

Local CEQA Mitigation Best Practices and Lessons Learned

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Disclaimer

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Abstract

This report is a broad overview of the state of practice in California of greenhouse gas mitigation under the California Environmental Quality Act (CEQA) and, more specifically, the use of off-site measures and carbon offsets for mitigation. The findings in this report are based on a literature review, interviews with key informants, and a review of public environmental documents. The purpose of the report is to inform the California Air Resources Board about the state of practice in support of the mission identified in the *2022 Scoping Plan for Achieving Carbon Neutrality*. There are four key findings in the report.

- The state of practice around greenhouse gas mitigation, especially off-site and carbon offset mitigation, is inconsistent, dynamic, and contested. Moreover, recent CEQA court rulings have created significant confusion over what is legally defensible.
- Local lead agencies (i.e., cities and counties) and air districts have developed very little guidance for use of off-site and carbon offset mitigation; in fact, most have no guidance.
- Relatively few EIRs (less than 5%) currently require carbon offsets for mitigation.
- CEQA practitioners are strongly encouraging the state to develop better guidance possibly through legislation, rule-making, and technical support.

Public Outreach Document

Title

Local CEQA Mitigation Best Practices and Lessons Learned

Issue

In 2007, the California legislature passed SB 97 which for the first time explicitly required environmental analysis under the California Environmental Quality Act (CEQA) to include the impact of greenhouse gas (GHG) emissions on global climate change. In recent years several large-scale projects, and sometimes their related litigation, have elevated the issue of the use of off-site measures and carbon offsets as a possible way to mitigate GHG emissions. Although CEQA Guidelines §15126.4(c)(3) states that mitigation measures for GHG emissions may include “offsite measures, including offsets that are not otherwise required, to mitigate a project’s emissions,” confusion and controversy over the use of carbon offsets is widespread.

Main Question

What is the state of practice in California of GHG mitigation under CEQA and, more specifically, how are off-site measures and carbon offsets being used for mitigation.

Key Research Findings

- The state of practice around greenhouse gas mitigation, especially off-site and carbon offset mitigation, is inconsistent, dynamic, and contested. Moreover, recent CEQA court rulings have created significant confusion over what is legally defensible.
- Local lead agencies (i.e., cities and counties) and air districts have developed very little guidance for use of off-site and carbon offset mitigation; in fact, most have no guidance.
- Relatively few EIRs (less than 5%) currently require carbon offsets for mitigation.
- CEQA practitioners are strongly encouraging the state to develop better guidance possibly through legislation, rule-making, and technical support.

Conclusions

The findings in this report can be used to direct professional practice; local government policy and procedures; and, state law, policies, and resources to improve the mitigation of GHG emissions under CEQA.

More Information

The title of this report is: Local CEQA Mitigation Best Practices and Lessons Learned. This report was prepared for the California Air Resources Board by Michael R. Boswell, Ph.D., AICP, Professor of City & Regional Planning at California Polytechnic State University. For more information, contact: Leslie Barody, Leslie.Barody@arb.ca.gov or Pedro Peterson, Pedro.Peterson@arb.ca.gov at the California Air Resources Board,

Executive Summary

Background

In 2007, the California legislature passed SB 97 which for the first time explicitly required environmental analysis under the California Environmental Quality Act (CEQA) to include the impact of greenhouse gas (GHG) emissions on global climate change. Since then, CEQA practice has rapidly evolved to develop tools and best practices—often in reaction to case law—new climate change related legislation and executive orders, and the evolving understanding of GHGs and the physical environment. In recent years several large-scale projects, and sometimes their related litigation, have elevated the issue of the use of off-site measures and carbon offsets as a possible way to mitigate GHG emissions, especially once all on-site mitigation opportunities have been exhausted. A common definition for “carbon offsets” is (also sometimes referred to as “GHG offsets”):

Carbon offsets are tradable “rights” or certificates linked to activities that lower the amount of carbon dioxide (CO₂) in the atmosphere. By buying these certificates, a person or group can fund projects that fight climate change, instead of taking actions to lower their own carbon emissions. In this way, the certificates “offset” the buyer’s CO₂ emissions with an equal amount of CO₂ reductions somewhere else. (MIT Climate Portal <https://climate.mit.edu/explainers/carbon-offsets>)

Although CEQA Guidelines Section 15126.4(c)(3) specifically describes that mitigation measures for GHG emissions may include “offsite measures, including offsets that are not otherwise required, to mitigate a project’s emissions,” confusion and controversy over the use of carbon offsets is widespread.

Objectives and Methods

This report is a broad overview of the state of practice in California of GHG mitigation under CEQA and, more specifically, the use of off-site measures and carbon offsets for mitigation.

The findings in this report are based on:

- a literature review;
- interviews with CEQA and carbon offset experts including CEQA consultants, CEQA attorneys, carbon market brokers/representatives, and carbon market accountability representatives;
- questionnaires completed by air district staff members;
- a review of air district CEQA guidance documents;
- a review of recent draft environmental impact reports (EIRs); and,
- a review of local climate action plans (CAPs).

Results

Summary of Lead Agency Policy and Guidance

Only one city or county lead agency was identified as having established policy on the use of carbon offsets for CEQA GHG mitigation. The City of Laguna Niguel (2023) cites a South Coast Air Quality Management District proposed, but never adopted, tiered mitigation approach that included carbon offsets. Several other lead agencies identified exploring policy development but have made little progress. Effectively, all lead agencies appear to make decisions for each project on a case-by-case basis and are largely depending on guidance from CEQA consultants and attorneys. There is some evidence that lead agencies are increasingly taking a risk averse position and using a statement of overriding conditions to justify significant and unavoidable GHG impacts, rather than using offsets, especially since the publication of the 2020 *Golden Door* case (see: *Golden Door Properties, LLC v. County of San Diego*, 50 Cal. App. 5th 467, 2020).

Summary of Air District Policy and Guidance

Only 3 of California's 35 air districts have guidance on carbon offsets: Placer County APCD, Sacramento Metro AQMD, and SLO County APCD (see Table 1 in main report). All three acknowledge that carbon offsets can be used after all feasible on-site mitigation is adopted and all three are consistent with language and standards from the state's cap-and-trade program. In addition to the general lack of air district guidance on carbon offsets, another observation from the air district assessment is that only two had guidance for threshold years beyond 2030. Projects being currently submitted will usually have analysis of impacts, including GHGs, beyond 2030. Moreover, only three of the air districts have guidance updated since Executive Order B-55-18 first established the state's goal of carbon neutrality by 2045 (subsequently codified into law by AB 1279 in 2022).

Summary of Current Practice for Lead Agency Use of Off-site and Carbon Offset Mitigation

Lead agencies are primarily using carbon offsets when either of two conditions are present: low significance thresholds are used (usually based on 2030 or 2045 carbon neutral state targets), or projects have high vehicle miles traveled (VMT). Lead agencies are maximizing on-site mitigation to the extent feasible under CEQA guidelines. In a few cases, substantial off-site mitigation has occurred, most notably as part of the Newhall Ranch settlement agreement.

If emissions remain above threshold after the maximization of feasible on-site and off-site mitigation, then some lead agencies—on the advice of their CEQA consultants—are directing applicants to consider carbon offsets. Best practice has been to direct applicants to the three CARB-approved compliance market registries (though these are voluntary offsets): American Carbon Registry, Climate Action Reserve, and Verra. In addition, lead agencies are suggesting the use of existing carbon offsets that have been verified rather than the purchase of Forecasted Mitigation Units (FMUs) that would occur in the future. These FMUs may be held to higher

scrutiny by courts since the actual offset activity would occur after the CEQA document (unlike existing offsets which reflect an action in the past). However, there is CEQA precedent for mitigation related to actions that happen in the future, including Voluntary Emissions Reduction Agreements, air quality credits, and wildlife habitat credits.

A review of 226 recent draft EIRs showed that:

- 52 (23%) identified significant and unavoidable GHG impacts;
- 12 (5%) included the use of carbon offsets for residual, unmitigated GHG emissions;
- 9 (4%) considered or required offsite mitigation other than carbon offsets;
- 138 (61%) referenced a local climate action plan;
- 38 (17%) specifically used their climate action plan to establish significance thresholds;
- 131 (58%) referenced air district GHG analysis and threshold guidance; and,
- 183 (81%) used CalEEMod for quantifying project GHG emissions.

Nearly all of the EIRs cited typical conditions of approval for on-site reduction of GHGs, including for example, building energy and water efficiency, electric vehicle charging, and bicycle and pedestrian infrastructure.

Of the 12 draft EIRs that included the use of carbon offsets, there is no consistent standard for GHG thresholds of significance. All of them determined that impacts were less than significant when mitigated, usually with carbon offsets. The draft EIRs, though, do not show a consistent approach to carbon offset requirements.

