
APPENDIX F-4

Proposed Greenhouse Gas Emissions Threshold

GREENHOUSE GAS EMISSIONS THRESHOLD FOR THE PROPOSED DAIRY EXPANSION PROJECT

Introduction

The California Environmental Quality Act (CEQA) requires agencies to identify a project's potentially significant effects on the environment, and to mitigate significant effects whenever feasible. This includes the potential environmental effects of greenhouse gas (GHG) emissions. CEQA encourages public agencies to adopt "thresholds of significance" to use in determining the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Exceedance of a threshold of significance would normally result in a determination that the project would have a significant environmental impact. Conversely, non-exceedance of a significance threshold would normally result in a determination that project would not have a significant environmental impact. In regards to thresholds of significance for GHG emissions, CEQA Guidelines Section 15064.7(c) states that a lead agency "may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." The California Air Resources Board (ARB) has established preliminary approaches to establishing significance thresholds, and the San Joaquin Valley Air Pollution Control District (SJVAPCD) has issued guidance for evaluating project-level GHG effects.

In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, or with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction of greenhouse gas emissions, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies (CEQA Guidelines Section 15064.4 (b)(3).) The legislative or regulatory programs establish standards that are independent of the impact analysis described in the CEQA Guidelines (see provisions beginning with Section 15126). The 2022 Scoping Plan Update is the State program for GHG emission reductions. While the 2022 Scoping Plan identifies various actions and concepts that would lead to an increase in climate-smart agricultural management actions, at this stage it does not include regulatory requirements that would reduce greenhouse gas emissions; the authority to reduce GHG emissions via measures relating to agricultural lands largely lies with state, regional, and local agencies, along with the Legislature and its budgeting choices (ARB 2022). At this time, there is no regional or Merced County greenhouse gas reduction plan or climate action plan. Therefore, there is no local, regional, or statewide plan regulating global warming by which the proposed project can be measured.

Threshold Options

In December of 2018, the Governor's Office of Planning and Research (OPR) released *CEQA and Climate Change* (OPR 2018), a discussion draft update to a 2008 advisory, suggesting relevant ways to address climate change in CEQA analyses. The document considers various approaches to performing a climate change analysis, including some of the methods that a lead agency may use in selecting appropriate significance thresholds. A lead agency may choose to review a project's

environmental impacts using more than one threshold of significance. Several threshold options included in the advisory include:

- a significance threshold based on efficiency;
- compliance with State goals
- consistency with relevant regulations, plans, policies, and regulatory programs
- numeric/quantitative threshold

Additional thresholds considered by OPR in a recent webinar on GHG emissions analysis include a net-zero threshold and a zero threshold. A lead agency may choose to review a project's environmental impacts using more than one threshold of significance. Regardless of which threshold or combination of thresholds the lead agency uses, the agency must support its analysis and significance determination with substantial evidence. (CEQA Guidelines Section 15064.7.)

Thresholds Previously Adopted or Recommended

United States Environmental Protection Agency (EPA)

EPA's Final Mandatory GHG Reporting Rule became effective December 29, 2009. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (mt/yr) or more of GHG emissions are required to submit annual reports to EPA. EPA estimates that the reporting rule will cover about 85 percent of GHG emissions in the United States.

For manure management systems, such as on a dairy, the animal population threshold level below which facilities are not required to report emissions is 3,200-cow dairy herd, which represents a conservative estimate of the 25,000 mt/yr CO₂ equivalent (CO₂e) threshold level. Facilities that meet or exceed these populations will need to conduct an analysis to determine if they emit more than 25,000 mt/yr CO₂e. While congress restricted EPA from expending any funds in fiscal years 2010 through 2023 for the purpose of implementing the manure management section of the rule, this did not change the requirements of the rule, and facilities that meet the threshold size are advised to keep the appropriate records.

