot test other leak detection equipment.

To add to the seriousness of SoCalGas' resistance in implementing all of the best practices identified by the CPUC, recent evidence has determined that methane leakage from the natural gas value chain is higher than previously reported by the EPA. According to a recent study released by EDF, methane emissions from the oil and gas supply chain are 60% greater than the EPA has reported. Furthermore, the majority of these methane emissions occur because of unfixed leakages and the previously reported system wide methane leak rate of 1.4% is actually much closer to 2.3%, according to EDF's report.[5] This high methane leakage undermines nullifies the beneficial impact of providing lower-carbon gas to customers because methane leakages throughout the supply chain continue to contribute to climate change.

While cutting methane emissions at biogas facilities and running it through pipelines is a laudable goal, it is imperative that any mitigation agreement with SoCalGas also include an agreement for the utility to fully execute the SB 1371 leakage control standards which have been as proposed by the CPUC to ensure that biogas flowing through utility pipelines does not become another source of methane emissions.

**4) The absence of specified demand reduction and electrification projects in the Mitigation Agreement is a major lost opportunity for California.**

To be responsive to the needs of the impacted community, support California's energy and climate goals, and help mitigate the energy system impacts caused by the Aliso disaster, the mitigation plan should include strategies to reduce aggregate demand for natural gas in the SoCalGas service territory by funding projects that result in cost-effective electrification of end uses, such as in the electrification of water and space heating. Within this, the mitigation plan should include requirements for SoCalGas to evaluate its own use of natural gas for thermal energy generation and present plans to reduce its natural gas demand (using additional shareholder funds) by electrifying those end-uses where feasible.

***a) Demand reduction is a primary pathway towards achieving California's climate goals.***

Although the intent may be there in the subtext of the mitigation plan document as it relates to use of the portion of the Aliso Fund that will be made available in the future through

[5] https://www.edf.org/media/new-study-finds-us-oil-and-gas-methane-emissions-are-60-percent-higher-epa-reports-0

the return of the $26.5 million loan plus $10 million in interest, an overt commitment to energy demand reduction is not a priority in this Mitigation Agreement. Accordingly, the agreement represents a major missed opportunity for California to take a significant step towards achieving its long-term climate goals. Reducing aggregate demand for natural gas through end-use electrification is an essential tenet to California's GHG reduction goals.

To elaborate, natural gas water heaters in homes and businesses can be cost-effectively replaced with electrified equipment using technology that is available today. The electrification process results in consumer savings, reductions in combustion of fuels that release GHG emissions, and reductions in emissions associated with importing natural gas. As identified in a recent paper published in the journal *Science*,[6] emissions from methane leakage in the value chain before natural gas reaches its end-use nearly equals the emissions from the combustion itself.

If the Mitigation Agreement seeks to achieve as many benefits as possible, and demonstrate a commitment to achieving the state's climate and air quality goals, then the plan must seek to achieve demand reduction in addition to directly reducing direct methane emissions. In support, a recent study by the California Energy Commission details the need for deep decarbonization and high levels of market adoption of electrification as key metrics in California's quest for steep GHG emissions reductions. Electrification – in the transportation and building sector alike – is a key pillar of decarbonization and will help California achieve its long-term climate goals. Additionally, in a high electrification scenario, direct costs could drop by as much as $2 billion – not even taking into account health and climate benefits or the recovery costs of avoiding another catastrophe, like Aliso Canyon.[7] The benefits of demand reduction are numerous and align closely with California's initiatives to reduce reliance on natural gas infrastructure, like the storage facility at Aliso Canyon.

Of course, EDF observes that the Mitigation Agreement, as a product of a multi-party negotiation may not be able to spell out exactly the full range of present and future investments that can be made to reduce energy demand reduction – especially as it relates to the future use of the $26.5 million loan repayment and $10 million interest payment. Thus, many of those details may be developed in the future by agencies in Southern California as they develop local project guidelines. As discussed above, it is important to ensure some or all of that money goes toward energy system investments that cut climate pollution in the SoCalGas and Aliso service territory, and we look forward to participating in those negotiations in the future.

***b). While allocation of funds in the Mitigation Agreement should appropriately reflect the importance of end-use electrification to California's GHG reduction targets, additional measures and mitigation funds should be pursued to facilitate SoCalGas's reduction of its own use of natural gas.***

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[6] See note 5

[7] https://www.ethree.com/wp-content/uploads/2018/06/Deep_Decarbonization_in_a_High_Renewables_Future_CEC-500-2018-012-1.pdf

As identified above, the importance of natural gas demand reduction through end-use electrification is important to accomplishing California's long-term climate goals should be reflected in the Mitigation Agreement. While the Agreement's does include a commitment of $3 million to electrify school buses in environmental justice communities, that is not guaranteed to decrease the system's natural gas demand by any appreciable quantity. Further, the plan's reliance on a system of biogas generation and injection into a pipeline system for which SoCalGas declines to implement the full slate of CPUC best practices for leakage control is needs additional work. Accordingly, EDF urges CARB to add onto the program by utilizing the $7.6 million in the Mitigation Reserve to immediately invest in demand reduction projects while also making clear that the repayment of the $26.5 million loan and $10 million interest be available for end-use electrification and demand reduction projects in the Los Angeles basin.

In addition to clarifying and expanding the use of funds, the mitigation plan should also consider the feasibility of reduction of SoCalGas' combustion of natural gas for its own use at its storage facilities. According to the California Council on Science and Technology Natural Gas Storage Report – Chapter 1, Section 1.4, on Human health hazards, risks, and impacts associated with underground natural gas storage in California,[8] combustion of natural gas at natural gas storage sites is responsible for both emissions of carbon dioxide and toxic air contaminants – in particular formaldehyde. This is caused, in part, because the gas coming for the storage field picks up toxins from the subsurface and entrains those in the gas supply. Accordingly, in its report CCST recommended "the replacement of gas powered compressors with electric-powered compressors to decrease emissions of formaldehyde." Whereas the settlement seeks to reduce climate pollution and improve air quality in the Los Angeles basin, it should also require SoCalGas to evaluate whether and to what extent any of its four storage facilities burn natural gas in on-site compressors, and then identify plans to electrify those devices.

Thank you for the opportunity to comment on the proposed Mitigation Agreement. We look forward to seeing the suggestions we have made implemented in upcoming drafts.

Sincerely,

Tim O'Connor
Senior Director, Energy Program, EDF

[8] https://ccst.us/publications/2018/Chapter%201/Chapter%201%20v2%20Section%201-4.pdf at p.168,