Summary of Support for Using Carbon Offsets

There are several reasons cited by CEQA experts for the use of carbon offsets:

- They are often the only feasible way to achieve substantial (>40% from baseline and especially net-zero) GHG emissions reduction for a project.
- They are robust due to the quality of the carbon registry protocols and can provide third party verified evidence that an emissions reduction or removal actually occurred.
- They are just as effective as on-site mitigation at reducing global GHG emissions and can enable more ambitious goals in a shorter period of time.
- They are cited in the CEQA Guidelines and in other areas of state policy and law for project-level mitigation.
- They are economically efficient.

Summary of Concerns about Using Carbon Offsets

There are several reasons cited by CEQA experts to be concerned about the use of carbon offsets:

- They are often not well understood by elected officials and the public, who may even actively dislike or oppose them.

- Given the recent court rulings like *Golden Door* (2020), they are seen as a risky approach that could invite litigation.
- There is a possible shortage of carbon offsets in the voluntary markets that are located in California which means that the offsets often are only available out of the state.
- They may lack robustness given the critique of carbon registries, including issues of additionality and permanence.
- They raise issues related to air quality impacts that “polluters” can continue business-as-usual operations, which directly impacts those living in the vicinity of a project.
- When non-local, they provide no local co-benefits (unlike local mitigation).

Recommendations of CEQA Experts for Potential Changes to CEQA Statutes, Guidelines, and Practices

Interviewed experts suggested potential changes to CEQA law, guidelines, and practice:

- Legislative action to amend CEQA statutes to clarify the state’s position on the use of carbon offsets for CEQA GHG mitigation.
- CARB-issued, supplemental guidance on the use of carbon offsets for CEQA GHG mitigation. This could include additional direction on geographic priority and how to assess costs vs. benefits.
- A state supported/sponsored carbon offset program for CEQA. This could build on the existing program used under the California Cap-and-Trade Program, be administered through CARB or the air districts, and possibly coordinated with CAPCOAs Greenhouse Gas Reduction Exchange.
- Local or regional formal carbon offset programs and/or offsite mitigation programs.
- CARB certification of voluntary carbon offset vendors/protocols similar to the Compliance Offset Program.
- CARB requirement for enhanced disclosure, transparency, and monitoring from the carbon offset registries for CEQA mitigation.
- Establishment of a statewide GHG threshold for use in CEQA GHG mitigation.

Key Findings

There are four key findings in the report.

- The state of practice around greenhouse gas mitigation, especially off-site and carbon offset mitigation, is inconsistent, dynamic, and contested. Moreover, recent CEQA court rulings have created significant confusion over what is legally defensible.
- Local lead agencies (i.e., cities and counties) and air districts have developed very little guidance for use of off-site and carbon offset mitigation; in fact, most have no guidance.
- Relatively few EIRs (less than 5%) currently require carbon offsets for mitigation.
- CEQA practitioners are strongly encouraging the state to develop better guidance possibly through legislation, rule-making, and technical support.

Conclusions

This report provides CARB with a broad overview of the state of practice in California of GHG mitigation under CEQA and, more specifically, the use of off-site measures and carbon offsets for mitigation. The findings in this report can be used to direct professional practice; local government policy and procedures; and state law, policies, and resources to improve the mitigation of GHG emissions under CEQA. Potential future research could examine project-level details of CEQA mitigation, identify evolving practice on local and regional carbon offsets, and examine local government decision-making around GHG mitigation.

Introduction

In 2007, the California legislature passed SB 97 which for the first time explicitly required environmental analysis under the California Environmental Quality Act (CEQA) to include the impact of greenhouse gas (GHG) emissions on global climate change. Since then, CEQA practice has rapidly evolved to develop tools and best practices—often in reaction to case law—new climate change related legislation and executive orders, and the evolving understanding of GHGs and the physical environment. In recent years several large-scale projects, and sometimes their related litigation, have elevated the issue of the use of off-site measures and carbon offsets as a possible way to mitigate GHG emissions, especially once all on-site mitigation opportunities have been exhausted. A common definition for “carbon offsets” is (also sometimes referred to as “GHG offsets”):

Carbon offsets are tradable “rights” or certificates linked to activities that lower the amount of carbon dioxide (CO₂) in the atmosphere. By buying these certificates, a person or group can fund projects that fight climate change, instead of taking actions to lower their own carbon emissions. In this way, the certificates “offset” the buyer’s CO₂ emissions with an equal amount of CO₂ reductions somewhere else. (MIT Climate Portal <https://climate.mit.edu/explainers/carbon-offsets>)

This report is a broad overview of the state of practice in California of GHG mitigation under CEQA and, more specifically, the use of off-site measures and carbon offsets for mitigation.

CEQA generally provides that discretionary actions (i.e., projects) approved by public agencies are subject to environmental review, sets forth the environmental review process, and the required content of environmental documents. CEQA applies to public agencies such as local governments, special districts, and state agencies. The areas of environmental review are wide-ranging including biological resources, air quality, noise, transportation and many others. Because of SB 97, lead agencies must consider feasible means of mitigating the significant effects of GHG emissions, supported by substantial evidence and subject to monitoring or reporting. There are several methods used to mitigate GHG emissions [Section 15126.4(c)(1) through (4) of *CEQA Guidelines*]:

- “(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
- (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;

- (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
- (4) Measures that sequester greenhouse gases;
- (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.”

Per CEQA Guidelines Section 15364, all CEQA mitigation must be “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” According to CEQA statutes, guidelines, and case law, mitigation measures must be effective, feasible, roughly proportional to the impacts of the project, enforceable, concurrent, supported with substantial evidence, and not otherwise required (see AEP CEQA Portal Committee 2020). CEQA requires a lead agency to adopt feasible mitigation to reduce significant environmental impacts to a less than significant level, if possible. Under CEQA, when a lead agency decides to approve a project with significant unavoidable impacts, it considers economic, legal, social, technological, and regional or statewide environmental benefits. If the benefits of the project outweigh significant, unavoidable impacts of the project, the lead agency then has the authority to adopt a “statement of overriding considerations” (SOC) in which they approve a project that will result in significant, unavoidable effects that are identified in an Environmental Impact Report (EIR) and are not avoided or substantially lessened. The SOC must be supported by substantial evidence in the record. Having more mitigation opportunities available to address the adverse impacts of the project may also help reduce adverse impacts and help lead agencies avoid using statements of overriding considerations.

The CEQA statute itself does not directly address carbon offsets, but the *CEQA Guidelines* do allow for: “(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions;” (Cal. Code Regs. Tit. 14 § 15126.4), thus sanctioning the consideration of carbon offsets for GHG mitigation. The Governor’s Office of Planning and Research (2018, p. 17) adds additional context:

“CEQA does not prohibit off-site mitigation measures, but lead agencies must support with substantial evidence in the record their determination that mitigation will be effective and fully enforceable. (CEQA Guidelines, § 15126.4.) To do so, lead agencies may need to require more stringent protocols to verify the effective and enforceability of off-site mitigation measures. (Id., §§ 15126.4, 15364.)”

In addition, CEQA statutes or guidance do not specify a geographic hierarchy that preferences offsets closer to the project versus those farther away though the *2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan)*, OPR guidance, recent court rulings, and

professional “best practice” do strongly suggest that a geographic hierarchy should be pursued and that international offsets—and possibly even out-of-state offsets—may not be appropriate.

Specifically, the *Scoping Plan* states (California Air Resources Board, 2022, App. D, p. 29): “The State recommends prioritizing CEQA GHG mitigation according to a geographic hierarchy as follows:

1. On-site design measures;
2. Off-site GHG mitigation:
 - a. Funding or implementing local, off-site GHG reduction projects (within the communities or neighborhoods in the vicinity of the project);
 - b. Funding or implementing non-local, off-site GHG reduction projects;
3. Purchasing and retiring carbon offset credits:
 - a. That originate in the same air basin as the project;
 - b. That originate elsewhere in California;
 - c. That originate outside of California.”

The first priority is to mitigate projects by incorporating on-site design features and GHG reduction measures where feasible. The next priority is for project developers to invest locally to reduce GHG emissions that yield co-benefits for the region, such as air quality, health, and economic benefits. Examples of local investments include building retrofit programs, regional electric vehicle charging station financing, public school bus electrification, and urban forestry. Only once “all potential” on-site and off-site mitigations have been incorporated does the scoping plan then suggest the potential for “non-local off-site mitigation, and voluntary offsets issued by a recognized and reputable voluntary carbon registry” (p. 271).

Local air districts provide CEQA GHG emission guidance to assist lead agencies, planning consultants, and project proponents in assessing potential air quality impacts from developments. More specifically, they may suggest mitigation criteria that inform decisions about off-site and carbon offset mitigation. For example, the San Luis Obispo Air Pollution Control District offers guidance for CEQA mitigation for excess project GHG impacts and recommends that the first priority is on-site GHG mitigation followed by implementing feasible off-site GHG mitigation measures within the county.