California Air Resources Board

The California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (California Mandatory Reporting Rule) (17 CCR, Section 95100-95157), approved in 2007, is similar to the U.S. EPA Mandatory Reporting Rule in that it requires certain large emitters and suppliers to report their GHG data on an annual basis; however, the California emissions threshold is lower at only 10,000 metric tons of CO₂e per year. The California Mandatory Reporting Rule excludes GHG emissions related to livestock manure management systems and agricultural irrigation pumps.

San Joaquin County Air Pollution Control District (SJVAPCD)

To assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG on global climate change, the SJVAPCD adopted the following guidance on December 17, 2009: *Guidance for Valley Land-use Agencies in Addressing*

GHG Emission Impacts for New Projects under CEQA and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (SJVAPCD 2009). The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual, is required to determine that a project would have a less than cumulatively significant impact. The guidance does not limit a lead agency’s authority in establishing its own process and guidance for determining significance of project related impacts on global climate change.

Projects complying with BPS would not require specific quantification of GHG emissions and would be determined to have a less than significant cumulative impact for GHG emissions. Projects not complying with Best Performance Standards would require quantification of GHG emissions and demonstration that GHG emissions have been reduced or mitigated by 29 percent, as targeted by CARB’s AB 32 Scoping Plan. Furthermore, quantification of GHG emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates BPS. (SJVAPCD 2009)

Best performance standards for GHG emissions have not yet been developed for all sources of GHG emissions. Given that understanding and regulation of GHG emission sources and mitigations is evolving, the SJVAPCD staff expects the development of BPS to be an ongoing effort. Consistent with CEQA Guidelines Section 15064(h)(3), for projects implementing best performance standards, or their equivalent, the District would conclude that the project’s incremental contribution to the cumulative impact on global climatic change is not cumulatively considerable. (SJVAPCD 2009)

The following bullet points illustrate the SJVAPCD’s process for evaluating GHG significance. Project impact can be reduced by:

- Using any combination of District approved GHG Emission Reduction Measures to meet BPS
- Complying with an approved GHG plan or mitigation program
- Reducing GHG emissions by at least 29 percent.

The SJVAPCD has developed illustrative examples for potential BPS. At this stage, these illustrative BPS should not be considered District-approved standards, but rather provide an opportunity for public input into the development of BPS and ultimate development of final BPS. The illustrative BPS now being proposed for livestock operations include that all operations shall utilize all three following control measures:

- (1) All ruminant animal feed shall include at least six percent cottonseed, or, upon SJVAPCD approval, based on sufficient demonstration that use of cottonseed is not feasible, an equivalent substitute (estimated to generate a 12 percent reduction in methane emissions from this source);

- (2) Manure from animal housing areas for mature cows shall be removed and transferred into appropriate treatment facilities at least four times a day and at least once a day for all other animals (estimated to generate a 7.1 percent reduction in methane emissions from this source); and
- (3) Collected manure shall be treated anaerobically in digesters or covered lagoons, designed and operated per NRCS standards, with captured methane used for energy recovery in a method that displaces current or required fossil fuel use, such as, but not limited to, injection into natural gas pipeline, or powering mobile equipment. Taking the effect of the CO₂ produced from the combustion of CH₄ into account, an overall reduction of 63.5 percent of fugitive CH₄ emissions can be achieved by the use of properly designed and controlled anaerobic treatment as a BPS. (SJVAPCD 2009)

Although permit requirements for many livestock farms took effect in 2004, the particular BPS proposed, with the exception of frequent manure removal from livestock housing areas, have never been implemented as mandatory permit requirements. Instead, many other control measures aimed at reducing VOC and PM₁₀ emissions have been applied with greater emphasis. Until these BPS are finalized, the following conditions would be most applicable according to the SJVAPCD:

- In order to minimize Greenhouse Gas emissions and optimize equipment efficiency, all equipment shall be operated in accordance with manufacturer specifications and approved design specifications.
- All ruminant animal feed shall include at least 6 percent cottonseed.
- Manure from animal housing areas shall be removed and transferred into appropriate treatment facilities at least four times a day for mature cows and at least once a day for all other animals. (SJVAPCD 2009)

