

Company: Southern California Gas Company (U 904 G)  
Application: A.25-10-008, Proposing Woody Biomass Pilot Project  
Exhibit: SCG-08

**Sierra Club Response to SoCalGas's Data Request 4**

**APPLICATION OF SOUTHERN CALIFORNIA GAS COMPANY  
PROPOSING WOODY BIOMASS PILOT PROJECT**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



**California Public Utilities Commission Docket No. A.25-10-008**

**Application of Southern California Gas Company (U 904 G) Proposing Woody Biomass Pilot Project**

**Sierra Club Response to Data Request SoCalGas-Sierra Club-04**

**To:** Ismael Bautista, Jr. and Johnny Tran, on behalf of SoCalGas

**From:** Nina Robertson, Earthjustice, on behalf of Sierra Club

**Date Request Sent:** June 26, 2026

**Expedited Response Date:** July 3, 2026

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**QUESTION 1:**

**Regarding LDAR Logic:** On page 11, lines 6–9 of Sierra Club’s Sur-Rebuttal Testimony, Dr. Grubert argues that if SoCalGas is confident that methane leakage is "zero" or "de minimis," they "cannot justify the use of this costly monitoring technology [LDAR]".

**QUESTION 1a:**

Does Sierra Club agree that Leak Detection and Repair is considered an industrial "best management practice" intended to maintain system integrity and prevent future leaks, rather than a tool only used when significant leakage is already known to exist? If no, please explain why.

**RESPONSE 1a:**

Sierra Club objects on the grounds that this question is vague, calls for speculation and calls for facts not in evidence.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Leak Detection and Repair (LDAR) is considered an industrial “best management practice.” LDAR is appropriately used for projects such as the proposed Project where methane emissions are inevitable. Dr. Grubert’s testimony indicated that, in her expert opinion, SoCalGas’s estimate of “zero” and “de minimis” methane leakage was not credible and could not be expected in the future. She indicated that, if zero or “de minimis” leakage were a certainty for this project, as suggested by SoCalGas by its decision to exclude methane entirely from its carbon intensity calculation, then the cost of LDAR would not be justified. Therefore, in this case, methane

emissions are possible and need to be accounted explicitly in a life cycle carbon accounting calculation.

## **QUESTION 2:**

**Regarding "Avoided Emissions" and CARB:** On page 8, lines 14–19 of Sierra Club’s Sur-Rebuttal Testimony, Dr. Grubert testifies that "CARB does not credit as ‘avoided emissions’ CO<sub>2</sub> emissions that are merely moved from one source... to another.”

## **QUESTION 2a:**

Does Sierra Club agree that CARB’s Low Carbon Fuel Standard (LCFS) routinely applies "avoided methane" credits (counterfactuals) to dairy biomethane projects based on preventing emissions that would have occurred in a baseline disposal scenario?

## **RESPONSE 2a:**

Sierra Club objects on the grounds this question calls for speculation, is irrelevant, and assumes facts not in evidence.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

As an initial matter, Sierra Club notes that this question suggests incorrectly that “avoided methane” credits are the same as “counterfactuals.” They are not. In life cycle accounting, “avoided methane” almost always refers to situations where methane is destroyed. It does not follow that all counterfactual emissions are considered “avoided” emissions. Emissions are only “avoided” if they do not otherwise occur in the project scenario. In the project/use case scenario, counterfactual emissions can still occur (i.e. are not avoided) if the counterfactual emissions are merely shifted in time and/or space.

Further, LCFS crediting of avoided dairy methane emissions is not analogous to the way that SoCalGas is using “avoided emissions” to refer to CO<sub>2</sub> emissions that would have happened in one supply chain but instead happen in a different supply chain. The LCFS program awards “avoided methane” credits to dairy biomethane projects that destroy methane that, due to a lack of regulation on direct methane venting from dairies, would have otherwise been directly vented into the atmosphere. The “avoided methane” credit is granted because the methane never enters the atmosphere: rather, it becomes CO<sub>2</sub>, a much less potent GHG, and the difference in climate impact is what is being credited. Sierra Club acknowledges this LCFS crediting does occur, and Dr. Grubert’s 2020 paper explains why even this crediting is probably climatically inappropriate. *See* Grubert, E. et al. 2020. “At scale, renewable natural gas systems could be climate intensive: The influence of methane feedstock and leakage rates.” Environmental Research Letters. <https://doi.org/10.1088/1748-9326/ab9335>. This paper is also included as Attachment 3 to Sierra Club Apr. 2, 2026 Response to SoCalGas’s Mar. 19, 2026 Data Request. For the proposed Project, no emissions are “avoided.” Indeed, SoCalGas’s question is referencing is an even less justifiable situation than is credited in the LCFS, as no emissions are actually being avoided but