Recently, CARB staff interviewed air districts, county officials, and carbon offset registries to better understand what the challenges and barriers are to the use of local, GHG-emission mitigation projects under CEQA. The primary challenges identified were:

1. Confusion about CEQA’s requirements for mitigation projects, including “CEQA-grade” offsets (i.e., offsets suitable to satisfy the requirements of CEQA, as opposed to a “compliance-grade” offsets used for compliance with the California Cap-and-Trade Program).

2. Lack of available local, CEQA-grade mitigation projects, given the comprehensiveness of California’s climate program (offsets must not be double counted with mitigation required by law or policy).
3. High mitigation / offset project costs, especially when wanting to meet compliance-grade offsets requirements such as verification and enforcement.
4. High cost of administering the GHG emission reductions programs through air district staff and a lack of trained staff and available staff capacity.
5. Complexities in quantifying project’s GHG emission reductions.
6. Lack of awareness of opportunities for local CEQA-grade projects (to the extent they even are available).
7. Challenges matching carbon offset buyers with projects that reduce GHG emissions.
8. Double-counting GHG emissions and challenges properly identifying the “ownership” of GHG emission reductions (e.g., utility renewable electricity provided to a streetlight retrofit project or an electric vehicle charging infrastructure project).
9. Lack of a market for local projects due to the challenges mentioned above.

This research is intended to help inform CARB about potential next steps for these and other future strategies and solutions to encourage and support local, off-site GHG mitigation projects.

Methods

The findings in this report are based on:

- a literature review;
- interviews with CEQA and carbon offset experts including CEQA consultants, CEQA attorneys, carbon market brokers/representatives, and carbon market accountability representatives;
- questionnaires completed by air district staff members;
- a review of air district CEQA guidance documents;
- a review of recent draft environmental impact reports (EIRs); and,
- a review of local climate action plans (CAPs).

Additional detail regarding the methods is available in Appendix A.

Results and Discussion

Summary of Lead Agency Policy and Guidance

There are no previous reviews of lead agency policy guidance on the use of carbon offsets. Therefore, this study relied on internet searches, reviews of recent EIRs, reviews of local climate action plans, and interviews with CEQA experts and air districts. Only one city or county lead

agency was identified as having established policy on the use of carbon offsets for CEQA GHG mitigation. The City of Laguna Niguel has a “City of Laguna Niguel CEQA Manual” (2023) that cites the proposed tiered approach, which includes carbon offsets, from the South Coast Air Quality Management District (proposed in 2010). The manual states: “The thresholds identified above have not been adopted by the SCAQMD and likelihood of threshold adoption is uncertain. In the absence of other thresholds of significance, the City hereby relies on SCAQMD’s draft thresholds for the purpose of evaluating the GHG impacts associated with proposed general development projects” (p. 23). Several other lead agencies identified exploring policy development including the City of Woodland (2017), the City of Mill Valley (2022), Placer County (2020), Sacramento County (2022), and Los Angeles County (2023), but have made little progress. Other than the case listed above, all other lead agencies appear to make decisions for each project on a case-by-case basis; this was corroborated by the interviews with CEQA experts.

A review of 260 known city and county climate action plans (CAPs) show that 106 (41%) of them are designated as so-called “CEQA-qualified CAPs.” The study only examined whether the city or county considered them to meet the CEQA Guidelines for qualifying plans and did not independently audit them. Under CEQA Guidelines section 15183.5(b), a qualifying “plan for the reduction of greenhouse gas emissions should:

- (A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- (B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;
- (C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- (D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- (E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;
- (F) Be adopted in a public process following environmental review.”

Analysis of the CAPs revealed that none of them specifically address the use of carbon offsets for CEQA mitigation. No additional detail of the qualified CAPs is available at this time, but additional tracking and analysis will occur in the future.

Lead agencies that have chosen to use offsets are largely depending on guidance from CEQA consultants and attorneys. Experts reported that lead agencies are increasingly taking a risk averse position and using a statement of overriding conditions to justify significant and unavoidable GHG impacts, rather than using offsets, especially since the publication of the 2020

Golden Door case. Lead agencies are looking to the state to provide better guidance that could be used to support development of local policy and explicit criteria on the issue of offsets.

Summary of Air District Policy and Guidance

All air district guidance for greenhouse gas emissions analysis under CEQA was reviewed through a combination of direct review of guidance documents and through several questionnaires sent to district staff. In addition, some supplemental information was gathered through review of draft EIRs on CEQAnet (<https://ceqanet.opr.ca.gov/>). The summary below only shows the large air districts and the air districts that had offset guidance/comments (see Table 1 and Appendix A).

Only 3 of California’s 35 air districts have guidance on carbon offsets: Placer County APCD, Sacramento Metro AQMD, and SLO County APCD. All three acknowledge that carbon offsets can be used after all feasible on-site mitigation is adopted and all three are consistent with language and standards from the California Cap-and-Trade Program. These standards include such things as: use of a certified carbon registry; geographic preference; and standards such as real, permanent, quantifiable, verifiable, enforceable, and additional. There are two specific observations from Placer County APCD and SLO County APCD worth noting.

Table 1. Summary of Air District CEQA GHG Guidance

Air District	GHG Threshold Adoption Year	GHG Threshold Analysis Year	GHG Offset/Off-site Guidance
Bay Area AQMD	2022	2030, 2045	None
Butte County AQMD	NA	NA	Off-site
Placer County APCD	2017	2020	Offset & Off-site
Sacramento Metro AQMD	2020	2030, 2050	Offset & Off-site
San Joaquin Valley APCD	2009	2020	Off-site
SLO County APCD	2012	2020	Offset & Off-site
Santa Barbara County APCD	2022*	Uncertain	Off-site
South Coast AQMD	In progress	NA	None
Ventura County APCD	NA	NA	None

* stationary sources only

Placer County APCD, in the Draft EIR for the *Renewable Placer: Waste Action Plan* (Western Placer Management Authority, 2021, p.2-38), has considered the potential for GHG off-site mitigation to be a part of their “Offsite Fee Mitigation Program” (normally for criteria

pollutants). The draft EIR states in MM 10-1 (Western Placer Management Authority, 2021, p. 10-22): “Participate in PCAPCD’s Offsite Mitigation Fee Program by paying the equivalent amount of money to mitigate the net annual project contribution of GHG that exceeds the PCAPCD threshold. The actual amount to be paid shall be determined according to the selected program and applicable cost-effectiveness rate agreed to by WPWMA and PCAPCD. (Please note that there is currently no mitigation fee option for GHG offsite mitigation, because there is no fee rate or cost-effectiveness factor established by a statewide incentive program.)”

The SLO County APCD (2021) provides examples of potential off-site mitigation, specifically: “Energy efficiency measures (potential example: Home Energy Savings Program (HES), a built environment retrofit program administered by the Tri-County Regional Energy Network (3C-REN)” (p. 3-10). They also mention that carbon offsets could occur in the County if they were “compliant with a protocol approved by CARB or equivalent” (p. 3-10).

In addition to the general lack of air district guidance on carbon offsets, another observation from the air district assessment is that only two air districts had guidance for threshold years beyond 2030. Projects being currently submitted will often have analysis of impacts, including GHGs, beyond 2030. Moreover, only three of the air districts have guidance updated since 2018 when Executive Order B-55-18 first established the state’s goal of carbon neutrality by 2045 (subsequently codified into law by AB 1279 in 2022).

Summary of Current Practice for Lead Agency Use of Off-site and Carbon Offset Mitigation

Lead agencies are primarily using carbon offsets when either of two conditions are present: (a) low (i.e., stringent) numeric significance thresholds are used, such as net-zero emissions; or, (b) projects have high vehicle miles traveled (VMT). Some lead agencies adopt very low GHG emissions significance thresholds, usually due to the use of 2030 or 2045 (carbon neutral) state targets. For example, San Benito County established a “no net increase” threshold—effectively a zero GHG emission threshold—for a commercial project (San Benito County, 2022). This meant that all the project emissions had to be mitigated; after exhausting on-site mitigations this necessitated carbon offsets. Regarding the other condition, some projects have high VMT which produces significant GHG emissions that cannot be mitigated through on-site efforts. In addition to these two conditions, there are a few examples of lead agencies agreeing to use carbon offsets as a part of litigation settlement agreements.

Lead agencies are maximizing on-site mitigation to the extent feasible under CEQA guidelines. In a few cases, substantial off-site mitigation has occurred, most notably as part of the Newhall Ranch settlement agreement (see: https://www.biologicaldiversity.org/programs/urban/pdfs/Newhall_Settlement_Agreement.pdf):

Among other things, the Net Zero Plan is currently anticipated at full buildout to result in more than approximately 10,000 solar installations producing approximately 250 million kWh of renewable electricity every year. The Net Zero Plan also is currently anticipated at full buildout to result in installation of approximately 25,000 electric vehicle chargers within the development and across Los Angeles County, as well as approximately \$14 million in subsidies toward the purchase of electric vehicles; these measures are currently anticipated to reduce vehicle miles traveled by internal combustion engine cars and trucks by up to approximately 250 million miles per year. (p. 2).