The illustrative BPS now being proposed by the SJVAPCD for farming operations and the application of manure to cropland include that all operations shall utilize the following control measure:

- (1) Manure shall be incorporated into soil within 24 hours after application. In a report entitled “Recommendations to the San Joaquin Valley Air Pollution Control Officer Regarding Best Available Control Technology for Dairies in the San Joaquin Valley”, the Dairy Permitting Advisory Group (DPAG) concluded that VOC emissions could be reduced by 29 to 58 percent by the prompt incorporation of manure into soil after application to land. Based on this information, this BPS assumes a similar benefit as far as the reduction of CH₄ emissions is concerned. However due to the lack of data, the lower control efficiency of 29 percent of methane emissions from this source will be used.

The California Attorney General (AG) has expressed opposition to SJVAPCD strategy, claiming it leaves a number of unanswered questions, and the AG’s office issued a letter dated November 4, 2009 stating that the proposed approach would “not withstand legal scrutiny and may result in significant lost opportunities for the Air District and local governments to require mitigation of GHG emissions.” The AG noted several deficiencies, primarily that the SJVAPCD does not discuss a particular environmental objective that would be achieved by implementing the proposed thresholds, such as meeting a GHG emissions reduction trajectory consistent with that set forth in AB 32 and

Executive Order S-03-05 within the Air District’s jurisdiction. Also, the BPS are described as “illustrative” only, and it is not possible at this time to determine whether the BPS ultimately adopted will reduce GHG emissions in the San Joaquin Valley and, if so, by how much. Further, the threshold does not take into account the need for new development to be more GHG-efficient than existing development to achieve AB 32 goals, given that past and current sources of emissions, which are substantially less efficient than this average, will continue to exist and emit. The AG also points out that the SJVAPCD proposal appears to award emission reduction “points” for undertaking mitigation measures that are already required by local or state law and could offer an incentive to project proponents to artificially inflate the hypothetical project to show that the proposed project is, by comparison, GHG-efficient. Most importantly, the AG noted that according to the SJVAPCD guidance, any project employing certain, as of yet unidentified, mitigation measures would be considered to not result in a significant level of GHG emissions or a significant impact, regardless of the project’s total GHG emissions, which could be very large.

Because of the uncertain direction of legal opinion, and because BPS for dairies and agricultural operations have not been adopted and are illustrative only, this EIR does not use project compliance with BPS as a threshold of significance.

Comparison of Non-Zero Significance Thresholds

In efforts to identify a numeric threshold that could be appropriate for this analysis, a survey of several California Air Quality Management Districts’ CEQA guidance was completed. The table below summarizes significance thresholds and mandatory reporting thresholds as set forth by the EPA, the CARB, the SJVAPCD, Sacramento Metropolitan Air Quality Management District (SMAQMD), and South Coast Air Quality Management District (SCAQMD). Neither the SMAQMD nor the SCAQMD guidance contain any numeric thresholds or guidance specific to agricultural activities. Bay Area Air Quality Management District (BAAQMD) project-level significance thresholds are specific to residential, office, and retail projects, and would not apply to agricultural projects.

Comparison of Thresholds					
Category	EPA	CARB	SCAQMD	SJVAPCD	SMAQMD
	(Mandatory Reporting)				
Construction	--	--	--	--	1,100 mt/yr CO _{2e}
Industrial/ Stationary Sources Operation	25,000 mt/yr CO _{2e}	10,000 mt/yr CO _{2e}	10,000 mt/yr CO _{2e}	BPS	10,000 mt/yr CO _{2e}
Dairy/Agricultural Project	25,000 mt/yr CO _{2e}	10,000 mt/yr CO _{2e}	--	BPS	--

t/yr = metric tons per year; CO_{2e} = carbon dioxide equivalents

The EPA’s Mandatory GHG Reporting Rule threshold of 25,000 mt/yr CO_{2e} represents a reporting threshold and not a threshold of significance specifically, and it is estimated to capture approximately 85 percent of the U.S emissions of GHGs and capture all large sources of GHG emissions. This is very similar to the CARB goal of emissions capture of 90 percent to meet AB 32 goals.