rather shifted to a different custodian of the biomass. That is why the Project is not entitled to “avoided emission” credits. Further, the LCFS has not awarded “avoided methane” credits to projects that convert biogenic material (that, when left in the soil to decompose, would have emitted CO<sub>2</sub> into the atmosphere) into methane. To Sierra Club expert witnesses’ knowledge, no such LCFS pathways have been approved.

**QUESTION 2b:**

If yes, please explain why the principle of a "counterfactual baseline" is valid for dairy manure but, in Sierra Club’s opinion, is not valid for the oxidative decomposition of agricultural woody biomass since CCR §95893, D.22-02-025, and D.24-12-032 do not prohibit using avoided CO<sub>2</sub> or methane to demonstrate a reduction in GHG emissions.

**RESPONSE 2b:**

Sierra Club objects on the grounds this question calls for speculation, calls for legal conclusions, and assumes facts not in evidence.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Again, there is no avoided emission in the case that SoCalGas describes. Under the counterfactual, the carbon in woody biomass becomes carbon dioxide. Under the project case, the carbon in woody biomass becomes carbon dioxide plus some methane that escapes the system at points between production and final use, which is strictly additional as a climate-impacting greenhouse gas. That is, the situation SoCalGas describes does not avoid any emission, and in fact converts some relatively low-impact emissions (of biogenic CO<sub>2</sub>) to relatively high-impact emissions (of manufactured methane) that would not have occurred but for the Project. This is not an issue of the principle of a “counterfactual baseline” not applying in the present case, but rather a fundamental misapplication of the concept of avoided emissions.

There is no accepted principle of a “counterfactual baseline” in lifecycle accounting that presumes baseline emissions are “avoided” when they are shifted in time and/or space.

To the knowledge of Sierra Club’s witnesses, the LCFS does not award “avoided emissions” credits to projects that have as a baseline condition oxidative decomposition of agricultural woody biomass as CO<sub>2</sub>. The decomposition emits CO<sub>2</sub> over many years. In contrast, dairy manure lagoons directly vent methane into the atmosphere. The choice of CARB to credit avoidance of direct dairy methane venting does not indicate any agency acceptance the methodology proposed by SoCalGas here.

### **QUESTION 3:**

**Regarding the SJR Comparison:** On page 12, lines 24–27 of Sierra Club’s Sur-Rebuttal Testimony, Dr. Grubert distinguishes the San Joaquin Renewables (SJR) case from the PILOT PROJECT because SJR supposedly did not need to account for temporary carbon sequestration.

### **QUESTION 3a:**

Why is Sierra Club excluding the SJR analysis approved by the EPA that includes biochar as a sequestration pathway with a potential residence time in soil of over 1,000 years?

### **RESPONSE 3a:**

Sierra Club objects on the grounds that it is vague and assumes facts not in evidence.

Subject to and without waiving the foregoing objection, Sierra Club answers as follows:

SJR’s baseline case does not include any temporary (i.e. decadal) carbon sequestration, so the analysis is simplified relative to SoCalGas’s situation, where the counterfactual baseline includes a dominant pathway with temporary carbon storage.

Further, if biochar sequesters carbon for 1,000 years, this is not a good analog for a temporary storage pathway that stores carbon for decades but not centuries, such as the Whole Orchard Recycling (WOR) pathway in the baseline case. For estimating carbon intensity, the requisite analysis is simple if storage is zero or effectively permanent ( $\gg 100$  years); it is complex if not. SoCalGas’s case is a complex case because the baseline case includes decadal storage (per Culumber et al. 2025 a primary source cited by SoCalGas), and it did not perform the analysis necessary to handle the complexity.