The *Newhall Ranch Final Additional Environmental Analysis* (California Department of Fish and Wildlife, 2017) establishes 13 mitigation measures for the project-generated GHG emissions. Nine are site specific (i.e., on-site), two are “local offsite,” and two are carbon offsets. The total project emissions would be 526,103 MT CO₂e/year in 2030. Of that total, 237,059 MT CO₂e/year would be mitigated through carbon offsets per MM 2-13 (as detailed in the *Newhall Ranch Greenhouse Gas Reduction Plan*).

If emissions remain above threshold after the maximization of feasible on-site and off-site mitigation, then some lead agencies—on the advice of their CEQA consultants—are directing applicants to consider carbon offsets. Best practice has been to use carbon offsets provided through the three CARB-approved compliance market registries (though these are voluntary offsets): American Carbon Registry, Climate Action Reserve, and Verra. In addition, lead agencies are suggesting the use of existing carbon offsets that have been verified rather than the purchase of Forecasted Mitigation Units (FMUs) that would occur in the future. These FMUs may be held to higher scrutiny by courts since the actual offset activity would occur after the CEQA document (unlike existing offsets which reflect an action in the past). However, there is CEQA precedent for mitigation related to actions that happen in the future, including Voluntary Emissions Reduction Agreements, air quality credits, and wildlife habitat credits.

Subsequent to the 2020 *Golden Door* case, San Diego County approved the use of offsets in Otay Ranch Village 13 Master Planned Community. Village 13 Project’s Mitigation Measures M-GCC-7 and M-GCC-8 establish extensive mitigation requirements that appear to be crafted to address all issues from the *Golden Door* case. The County’s Village 13 approval, including its use of carbon offsets, is the subject of pending litigation in the San Diego County Superior Court.

The 2022 *Scoping Plan* (CARB, 2022) identifies several projects including the Oakland Waterfront Ballpark District and Google’s Downtown West Mixed Use Plan that make use of carbon offsets. The 2022 *Scoping Plan* also includes the following:

However, there are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects of nearly any scale that achieve net-zero GHG emissions. Several projects have received certification from the Governor under AB 900, the Jobs and Economic Improvement through Environmental Leadership Act (Buchanan, Chapter 354, Statutes of 2011) and a similar program authorized under SB 7 (Atkins, Chapter 19, Statutes of 2021), demonstrating an ability to design economically viable projects that create jobs while contributing net-zero GHG emissions. These projects have included mixed-use housing and commercial developments, large-scale residential projects, sports arenas, a medical center, and business campuses (p. 24).

Many of these projects have used carbon offsets to get to net-zero emissions once all feasible on-site mitigations were required.

For this report, 226 draft EIRs filed with the State Clearinghouse from late 2021 to late 2022 were examined for content related to mitigations for GHG emissions especially the use of carbon offsets. These EIRs all addressed GHG emissions and were prepared by lead agencies that were cities, counties, and special districts; state and regional agencies were excluded. The 226 draft EIRs came from 109 unique lead agencies and 26 of the 35 air districts. Most represented in the air districts were SCAQMD with 33% of all draft EIRs, BAAQMD with 28%, SJVAPCD with 11%, and all remaining districts with 28%.

Analysis of the 226 draft EIRs shows that:

- 52 (23%) identified significant and unavoidable GHG impacts;
- 11 (5%) required the use of carbon offsets for residual, unmitigated GHG emissions (discussed below);
- 9 (4%) considered or required offsite mitigation other than carbon offsets;¹
- 138 (61%) referenced a local climate action plan;
- 38 (17%) specifically used their climate action plan to establish significance thresholds;
- 131 (58%) referenced air district GHG analysis and threshold guidance; and,
- 183 (81%) used CalEEMod for quantifying project GHG emissions.

Nearly all of the EIRs cited typical conditions of approval for on-site reduction of GHGs. The 10 most cited were:

1. Building efficiency (LEED, CALGreen, etc.)
2. Electric vehicle charging
3. Bicycle and pedestrian infrastructure

¹ Of these 8 plans, 4 were non-specific, 1 discussed off-site sequestration, 1 required off-site bike-ped infrastructure, 1 referenced a Placer County APCD fund, and 1 referenced a San Bernardino County mitigation list that includes off-site options.

4. Solar photovoltaic systems
5. Waste diversion and recycling
6. Mixed-use proximity to decrease VMT
7. Vehicle efficiency and idling restrictions
8. Bicycle parking and amenities
9. Transportation demand management (TDM)
10. LED and energy efficient lighting

These are consistent with the “Key Residential and Mixed-Use Project Attributes that Reduce GHGs” identified in Appendix D of the *Scoping Plan*. The full list of documented on-site GHG reduction measures is in Appendix B.

Of the 226 draft EIRs, 12 (5%) required carbon offsets for residual, unmitigated GHG emissions (up from 2% of a sample of EIRs in 2008 per Wang, 2009). For these EIRs a more in-depth content analysis was conducted. Some of the results are summarized in Table 2. Additional detail is in Appendix B.

In these 12 draft EIRs there is no consistent standard for GHG thresholds of significance.

- 4 cited air district guidance (BAAQMD, PCAPCD, SMAQMD).
- 1 used guidance from an air district that the project is not located in.
- 2 updated older numeric threshold guidance from an air district to a 2030 threshold based on SB32 consistency.
- 3 used a “no net increase” or “net zero” threshold.
- 1 used the local climate action plan.
- 1 based their GHG threshold on their VMT threshold.

All of the 12 draft EIRs determined that impacts were less than significant when mitigated, usually with carbon offsets. The draft EIRs, though, do not show a consistent approach to requiring carbon offsets. The types of requirements include (see Table 2):

1. One-time, up front purchase of carbon offsets for the construction phase and/or operational lifetime of the project.
2. Choice of on-time, up front purchase of carbon offsets, or annual, on-going purchase of carbon offsets (with no recalculation).
3. Choice of annual purchase of carbon offsets based on a pre-set amount, or the option to recalculate GHG emissions periodically to re-establish the annual purchase amount (presumably if GHG emissions fell below the set amount).
4. If it is later demonstrated, as the project progresses, that the required on-site mitigations are not lowering GHG emissions below the threshold, carbon offsets must be purchased.

In only three cases were the specific numeric amount of carbon offsets established in the draft EIR. All other draft EIRs left the final carbon offset amount to be determined, usually by calculating remaining project-generated emissions above the threshold after all other mitigation measures were implemented.

Many draft EIRs used a similar set of standards regarding the purchase of the carbon offsets that largely mirrors language and standards from the California Cap-and-Trade Program. These standards include such things as: use of a certified carbon registry; geographic preference; and standards such as offsets that are real, permanent, quantifiable, verifiable, enforceable, and additional.

Table 2: Summary of Draft EIR Content Analysis

Project	Lead Agency & Air District	Project Type & Phase	Carbon Offset Type (see list above)	Total GHG Emissions (MTCO₂e)	Required GHG Offsets (MTCO₂e)
The Mosaic Project	Alameda County; BAAQMD	Recreational; Operation	#1 One-time purchase	450	450
Graniterock Capitol Site Modernization Plan	City of San Jose; BAAQMD	Industrial; Operation	#4 Residual emissions	22,291/yr.	TBD
Betabel Commercial Development CUP Project	San Benito County; MBARD	Commercial; Construction, Operation	#4 Residual emissions	13,591 + 1,448/yr.	TBD
Sargent Ranch Quarry Project	Santa Clara County; BAAQMD	Mining; Construction, Operation	#3 Recalculation option	7,408/yr.	7,408/yr.
500-year Flood Protection Project	Three Rivers Levee Improvement Authority; SMAQMD	Other– Levee; Construction	#4 Residual emissions	11,876/yr.	TBD
The Preserve Project	City of Rancho Cordova; SMAQMD	Residential, Recreational; Operation	#4 Residual emissions	4,562/yr.	617/yr.
Idaho-Maryland Mine Project ²	Nevada County; NSAQMD	Mining; Construction	#1 One-time purchase	3,445/yr.	TBD

² The Final EIR was approved in April 2023 and required carbon offsets yet included a Statement of Overriding Considerations for other impacts.

Pacheco Reservoir Expansion Project	Santa Clara Valley Water District; multiple air districts	Water Facilities; Construction	#4 Residual emissions	91,640	TBD
Innovation Park PUD	City of Sacramento; SMAQMD	Other– Commercial, Institutional; Construction, Operation	#4 Residual emissions	33,794 + 49,144/yr.	TBD
CenterPoint Properties Project	Contra Costa County; BAAQMD	Industrial; Construction, Operation	#2 One-time or annual option	7,573/yr.	TBD
Marea Village Mixed Use Development Project	City of Encinitas; SCAQMD	Commercial, Residential; Construction, Operation	#4 Residual emissions	1,488/yr.	TBD
College Park Project	City of Rocklin; PCAPCD	Commercial, Office, Recreational, Residential; Operation	#4 Residual emissions	11,764/yr.	TBD

Summary of Support for Using Carbon Offsets

There are several reasons cited by CEQA experts for the use of carbon offsets:

- They are often the only feasible way to achieve substantial (>40% from baseline and especially net-zero) GHG emissions reduction for a project.
- They are robust and meet CEQA standards due to the quality of the carbon registry protocols and can provide third party verified evidence that an emission reduction or removal actually occurred.
- They are just as effective as on-site mitigation at reducing global GHG emissions and can enable more ambitious goals in a shorter period of time.
- They are cited in the CEQA Guidelines and in other areas of state policy and law for project-level mitigation.
- They are economically efficient.