Except for EPA, no other agency has established any adopted thresholds for agricultural or dairy uses at this time (May 2024). Because SJVAPCD BPS for dairies and agricultural operations have not

been adopted and are illustrative only, application of BPS as a threshold is not possible at this time. The EPA's reporting threshold of 25,000 mt/yr of CO₂e represents a conservative value that would capture many large emitters of GHGs. However, the EPA's 25,000 mt/yr CO₂e is a permit threshold that represents emissions from the entire facility and not just the increment of increase. Therefore, a dual threshold is identified that uses 10,000 mt/yr CO₂e (used by both SCAQMD and SMAQMD for industrial stationary sources) as the maximum increment of increase and also 25,000 mt/yr CO₂e as a threshold for total facility emissions.

Identified EIR Threshold

In accordance with CEQA Guideline Section 15064.4, Determining the Significance of Impacts from Greenhouse Gas Emissions, a lead agency should determine the amount of GHG emissions resulting from a project, which may be determined by either using a model or methodology to quantify GHG emissions or by relying on a qualitative analysis or performance-based standards. Additionally, a lead agency may consider: (1) whether the project would increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project's emissions exceed a threshold of significance that the lead agency has determined applies to the project; or (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

Merced County has not established significance criteria for GHG emissions. Many statewide and regional GHG emission reduction strategies have few or limited agricultural measures, making compliance with these strategies as a threshold an illogical choice. For the construction phase of the project, this analysis uses the commonly adopted numeric threshold for land use projects of 1,100 metric tons CO₂e per year of GHG emissions. For operational emissions, this EIR uses a combination of significance thresholds:

- The increment of increase of the project's GHG emissions would be greater than 10,000 mt/yr of CO₂e.
- *However, if the dairy implements a voluntary Scoping Plan methane mitigation strategy for dairy and livestock operations, such as dairy digesters and alternative manure management systems, then the project's contribution to GHG emissions would be considered less than significant.*

This numeric threshold would only be applicable to dairies, and would not apply to industrial, commercial, residential, or other development types.

WORKS CITED

- Bay Area Air Quality Management District (BAAQMD), 2022. “Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects” Bay Area Air Quality Management District. April 2022. <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines> (accessed May 2, 2023).
- California, State of, Air Resources Board (ARB), 2022 Scoping Plan for Achieving Carbon Neutrality. November 16, 2022. <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents> (accessed March 24, 2023).
- California, State of, Governor’s Office of Planning and Research (OPR), 2023. CEQA 202 Webinar: GHG Emissions Analysis Resources. Aired on April 18, 2023.
- California, State of, Governor’s Office of Planning and Research (OPR), 2018. Discussion Draft: CEQA and Climate Change Advisory. December 28, 2018. <https://opr.ca.gov/ceqa/ceqa-climate-change.html> (accessed May 2, 2023).
- EPA, 2009. “Greenhouse Gas Reporting Program.” *United States Environmental Protection Agency*. October 30, 2009. <http://www.epa.gov/ghgreporting> (accessed May 1, 2023).
- SCAQMD, 2008. “South Coast AQMD Air Quality Significance Thresholds” *South Coast Air Quality Management District*. Revision: March 2023. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25> (accessed May 1, 2023).
- SJVAPCD, 2009. “District Policy - Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.” *San Joaquin Valley Air Pollution Control District*. December 17, 2009. http://www.valleyair.org/programs/ccap/ccap_idx.htm (accessed May 2, 2023).
- , 2009. “Final Staff Report -Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA.” *San Joaquin Valley Air Pollution Control District*. December 17, 2009. http://www.valleyair.org/programs/ccap/ccap_idx.htm (accessed May 2, 2023).
- SMAQMD, 2009. “CEQA Guide to Air Quality Assessment.” *Sacramento Metropolitan Air Quality Management District*. December 2009, Revised through April 2021. <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools> (accessed May 2, 2023).