### **QUESTION 3b:**

If SJR utilized a sequestration pathway (biochar) significantly more permanent than the PILOT Project’s baseline (WOR), why does Sierra Club maintain that the math in the SJR case was "a simple case" regarding temporal carbon sequestration?

### **RESPONSE 3b:**

As described above in response to Question 3a, the analysis for temporal carbon sequestration is simple for zero storage or for effectively permanent storage. Managing the impact of temporary storage with decadal-scale re-release is computationally and theoretically much more challenging because analysts must account for the fact that emissions are sequestered, then released on

timescales that are relevant for understanding the remaining carbon budget under medium-term policy targets. For example, per California Senate Bill 32, California state policy is concerned with 2045 greenhouse gas reduction goals (<20 years from now) but not 3026.

**QUESTION 4:**

**Regarding Soil Carbon and the 100-Year Horizon:** On page 9, lines 22–25 of Sierra Club’s Sur-Rebuttal Testimony, Dr. Grubert argues that Whole Orchard Recycling (WOR) provides a "temporary carbon sink" that should be accounted for as a benefit.

**QUESTION 4a:**

Please identify any CARB-certified fuel pathway that awards CI credits for non-permanent soil incorporation of biomass without a legally binding 100-year monitoring and verification plan.

**RESPONSE 4a:**

Sierra Club objects to this request because it seeks information that is not relevant and not reasonably calculated to lead to the discovery of admissible evidence. Subject to and without waiving the foregoing objection, Sierra Club answers as follows:

WOR does not need to be eligible as a credit-generating CARB-certified fuel pathway in order to represent a baseline condition for which some sequestration needs to be considered. Sierra Club witnesses are not aware of such a pathway. Dr. Grubert’s testimony is focused on whether SoCalGas’s assessment of relative climate impacts associated with different technology pathways is valid and demonstrates greenhouse gas reductions, not on whether there is CARB precedent for evaluating a specific pathway for credits. The point made in the Sur-Rebuttal Testimony is not about whether WOR should be awarded LCFS credits, but whether the Pilot Project is expected to reduce carbon intensity by a particular amount relative to the baseline and whether it has demonstrated greenhouse gas emissions reductions.

**QUESTION 4b:**

Does Sierra Club agree that the Culumber et al. (2025) study, as referenced by Sierra Club (page 13, lines 1–5), provides no estimate for the amount of carbon remaining in the soil after a 100-year horizon?

**RESPONSE 4b:**

Yes.

**QUESTION 4bi:**

If not, please explain why.

**RESPONSE 4bi:**

Not applicable.

**QUESTION 5:**

**Regarding Temporality and Neutrality:** Sierra Club argues on pages 7, lines 26-28 of Sierra Club's Sur-Rebuttal Testimony that even if biogenic is typically treated as neutral, the PILOT PROJECT "accelerates the return of carbon to the atmosphere" compared to the Whole Orchard Recycling (WOR) baseline, which you characterize as a "temporary carbon sink."

**QUESTION 5a:**

Given this position, does Sierra Club believe there is any scenario where a "biogenic neutral" analysis could be valid for the PILOT PROJECT if it does not explicitly account for a purported 20-year delay in carbon release provided by the baseline?

**RESPONSE 5a:**

Sierra Club objects on the grounds this question calls for speculation.

Subject to and without waiving the foregoing objection, Sierra Club answers as follows:

Possibly. Sierra Club's testimony asserts that the analysis presented by SoCalGas in testimony is internally inconsistent on its treatment of biogenic carbon and other major points, and thus the validity of the analysis upon which the Commission is being asked to make a decision is in question. The need for temporally specified carbon accounting in cases of biomass storage and use is well understood in the carbon accounting community, . *See, e.g.,* Mayer, A. C., J. Dumortier, Z. Hausfather, J. Pett-Ridge, and E. W. Slessarev. 2026. "The Value of Reversible Carbon Storage in a Zero-Emissions World." *Environmental Science & Technology*. American Chemical Society. <https://doi.org/10.1021/acs.est.6c00333>. This paper was included as Attachment 4 to Sierra Club's Sur-Rebuttal. SoCalGas's testimony entirely neglected the issue.