A key issue here is how the lead agency chooses a threshold of significance for GHGs. Best practice is not well established. Air districts differ in their guidance, some of this guidance has been challenged in courts, and we are in a period of transition from when thresholds were based

on 2020 or 2030 state GHG emissions reduction targets to a period where 2030 and beyond is increasingly the norm. The 2020 state target was to achieve 1990 (baseline) GHG emissions levels; the reduction needed to reach this level was relatively easy. The 2030 target pursuant to SB 32 is 40% below 1990 levels. For 2045, AB 1279 states:

This bill, the California Climate Crisis Act, would declare the policy of the state both to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter, and to ensure that by 2045, statewide anthropogenic greenhouse gas emissions are reduced to at least 85% below the 1990 levels.

These 2030 and 2045 targets are significantly more difficult levels of reduction to achieve than the 2020 targets were. Moreover, from a policy and implementation perspective, many of the easy things to do have been done; the so-called “low-hanging fruit” has been picked. CEQA GHG significance thresholds are much more challenging to achieve when based on 2030 and 2045 state targets, which is now the norm.

In 2022, the Bay Area Air Quality Management District (BAAQMD) released a significantly updated set of recommended GHG thresholds. This guidance has been widely anticipated since BAAQMD is viewed as a leader in this area; in fact, many air districts based their guidance on previous BAAQMD guidance and it is anticipated that many will follow them again. The new guidelines describe the air district’s recommended thresholds of significance, includes “detailed discussion of the basis for the thresholds,” and states that “information provided in this report is intended to provide the substantial evidence that lead agencies will need to support their determinations about significance using these thresholds” (BAAQMD, 2022, p. 1). The district sets a performance threshold, rather than a numeric threshold as they had in their previous guidance. The threshold is the incorporation of several on-site project design elements: no use of natural gas, electricity efficiency, EV charging, and VMT reduction. The lead agency could also use compliance with a qualified CAP to assess impacts. Notably, the BAAQMD’s guidance does not mention the use of off-site mitigation or carbon offsets at all. Of course, lead agencies are free to set their own thresholds and not all projects will fit BAAQMD’s guidance, but it will certainly be influential that BAAQMD has chosen to not identify carbon offsets at the project level as a potential way to meet the state GHG reduction goals.

Experts report that many projects under CEQA, especially those that generate significant vehicle miles traveled (VMT), are unable to meet aggressive GHG thresholds (e.g., net-zero) without the use of offsets. Projects with significant VMT present an especially challenging problem since project applicants have little direct influence over how much people choose to drive and what kind of vehicle they drive. On-site mitigation such as green buildings, rooftop solar, electric vehicle (EV) parking and charging, transportation demand strategies (TDM), and many other mitigations that are typically maximized on-site will often leave considerable residual GHG emissions.

Lead agencies are then often left with two choices: pursue off-site mitigation and/or offsets or adopt a statement of overriding conditions. For the later, the lead agency would have to make a finding that all feasible mitigation had been adopted, thus either explicitly or implicitly ruling out carbon offsets as feasible. If no feasible mitigation is available they can identify the GHG impacts “significant and unavoidable” and adopt a statement of overriding conditions. This allows the lead agency to approve the project despite adopted mitigations not reducing GHG emissions below the significance threshold. Lead agencies often don’t want to pursue this option because it is seen as environmentally irresponsible or there could be political opposition from community groups.

As a second choice, lead agencies have generally viewed carbon offsets as appropriate when all on-site mitigations and any local or regional mitigation programs (few of which exist) have been exhausted. The CEQA experts report that the typical view of CEQA practitioners is that the carbon registries, especially those that are certified by CARB for the compliance market, provide offsets that meet high-quality standards and ensure additionality in the voluntary market as well. There is a sense that the rigor of these offset protocols are stronger than most other types of CEQA mitigation. In addition, given that GHG emissions are a global impact not related to geography, solely from the perspective of reducing GHGs the location of the reduction should not be an issue. In fact, most existing carbon offsets occur out-of-state (though new opportunities are being developed in California). The use of offsets allows the lead agency to pursue a more aggressive GHG reduction goal (i.e., a lower CEQA threshold such as net zero) than they otherwise could relying only on on-site and off-site direct reductions.

There is support for the use of carbon offsets in state law. As discussed above, the *CEQA Guidelines* specifically mention “offsets” in Section 15126.4(c)(3) (also see CNRA, 2009, Governor’s Office of Planning and Research, 2017, 2018). State laws such as AB900/SB7, SB292, SB743, and SB734 support the use of carbon offsets for project level mitigation (California Senate Office of Research, 2019). The California Cap-and-Trade Program includes offsets as explained on a CARB website: “In addition to their climate and other environmental benefits, offset credits provide important cost containment and compliance flexibility for covered entities” (see: <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/about>). CARB has vigorously defended this program against criticisms of the use of offsets (for example, see CARB, 2021). Examples of other defenses of the use of carbon offsets include Blaufelder, et. al., 2021; Environmental Defense Fund, 2021; Griscom, 2021; and Schuster, et. al., 2020).

A final argument for the use of carbon offsets is that they can be more economically efficient than on-site mitigation. Economic theory would suggest that maximizing the ratio of tons of GHG reduced to the cost is the most societally efficient approach to GHG mitigation. This is the

“biggest bang for the buck” logic that suggests putting project applicant dollars into strategies that will reduce the most GHG emissions. For example, a carbon offset that removes 1 ton of carbon for \$20 is more cost-effective at reducing GHG emissions than an onsite mitigation that potentially removes 1 ton for \$40.

Summary of Concerns about Using Carbon Offsets

There are several reasons cited by CEQA experts to be concerned about the use of carbon offsets:

- They are often not well understood by elected officials and the public, who may even actively dislike or oppose them.
- Given the recent court rulings like *Golden Door (2020)*, they are seen as a risky approach that could invite litigation.
- There is a possible shortage of carbon offsets in the voluntary markets that are located in California which means that the offsets often are only available out of the state.
- They may lack robustness given the critique of carbon registries, including issues of additionality and permanence.
- They raise issues related to air quality impacts that “polluters” can continue business-as-usual operations, which directly impacts those living in the vicinity of a project.
- When non-local, they provide no local co-benefits (unlike local mitigation).

Concerns about using carbon offsets are generally split into two categories: concerns from lead agencies and project applicants and concerns from carbon offset critics.

Lead agencies and project applicants have several concerns about using carbon offsets for GHG mitigation under CEQA. These concerns have increased since the issuance of the 2020 *Golden Door* case. First, CEQA experts report that carbon offsets are often not well understood by elected officials and the public, who may even actively dislike or oppose them for a variety of reasons. For instance, using offsets versus on-site mitigation may mean that money is leaving the community and the community is not getting the direct benefits or co-benefits of more aggressive on-site mitigation.

Given the recent court rulings such as *Golden Door (2020)*, offsets are now seen by some as a risky approach that could invite litigation. Lead agencies and project applicants are increasingly unwilling to pursue offsets due to this risk and due to the increased upfront work to justify and document the necessity and quality of the offsets.

CEQA experts also identify a shortage of carbon offsets in the voluntary market that are located in California which means that the offsets often are only available out of the state. Although international offsets are available as well, they are usually not used as CEQA mitigation.

Carbon offset critics cite several reasons for opposing or limiting the use of offsets including the lack of robustness of offsets managed by the carbon registries, environmental justice issues, and the lack of local co-benefits. There is extensive literature identifying theoretical, ethical, and practical challenges with carbon offsets (see Badgley, et. al., 2021; “Burned trees and billions in cash: How a California climate program lets companies keep polluting”, 2021, September 8); Gillenwater, et. al., 2007; Millard-Ball & Ortolano, 2010; Olsson, et. al., 2016). These concerns are often expressed and cited in environmental advocacy group cases against lead agencies [see: Golden Door Properties, LLC v. County of San Diego, 50 Cal. App. 5th 467 (2020); and Elfin Forest Harmony Grove Town Council v. Cnty. of San Diego, No. D077611 (Cal. Ct. App. Oct. 14, 2021)].

The environmental justice argument is that by allowing offsets, “polluters” can continue business as usual, which directly impacts those living in the vicinity of a project. This is a complex issue when addressing GHG emissions because those direct GHG emissions themselves do not have a local impact (though climate change does). But GHG emissions co-occur with other air pollutants (i.e., criteria air pollutants) that do have local health and quality of life impacts. CEQA requires separate analysis of air quality impacts and adoption of mitigation for significant regional or localized air quality impacts. Thus, lead agencies have a responsibility to address both air quality and GHG emissions and apply appropriate mitigation.