**QUESTION 5b:**

If Sierra Club does not accept a simple neutral treatment of biogenic due to these temporal differences, please identify the specific peer-reviewed dynamic LCA protocol Sierra Club believes SoCalGas should use to quantify the climate impact of "accelerated" carbon release.

**RESPONSE 5b:**

As noted above and in Sierra Club testimony, SoCalGas has not demonstrated a competent analysis based on validated assumptions. SoCalGas claimed to use a peer-reviewed LCA protocol (i.e. GREET) and did not. It also failed to account for life cycle methane emissions.

There are numerous peer-reviewed approaches for quantifying short-term carbon storage, including those Sierra Club has referenced previously. *See, e.g.*, Mayer, A. C., J. Dumortier, Z. Hausfather, J. Pett-Ridge, and E. W. Slessarev. 2026. “The Value of Reversible Carbon Storage in a Zero-Emissions World.” *Environmental Science & Technology*. American Chemical Society. <https://doi.org/10.1021/acs.est.6c00333>.

**QUESTION 6:**

**Regarding EPA-453/R-95-017:** On page 15, lines 23–24 of Sierra Club’s Sur-Rebuttal Testimony, Sierra Club testifies that the U.S. EPA Protocol (EPA-453/R-95-017) is "simply not validated for use to determine methane leakage and therefore its results are meaningless.”

**QUESTION 6a:**

Is Sierra Club aware that methane is a primary constituent of the gas streams at this facility and is chemically classified as a Total Organic Compound (TOC)?

**RESPONSE 6a:**

Sierra Club objects on the grounds this question calls for speculation.

Subject to and without waiving the foregoing objection, Sierra Club answers as follows:

Yes, Sierra Club is aware that methane is a primary constituent of the gas streams at the proposed facility. Sierra Club cannot speak to whether methane is “chemically classified as a Total Organic Compound (TOC).” SoCalGas does not provide a citation to support this statement. In the US EPA Protocol (EPA-453/R-95-017), results of non-methane testing predominate the results. Therefore using emission factors from this document to represent leak rates for methane is incorrect.

Further, Sierra Club confirms that TOC is not a defined term in the rules of the local air district, the San Joaquin Valley Air Pollution Control District (SJVAPCD). For example SJVAPCD Rule 1020 contains no definition. See <https://www.valleyair.org/rules-and-planning/current-district-rules-and-regulations/>.

**QUESTION 6b:**

Please provide any specific regulatory guidance from the U.S. EPA or CARB that expressly prohibits using TOC-based component factors to estimate methane leakage in pressurized industrial systems.

**RESPONSE 6b:**

Sierra Club objects on the grounds this question calls for speculation and is irrelevant.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Sierra Club is not aware of any U.S. EPA or CARB guidance “that expressly prohibits using TOC-based component factors to estimate methane leakage in pressurized industrial systems” but the lack of a prohibition does not mean that use of such “factors” is valid. Further, as noted above, the US EPA Protocol upon which SoCalGas relies contains test data that are predominantly from sources that are not associated with methane leakage. Therefore, relying on this Protocol’s emission factors for estimating methane leakage is incorrect. Also, TOC is not defined by the SJVAPCD. Therefore, it is speculative as to what “TOC-based component factors” mean within the context of SJVAPCD rules and emissions calculations.

**QUESTION 6c:**

Identify the specific, peer-reviewed protocol Sierra Club believes should be used to quantify fugitive emissions from individual components in a bio-SNG facility prior to construction.

**RESPONSE 6c:**

Sierra Club objects on the grounds this question is vague and calls for speculation.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Since “fugitive emissions from individual components” is vague and does not seem to recognize the composition differences that will be present at “individual components,” Sierra Club cannot provide the requested “protocol.” The design of the facility should provide the compositions at each of the components. With those disclaimers, EPA-450/3-83-007, December 1983, Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants is a potential protocol

**QUESTION 7:**

**Regarding Vehicle Tank Venting:** On page 16, lines 25–27 of Sierra Club’s Sur-Rebuttal Testimony, Sierra Club cites peer-reviewed studies (e.g., Pan et al. 2020) to argue that methane is released from on-board fuel storage tanks due to manual or pressure relief venting.