Finally, critics see that offsets provide no local co-benefits. Well-crafted mitigations can often achieve multiple benefits for a community, and these are not present when the mitigation occurs outside of the local area.

Summary and Conclusions

This report provides CARB with a broad overview of the state of practice in California of GHG mitigation under CEQA and, more specifically, the use of off-site measures and carbon offsets for mitigation. The findings in this report can be used to direct professional practice; local government policy and procedures; and state law, policies, and resources to improve the mitigation of GHG emissions under CEQA. Potential future research could examine project-level details of CEQA mitigation, identify evolving practice on local and regional carbon offsets, and examine local government decision-making around GHG mitigation.

There are four key findings in the report.

- The state of practice around greenhouse gas mitigation, especially off-site and carbon offset mitigation, is inconsistent, dynamic, and contested. Moreover, recent CEQA court rulings have created significant confusion over what is legally defensible.
- Local lead agencies (i.e., cities and counties) and air districts have developed very little guidance; in fact, most have no guidance.

- Relatively few EIRs (less than 5%) currently require carbon offsets for mitigation.
- CEQA practitioners are strongly encouraging the state to develop better guidance possibly through legislation, rule-making, and technical support.

The interviewed CEQA experts suggested several potential changes to CEQA law, guidelines, and practice. The list below is not a consensus of the experts but rather reflects a variety of ideas that were mentioned.

- Legislative action to amend CEQA statutes to clarify the state's position on the use of carbon offsets for CEQA GHG mitigation.
- CARB issued guidance on the use of carbon offsets for CEQA GHG mitigation. This could include additional direction on geographic priority and how to assess costs vs. benefits.
- A state supported/sponsored carbon offset program for CEQA. This could build on the existing program used under the California Cap-and-Trade Program, be administered through CARB or the air districts, and possibly coordinated with CAPCOAs Greenhouse Gas Reduction Exchange.
- Local or regional formal carbon offset programs and/or offsite mitigation programs.
- CARB certification of voluntary carbon offset vendors/protocols similar to the Compliance Offset Program.
- CARB requirement for enhanced disclosure, transparency, and monitoring from the carbon offset registries for CEQA mitigation.
- Establishment of a statewide GHG threshold for use in CEQA GHG mitigation.

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Glossary of Terms, Abbreviations, and Symbols

Air Quality Management District (AQMD)

A group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region. (See also air pollution control district). For more information, please see our local air district directory.

California Environmental Quality Act (CEQA)

A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process aids decision-makers to determine whether any environmental impacts are associated with a proposed project. It requires environmental impacts associated with a proposed project to be eliminated or reduced and that air quality mitigation measures are implemented.

Carbon Dioxide Equivalent (CO₂e)

A metric used to compare emissions of various greenhouse gases. It is the mass of carbon dioxide that would produce the same estimated radiative forcing as a given mass of another greenhouse gas. Carbon dioxide equivalents are computed by multiplying the mass of the gas emitted by its global warming potential.

Carbon Offset

Carbon offsets are tradable “rights” or certificates linked to activities that lower the amount of carbon dioxide (CO₂) in the atmosphere. By buying these certificates, a person or group can fund projects that fight climate change, instead of taking actions to lower their own carbon emissions. In this way, the certificates “offset” the buyer’s CO₂ emissions with an equal amount of CO₂ reductions somewhere else. (MIT Climate Portal)

Carbon Sequestration

This refers to the capture of CO₂ from the atmosphere and its long-term storage in oceans (oceanic carbon sequestration), in biomass and soils (terrestrial carbon sequestration) or in underground reservoirs (geologic carbon sequestration).

Climate Change

Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. (IPCC2)

Global Warming Solutions Act of 2006 (AB 32)

AB 32 requires CARB to develop regulations and market mechanisms that will ultimately reduce California's greenhouse gas emissions by 25 percent by 2020. Specifically, AB 32, requires CARB to: establish a statewide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008; adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009; adopt a scoping plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions; adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas; and convene an Environmental Justice Advisory Committee, and an Economic and Technology Advancement Advisory Committee to advise CARB.

Greenhouse Effect

Trapping and build-up of heat in the atmosphere (troposphere) near the earth's surface. Some of the heat flowing back toward space from the earth's surface is absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere will gradually increase. (UNFCCC)

Greenhouse Gas

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrochlorofluorocarbons (HCFCs), ozone (O₃), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). (UNFCCC)

Metric Ton

The tonne (t) or metric ton, sometimes referred to as a metric tonne, is an international unit of mass. A metric ton is equal to a Megagram (Mg), 1000 kilograms, 2204.6 pounds, or 1.1023 short tons.

Million Metric Tons (MMT)

Common measurement used in GHG inventories. It is equal to a Teragram (Tg).

Mobile Sources

Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes. (CARB)

Stationary Sources

Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants. (CARB)

Appendices

A: Study Methods

B: Additional Information on the Status of Air District Policy and Guidance

C: Additional information on the Status of the Use of Carbon Offsets for CEQA Project Mitigation

D: Selected Annotated Bibliography and Additional Resources

Appendix A

Study Methods

Study Goals

Conduct a study to support CARB in considering future strategies and solutions to encourage and support local, off-site GHG mitigation projects.

Research Question/Project Objective

Task 1

1. What local, off-site GHG-reducing projects, including, but not limited to, offsets, have been used as CEQA mitigation?
2. What projects resulted in the purchase and retirement of carbon offsets as CEQA mitigation?
3. What characteristics of those projects helped them fulfill CEQA's mitigation requirements (e.g., effective, feasible, roughly proportional, enforceable, concurrent, based on substantial evidence, and not otherwise required).
4. How do standard "on-site" mitigation projects compare to "project attributes" identified in the Local Actions Appendix of the draft 2022 Scoping Plan?
5. What other characteristics of those projects increased their viability? Consider equity, financing, partners involved, timeline, responsible party, etc.
6. What are best practices for local CEQA mitigation projects?
7. What are barriers to the development of local CEQA mitigation projects (based on both the real-world examples found and where real-world examples are lacking)?

Task 2

1. How have air districts in California used their CEQA responsible agency role to encourage local GHG mitigation under CEQA?
2. What calculation methods and thresholds of significance have been used for GHG emissions?
3. How often do lead agencies use "Statements of Overriding Consideration" for significant GHG impacts?
4. How have other regional entities (e.g., regional collaboratives, metropolitan planning organizations, utilities) played a role in developing and implementing local CEQA mitigation projects?
5. What regional activities have worked to develop and implement local CEQA mitigation projects, and what activities have not worked?
6. What new actions might air districts and other regional entities take to enhance the viability of local CEQA mitigation projects? Consider viability in terms of fulfilling CEQA's mitigation requirements (listed above), equity considerations, and long-term financial viability.

7. Approximately how many climate action plans in California are “qualified” consistent with CEQA Guidelines Section 15183.5?

Project Methods

Task 1

1. Conduct a literature review to summarize the issues regarding use of off-site mitigation and offsets, CEQA mitigation effectiveness and equity issues, and best practices. The product of this effort will be an annotated bibliography of all relevant resources and summary. The review will include relevant articles, reports, whitepapers, laws, policies, court cases, databases, and websites. This literature review will be integrated with the one in Task #2.
2. Conduct interviews with at least 10 CEQA experts to gain understanding on the use of off-site mitigation and identify Environmental Impact Reports (EIRs) and Mitigated Negative Declarations (MNDs) for content analysis. The experts will be identified by contacting the Association of Environmental Professionals (AEP) for their recommendations and supplemented with “referral sampling.” The intent is to include practitioners, attorneys, scholars, and possibly, community-based advocacy organizations.
3. Conduct a content analysis of 40 Environmental Impact Reports (EIRs) and Mitigated Negative Declarations (MNDs) that include off-site GHG-reducing mitigation projects. The content analysis will document the type of mitigation, justification, and details regarding implementation authority, equity considerations, monitoring, and enforcement. In addition, project information such as location, lead agency, type, scale, impacts, and other variables identified in the research questions will be documented. Sampling is difficult since there is no standardized database of these documents—the CEQAnet Database maintained by the Governor’s Office of Planning and Research is insufficient for this purpose. Instead, we will rely on the experts identified above and contacts through professional networks such as AEP and the American Planning Association (APA). The intent is to have a sample that varies by jurisdiction size and location, lead agency type, and type of project.
4. Conduct interviews of the CEQA project managers or consultants for the projects identified above to develop additional detail and insight on the choice to use off-site mitigation.

Task 2

1. Conduct a literature review to summarize regional agency involvement in CEQA mitigation, especially regarding GHG emissions. The product of this effort will be an annotated bibliography of all relevant resources and summary. The review will include relevant articles, reports, whitepapers, laws, policies, court cases, databases, and websites. This literature review will be integrated with the one in Task #1.