**QUESTION 7a:**

Is the research cited in Sierra Club’s Sur-Rebuttal Testimony based on fueling protocols and heavy-duty vehicles that comply with U.S. NFPA 52 standards?

**RESPONSE 7a:**

Sierra Club objects on the grounds this question calls for speculation.

Sierra Club does not have additional information other than what is provided in the studies.

**QUESTION 7b:**

Does the research cited in Sierra Club’s Sur-Rebuttal Testimony reflect international operating practices where venting behaviors and standards may differ?

**RESPONSE 7b:**

Sierra Club objects on the grounds this question is vague and calls for speculation.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

See Response 7a above. Since “operating practices” at the proposed plant are unknown, comparisons to “international” operating practices cannot be determined. Sierra Club confirms that regardless of operating practices, methane will be released from fuel storage tanks during venting since methane is present in such fuel tanks based on SoCalGas’s own representations.

**QUESTION 8:**

**Regarding Baseline Locations:** On page 31, lines 3–6 of Sierra Club’s Sur-Rebuttal Testimony, Sierra Club argues that if baseline air curtain burning occurs a significant distance from the facility, SoCalGas "cannot claim an air quality benefit to the ‘community’ near the facility.”

**QUESTION 8a:**

Does Sierra Club agree that if these avoided sources (diesel chippers and burners) are operating anywhere within the San Joaquin Valley Air Basin, their displacement by the PILOT PROJECT results in a net reduction of criteria pollutants for the regional air mix?

**RESPONSE 8a:**

Sierra Club objects on the grounds this question is vague and ambiguous. The question does not define the spatial extent of “regional.”

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

No, Sierra Club does not agree. If “regional” is intended to cover the entire Air Basin, which is vast, the displacement at issue may result in the alteration of the criteria pollutant emissions within the Air Basin. As detailed in Sur-Rebuttal, SoCalGas’s own estimates show a net increase in NOx, a harmful criteria pollutant, when comparing the base case emissions to the project case emissions. An increase also occurs for VOCs.

**QUESTION 8b:**

Provide any data demonstrating that the displaced baseline emissions are currently located so far from Kerman that their removal has zero impact on regional background levels in Fresno County.

**RESPONSE 8b:**

Sierra Club objects on the grounds this question calls for speculation. Sierra Club sought this locational information from SoCalGas and SoCalGas did not provide it. SoCalGas Response to Sierra Club Data Request 6, Question 6-10(a) (stating that “[t]he geographic coordinates are not known” as to the air curtain burners that the proposed Project purports to displace); SoCalGas Response to Sierra Club Data Request 6, Question 6-10(c) (stating that “[t]he geographic coordinates are not known” as to the diesel-intensive handling operations that the proposed Project purports to displace). As a result, Sierra Club does not have information about where the avoided sources are located. Therefore, it cannot provide the “data” requested.

**QUESTION 9:**

**Regarding Sensitive Receptors:** On page 26, lines 13–15 of Sierra Club’s Sur-Rebuttal Testimony, Sierra Club questions whether it is "appropriate for SoCalGas to identify sensitive receptors after CPUC issues a decision on the Application.”

**QUESTION 9a:**

Is Sierra Club aware of any CPUC decision or SJVAPCD rule that requires a finalized Health Risk Assessment (HRA) to be completed *prior* to a funding application approval for a pilot-scale project, rather than as a condition of subsequent construction and operating permits?

**RESPONSE 9a:**

No.

**QUESTION 10:**

**Regarding Regulatory Triggers for Risk Assessments:** On page 33, lines 7–13 of Sierra Club’s Sur-Rebuttal Testimony, Sierra Club testifies that SoCalGas failed to conduct an "accidental risk assessment" and cite the "general duty clause of the Clean Air Act" (42 U.S.C. § 7412(r)(1)) as the basis for this requirement.

**QUESTION 10a:**

Please identify the specific regulatory threshold (e.g., threshold quantities of regulated substances under the California Accidental Release Prevention (CalARP) program or 40 CFR Part 68) that Sierra Club believes this PILOT PROJECT exceeds, which would trigger a mandatory formal Risk Management Plan (RMP) or accidental risk assessment.