2. Conduct a content analysis of all air district CEQA guidance to identify all content on GHG mitigation including off-site mitigation.
3. Conduct interviews of air district personnel tasked with GHG and/or off-site mitigation projects to understand how they implement their guidance.
4. Conduct interviews with CEQA experts to gain understanding on the use of off-site mitigation. [see #2 under Task #1—these will be the same interviewees but include questions relevant to both tasks].

Expert Interview Questions

1. What are the pros and cons of using voluntary carbon offsets?
2. What do you see as the difference between voluntary, “CEQA-grade” offsets (i.e., offsets suitable to satisfy the requirements of CEQA) and “compliance-grade” offsets used for compliance with the Cap-and-Trade program?
3. In what situations have you seen offsets used as opposed to on-site mitigation? What kind of projects are being identified and how are they verified?
4. Is there a shortage of available local, CEQA-grade mitigation projects?
5. What is your interpretation of CEQA law regarding the priority of on-site versus off-site mitigation?
6. What kinds of standards or directions are lead agencies providing on the use of offsets?
7. What kinds of standards or directions are air districts providing on the use of offsets?
8. What methodological issues exist with quantifying project’s GHG emissions and mitigations, especially offsets?
9. What do you see as the precedent or implications of the Golden Door Properties vs. County of San Diego case?
10. What challenges do you see assuring “additionality” in carbon offsets?
11. What should climate action plans say about carbon offsets, if anything?
12. What are the needed changes to CEQA specifically, and California law and policy in general, regarding the use of carbon offsets?
13. What potential do you see for local or regional offset programs?
14. Question about what types of offset programs are most appropriate...

Appendix B

Additional Information on the Status of Air District Policy and Guidance

Bay Area Air Quality Management District (BAAQMD)

CEQA Guidance

Bay Area Air Quality Management District. (2022, April). *Justification report: CEQA thresholds for evaluating the significance of climate impacts from land use project and plans.* <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

BAAQMD is currently updating their CEQA Guidelines to provide guidance consistent with the new thresholds. The first public draft was released April 20, 2023, and does not address carbon offsets.

GHG Thresholds

From Table 3-2, page 3-6 (Bay Area Air Quality Management District, 2022): “Thresholds for Land Use Projects (Must Include A or B)

A. Projects must include, at a minimum, the following project design elements:

1. Buildings

- a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
- b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

2. Transportation

- a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor’s Office of Planning and Research’s Technical Advisory on Evaluating Transportation Impacts in CEQA:
 - i. Residential projects: 15 percent below the existing VMT per capita
 - ii. Office projects: 15 percent below the existing VMT per employee
 - iii. Retail projects: no net increase in existing VMT
- b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).”

BAQQMD states (A. Kirk, personal communication, February 3, 2023): “Note that BAAQMD’s new thresholds to evaluate climate impacts from land use projects are qualitative, therefore there is no bright-line (quantitative) level to mitigate below. I.e., significance is determined by whether a project will impede California’s ability to achieve its long-term climate goals. (Projects that decline to integrate these qualitative design elements can alternatively demonstrate consistency with a local Greenhouse Gas (GHG) Reduction Strategy that meets the criteria of the State

CEQA Guidelines section 15183.5(b)). These qualitative thresholds do not necessarily lend themselves to quantitative off-site or off-set reduction projects.”

GHG Off-site/Offsets

None

Butte County Air Quality Management District (BCAQMD)

CEQA Guidance

Butte County Air Quality Management District. (2014). *CEQA air quality handbook: Guidelines for assessing air quality and greenhouse gas impacts for projects subject to CEQA review*.

<https://bcaqmd.org/wp-content/uploads/CEQA-Handbook-Appendices-2014.pdf>

GHG Thresholds

None

GHG Off-site/Offsets

BCAQMD states (Butte County Air Quality Management District, 2014, p. 56): “6.4.3 Off-Site Mitigation Measures for Operational-Related GHGs. The District is exploring establishing an offsite mitigation program to assist lead agencies and project applicants in achieving emission reductions. A project applicant would enter into an agreement with the District, pay into a District fund, and the District would commit to reducing the type and amount of emission identified in the agreement. The District or a responsible proxy would identify, implement, and manage offsite mitigation projects.”

Placer County Air Pollution Control District (PCAPCD)

CEQA Guidance

Placer County Air Pollution Control District. (2017). *CEQA handbook*.

<https://www.placerair.org/1801/CEQA-Handbook>

GHG Thresholds

GHG significance thresholds for construction and stationary source operational phases is a “bright-line” of 10,000 MT CO₂e/yr. GHG significance thresholds for land use operational phase only is a MT CO₂e/capita threshold that varies for urban/rural and residential/non-residential (see Table 2-3 and 2-4 for additional detail).

GHG Off-site/Offsets

PCAPCD states (Placer County Air Pollution Control District, 2017, p. 54):

“Off-Site Mitigation

The District prefers that land use projects implement all feasible on-site mitigation measures. It is understandable that many on-site mitigation measures may not be suitable for a land use

project. If this occurs, off-site mitigation measures would be an option for the project if there are insufficient on-site feasible mitigation measures to mitigate the project's related air quality impacts [. . .] The project applicant has two options to implement off-site mitigation measures for GHG emissions: 1) proposing their own offsite mitigation project, or 2) purchasing carbon credits from recognized carbon credit registries.”

[...]

“PCAPCD Review of Land Use Projects under CEQA Policy

The applicant can choose to implement an offsite mitigation project. Prior to implementation, the applicant should consult with the District and demonstrate that the project met all the conditions required by a selected carbon credit protocol approved by CAPCOA, CARB, or other similar entities determined acceptable by the District. If the applicant chooses to purchase carbon credits, the credits should be registered under the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR), or other similar carbon credit registry as determined acceptable by the District. The requirement will ensure that the proposed mitigation project or carbon credit purchase can result in an equivalent GHG reduction required by the offsite mitigation measure. In addition, the District encourages the applicant to consider generating or purchasing local and California-only carbon credits as the preferred mechanism to implementing the GHG off-site mitigation measure which helps facilitate the State toward achieving the GHG emission reduction goal.”

[...]

“The following links are well-recognized entities that have approved carbon offset protocols and/or registered carbon credits which can be applied towards a land use project's GHG emission reductions.

- [CAPCOA GHG Reduction Exchange Program \(GHG Rx\)](#)
- [CARB Compliance Offset Protocols](#)
- [American Carbon Registry](#)
- [Climate Action Registry](#)

Please note that the District will not be involved with any carbon credit purchase agreements; the District is only assisting the lead agency with verification of the carbon credits to ensure that they are real, permanent, quantifiable, verifiable, enforceable, and additional.”

Despite this language from the District's CEQA Handbook, the District has apparently considered the potential for GHG off-site mitigation to be a part of their Offsite Fee Mitigation Program (normally for criteria pollutants). The Draft EIR for the Renewable Placer: Waste Action Plan (Western Placer Management Authority, 2021, p.2-38) states in MM 10-1: “Participate in PCAPCD's Offsite Mitigation Fee Program by paying the equivalent amount of money to mitigate the net annual project contribution of GHG that exceeds the PCAPCD threshold. The actual amount to be paid shall be determined according to the selected program and applicable cost-effectiveness rate agreed to by WPWMA and PCAPCD. (Please note that there is currently no mitigation fee option for GHG offsite mitigation, because there is no fee rate or cost-effectiveness factor established by a statewide incentive program.)”

Sacramento Metro Air Quality Management District (SMAQMD)

CEQA Guidance

Sacramento Metropolitan Air Quality Management District. (2020a). *Guide to air quality assessment in Sacramento County (CEQA Guide)*. <https://www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools>

Sacramento Metropolitan Air Quality Management District. (2020b, June 21). [Greenhouse gas thresholds for Sacramento County](https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf). <https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf>

GHG Thresholds

For operational emissions, SMAQMD states ((Sacramento Metropolitan Air Quality Management District, 2020a, p. 6-12) : “Lead agencies shall estimate and report a project’s annual operational GHG emissions in the first year of full operation (or if various phases, for each phase of operation) for projects that cannot screen out by comparing to the District’s operational screening levels table (equivalent to 1,100 metric tons of CO₂e per year), including implementation of tier 1 Best Management Practices. If the project emissions exceed the screening level, or the project fails to implement tier 1 Best Management Practices, the project may have a cumulatively considerable contribution to a significant cumulative environmental impact, and all feasible mitigation is required.” Note that Tier 1 is no natural gas installation and EV-ready facilities.

GHG Off-site/Offsets

SMAQMD states (Sacramento Metropolitan Air Quality Management District, 2020b, p. 13): “The CEQA Guidelines amendments indicate that lead agencies should consider all feasible means, supported by substantial evidence and subject to monitoring and reporting, of mitigating the significant effects of GHG emissions. These potential mitigation measures, set forth in Section 15126.4(c), may include (1) measures in an existing plan or mitigation program for the reduction of GHG emissions that are required as part of the lead agency’s decision; (2) reductions in GHG emissions resulting from a project through implementation of project design features; (3) off-site measures, including offsets, to mitigate a project’s emissions; and (4) carbon sequestration measures.”