**RESPONSE 10a:**

Sierra Club is not aware of a “specific regulatory threshold” required in order to trigger the general duty clause of the Clean Air Act cited prior.

**QUESTION 10b:**

Is Sierra Club aware of any provision in the California Fire Code or the California Health and Safety Code that requires a formal accidental risk assessment for a facility that utilizes standard ASME-coded pressure vessels and refinery-grade equipment when that facility does not store or process regulated substances in quantities above established regulatory thresholds?

**RESPONSE 10b:**

Sierra Club objects on the grounds this question is vague and ambiguous and calls for legal conclusions.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Sierra Club notes that “standard ASME-coded pressure vessels,” “refinery-grade equipment,” and “established regulatory thresholds” are all vague and ambiguous terms as used in the question above.

Sierra Club witnesses have not conducted this research to provide a response.

**QUESTION 11:**

**Regarding the Protocol for Assessment:** On page 3, lines 18-19 of Sierra Club's Sur-Rebuttal Testimony, Sierra Club characterizes the PILOT PROJECT as an "industrial scale experiment."

**QUESTION 11a:**

Please define the specific, regulator-accepted protocol or methodology (e.g., Hazard and Operability (HAZOP) study, What-If Analysis, or Failure Mode and Effects Analysis (FMEA)) that Sierra Club contends is required to satisfy the "general duty clause" for a facility of this type.

**RESPONSE 11a:**

Sierra Club is aware that any of the types of analysis noted in the question can be used.

**QUESTION 11b:**

Identify any SJVAPCD rule or CPUC decision that mandates such an assessment be completed and submitted as part of a funding application for a pilot-scale demonstration, rather than as a component of the final engineering and safety review conducted during the post-approval construction permit phase.

**RESPONSE 11b:**

Sierra Club witnesses are not aware of any such mandates.

**QUESTION 12:**

**Regarding Precedent for Accidental Risk Assessments:** Can Sierra Club identify any previous biomethane or bioenergy pilot project approved by the CPUC or permitted by a California Air District where a formal accidental risk assessment, beyond standard industrial safety compliance, was required as a condition for the initial approval of the project application?

**RESPONSE 12:**

No.

**QUESTION 13:**

Did Sierra Club perform any methane leakage calculations based on the PILOT PROJECT? If so, what were the assumptions that were used?

**RESPONSE 13:**

Sierra Club witnesses did not conduct any methane leakage calculations for the proposed Project. Sierra Club witnesses Dr. Grubert and Dr. Sahu reviewed the publications cited in Sierra Club testimony, and based on their knowledge and expertise and on available scientific information, testified that methane leakage was a certainty for this Project. To the witnesses' knowledge, a fully methane emissions-free methane-based system has never been demonstrated. The fact that there are methane emissions from pipes and end-user equipment is extremely well-understood in the scientific literature.

**QUESTION 14:**

Is it Sierra Club's position that a Health Risk Assessment (HRA) should be performed prior to any facility design has begun? If not, at what percent design completion does Sierra Club suggest a HRA should be completed?

**RESPONSE 14:**

Sierra Club objects on the grounds this question calls is vague and ambiguous. The term "position" is not defined and connotes a legal conclusion. "Percent design completion" is vague since emissions estimates of the necessary accuracy needed for the HRA will vary by equipment type and therefore "percent design completion" will also vary by equipment.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Absent an HRA or similar analysis, there is no basis for SoCalGas's conclusion, as stated in Rebuttal Testimony that "air toxics impacts at the population center from this project are less than significant..." For any such finding on impacts can be supported, an HRA or similar analysis must be performed. If that analysis requires process design to occur before the HRA can be performed, then process design must occur.

**QUESTION 15:**

Does 17 CCR §95893, D.22-02-025, D.24-12-032 specifically require the PILOT PROJECT to demonstrate realized or empirically measured, or verified GHG reductions at the time of application approval (yes or no)?

**RESPONSE 15:**

Sierra Club objects on the grounds that the question calls for legal conclusions.

**QUESTION 15a:**

If yes, please provide the direct section(s) and statement(s).

**RESPONSE 15a:**

Not applicable.

**QUESTION 16:**

Does 17 CCR §§95893(D)(3), (D)(5) and/or (D)(8) specifically require that a version of the GREET model be used to demonstrate a reduction in GHG emissions?

**RESPONSE 16:**

Sierra Club objects on the grounds that this question calls for legal conclusions.

**QUESTION 16a:**

If yes, please provide the direct section(s) and statement(s).

**RESPONSE 16a:**

Inapplicable.

**QUESTION 17:**

Does Sierra Club agree that the referenced study “Total Methane Emission Rates and Losses from 23 Biogas Plants” on page 11 of Sierra Club’s Direct Testimony<sup>1</sup> that (a) consists of 23 biogas plants, (b) resides outside of the United States (in Denmark), (c) does not use gasification technology (use anaerobic digestion), (d) does not use woody biomass as a feedstock and mostly relies on agricultural feedstocks such as manure, maize silage, wastewater sludge, or organic waste as the feedstock, (e) has many facilities installed in the 1980s and 1990s, and (f) has open digestate storage at seven sites is an appropriate study to use when estimating the methane emissions for the PILOT PROJECT?

**RESPONSE 17:**

Sierra Club objects on the grounds that this question calls for speculation.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Sierra Club does not agree or disagree on whether this study is an appropriate study to use when estimating the methane emissions for the proposed Project. As indicated above, Sierra Club witnesses did not estimate methane emissions from the proposed Project; Sierra Club witnesses evaluated whether the SoCalGas assumption of “zero” and “de minimis” methane leakage is valid. The referenced study is one of many that shows that methane emissions are typically higher than expected from methane-based systems, even when incentives to control methane are in place. Sierra Club referred to this study to underpin the range of emissions evaluated in Grubert, E. 2020. “At scale, renewable natural gas systems could be climate intensive: The influence of methane feedstock and leakage rates.” Environmental Research Letters. <https://doi.org/10.1088/1748-9326/ab9335>, which Sierra Club testimony uses as a reference for how emissions rates would map to CI, rather than to estimate emissions from a specific source.

**QUESTION 17a:**

Was Sierra Club able to find a peer reviewed and published study that examines the methane emissions for projects that utilize woody biomass to produce biomethane using gasification technology?

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<sup>1</sup>Scheutz, Charlotte, and Anders M. Fredenslund. 2019. “Total Methane Emission Rates and Losses from 23 Biogas Plants.” Waste Management 97 (September): 38–46.  
<https://doi.org/10.1016/j.wasman.2019.07.029>

**RESPONSE 17a:**

Sierra Club objects on the grounds that this question calls for speculation and assumes facts not in evidence.

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

Sierra Club witnesses did not seek such a study, recognizing that, to their knowledge, estimating methane emissions from the Project is SoCalGas's burden. Sierra Club's witnesses' testimony is that, to their knowledge, no methane emissions-free methane-based system has been documented over its life cycle, and in their expert opinions, SoCalGas's claim of zero and "de minimis" life cycle methane emissions is invalid.

**QUESTION 17ai:**

If yes, provide the title of the study and why that study was not used in Sierra Club's analysis.

**RESPONSE 17ai:**

Not applicable.

**QUESTION 18:**

If there was a peer reviewed and published study available that evaluated methane emissions from gasification facilities using woody biomass to produce biomethane (same type of project as the PILOT PROJECT), would Sierra Club have used this study to estimate methane emissions from the PILOT PROJECT (yes or no)?

**RESPONSE 18:**

Sierra Club objects on the grounds this question calls for speculation and it is premised on a false premise: Sierra Club did not “estimate” or seek to estimate “methane emissions from the PILOT PROJECT.”

Subject to and without waiving the foregoing objections, Sierra Club answers as follows:

No because as noted above, Sierra Club witnesses did not estimate or seek to estimate the methane emissions of the proposed Project; rather they evaluated whether, in their expert opinions, SoCalGas’s methane emissions assumptions for the proposed Project were valid.

**QUESTION 18a:**

If not, explain why.

**RESPONSE 18a:**

Not applicable.