SMAQMD states (Sacramento Metropolitan Air Quality Management District, 2020b, p. 40): “If a project cannot incorporate the required BMPs, other reductions or purchasing and retiring GHG/carbon offsets from a registry approved by the SMAQMD may be required. Carbon offsets are instruments that can be bought, sold, and traded. Like a stock or equity that represents a unit of ownership in a company, a carbon offset represents a unit of greenhouse gas emissions reductions. Each offset is essentially a certification that a certain quantity of greenhouse gas emissions has been avoided, prevented, or sequestered. Offset registries that the SMAQMD may approve have developed a broad consensus around the standards that are necessary to ensure that offsets are environmentally sound, namely, that offsets be real, permanent, quantifiable, verifiable, enforceable, and additional. Approved registries may include but are not limited to any of the following: (i) the Climate Action Reserve, the American Carbon Registry and Verra, which are all approved by CARB; (ii) any entity approved at any time by CARB to act as an “offset project registry” under the state’s cap-and-trade program; (iii) other regulatory or

voluntary credits that demonstrate, based on substantial evidence, that the offsets are real, permanent, quantifiable, verifiable, enforceable, and additional.”

San Joaquin Valley Air Pollution Control District (SJVAPCD)

CEQA Guidance

San Joaquin Valley Air Pollution Control District. (2009, December 17). *Guidance for valley land-use agencies in addressing GHG emission impacts for new projects under CEQA*. <https://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf>

GHG Thresholds

Projects may either demonstrate that they are implementing “Best Performance Standards” for the project, which then negates the need to quantify emissions. Or “Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG” (San Joaquin Valley Air Pollution Control District, 2009, p. 4).

GHG Off-site/Offsets

In a recent EIR, SJVAPCD directs that projects may provide off-site mitigation for GHGs by paying into an off-site mitigation fund (see Draft EIR The Lumina at Machado Ranch.) There is no other information in their guidance documents.

San Luis Obispo County Air Pollution Control District (SLOCAPCD)

CEQA Guidance

San Luis Obispo County Air Pollution Control District. (2021, January 28). *Interim CEQA greenhouse gas guidance for the San Luis Obispo County Air Pollution Control District’s 2012 CEQA Air Quality Handbook* (Memo). <https://www.slocleanair.org/rules-regulations/land-use-ceqa.php>

GHG Thresholds

SLOAPCD states (San Luis Obispo County Air Pollution Control District, 2021, p. 2): “The SLO County APCD’s bright-line threshold of 1,150 MT CO₂e /yr and the efficiency threshold of 4.9 MT CO₂e /yr per service population were applicable to residential and commercial projects.” SLO County APCD is advising that the thresholds can be modified down to 690 MT CO₂e per year since the 1,1150 is a 1990 standard and for 2030 the state is requiring 40% below 1990.

GHG Off-site/Offsets

SLOAPCD states (San Luis Obispo County Air Pollution Control District, 2021, p. 3):
“CEQA Mitigation for Excess GHG Impacts

For projects that have excess CEQA GHG impacts that need to be mitigated, the following hierarchy of mitigation options to reduce lifetime GHG impacts can be considered:

1. On-site GHG Mitigation Measures: The first GHG mitigation priority should be the implementation of all feasible on-site GHG reducing mitigation measures that are applicable to the project;
2. SLO County GHG Mitigation Measures: After the benefits of the on-site GHG mitigation measures are accounted for, if emissions still exceed a threshold, then the next priority for the project should be implementing all feasible off-site GHG mitigation measures within SLO County. These measures can include but are not limited to:
 - a. Energy efficiency measures (potential example: Home Energy Savings Program (HES), a built environment retrofit program administered by the Tri-County Regional Energy Network (3C-REN); and
 - b. SLO County generated offsets that are compliant with a protocol approved by CARB or equivalent. While the SLO County APCD does not endorse individual offset programs, CARB provides a list of CARB approved GHG offset project registries which may include offsets meeting Cap-and-Trade or voluntary protocols. Cap-and-Trade protocol generated offsets may not be available for CEQA mitigation to entities not regulated by Cap-and-Trade. Other potential GHG reductions offsets may include the carbon benefits secured from some types of carbon farm practices in local Carbon Farm Plans or Forecast Mitigation Units from future projects under the Climate Forward concept. Whatever offsets or GHG reductions are used for CEQA mitigation, they must be real, additional, quantifiable, permanent, verifiable, and enforceable.
3. California Generated Offsets: After the benefits of the on-site and SLO County GHG mitigation measures are accounted for, if emissions still exceed a threshold, SLO County APCD then recommends the use of protocol compliant (as described above in 2b) California generated GHG offsets, if feasible; and
4. If California offsets are not feasible, then North American, protocol compliant offsets (as described above in 2b) are the next option. If North American offsets are not available, then protocol compliant international offsets are the next option.”

Santa Barbara County Air Pollution Control District (SBCAPCD)

CEQA Guidance

Santa Barbara County Air Pollution Control District. (2015, April 30). *Environmental review guidelines for the Santa Barbara County Air Pollution Control District*.

<https://www.ourair.org/wp-content/uploads/APCDCEQAGuidelinesApr2015.pdf>

[This document provides broad direction of conducting environmental review.]

Santa Barbara County Air Pollution Control District. (2022, January). *Scope and content of air quality sections in environmental documents*. [Limited Update].

<https://www.ourair.org/environmental-review-guidelines/>

[This document partially updates the 2015 document, specifically for air quality and GHGs.]

GHG Thresholds

In Scope and Content of Air Quality Sections in Environmental Documents shows a threshold for stationary sources as “emit less than the screening significance level of 10,000 metric tons

per year (MT/yr) CO₂e [...] (Santa Barbara County Air Pollution Control District, 2022, p. 8). Additional qualitative criteria are identified. A footnote states that these are not applicable to land use development projects. The document cites caution around the Newhall Ranch case (Santa Barbara County Air Pollution Control District, 2022, p. 8): “On November 30, 2015, the *California Supreme Court issued its opinion in Center for Biological Diversity v. California Department of Fish and Wildlife, Real Party in Interest Newhall Land and Farming*. While the Supreme Court upheld the BAU approach as a valid CEQA threshold, the Court found that application of this threshold in that case was not adequately supported by substantial evidence in the record. In light of Newhall, the District advises any agency considering use of the District’s BAU CEQA threshold to consult with their attorney to determine if application of this threshold is appropriate in that agency’s particular case.”

GHG Off-site/Offsets

None. Generic statement about offsite mitigation as a possibility for significant impacts.

South Coast Air Quality Management District (SCAQMD)

CEQA Guidance

South Coast AQMD is in the process of developing an Air Quality Analysis Guidance Handbook (Handbook) to replace the CEQA Air Quality Handbook approved by the South Coast AQMD Governing Board in 1993. In order to assist the CEQA practitioner in conducting an air quality analysis while the new Handbook is being prepared, the following supplemental information is available:

<http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook>

GHG Thresholds

SCAQMD states (S. Wang, personal communication, February 4, 2023): “To provide guidance to local lead agencies on determining the significance of GHG emissions in their CEQA documents, the South Coast AQMD staff was convening an ongoing GHG CEQA Significance Threshold Working Group. On December 5, 2008, the South Coast AQMD Governing Board adopted the proposal for an interim GHG significance threshold for projects where the South Coast AQMD is the lead agency.”

SCAQMD further states (S. Wang, personal communication, February 4, 2023): “South Coast AQMD recommended a tiered division tree approach to establish a GHG significance threshold as it provides flexibility in determining whether GHG emissions from a project are significant. Project emissions include direct, indirect, and, to the extent information is available, life cycle emissions during construction and operation. Construction emissions will be amortized over the project’s life, defined as 30 years, added to the operational emissions, and compared to the applicable interim GHG significance threshold tier. For the stationary/industrial sector projects, South Coast AQMD GHG significance threshold is 10,000 MTCO₂eq/year, including construction emissions, amortized over 30 years and added to the operational GHG emissions. Detail[s] of the South Coast AQMD’s Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds (Attachment E) can be found on South Coast AQMD

CEQA webpage, which can be accessed at: <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds>.”

GHG Off-site/Offsets

None

Ventura County Air Pollution Control District (VCAPCD)

CEQA Guidance

Ventura County Air Pollution Control District. (2003, October). *Ventura County air quality assessment guidelines*.

<http://www.vcapcd.org/environmental-review.htm>

GHG Thresholds

Neither VCAPCD nor the County of Ventura have adopted GHG thresholds. VCAPCD produced a white paper in 2010 to present to their board that concluded they would in the interim look to SCAQMD’s thresholds as the larger neighboring air district.

GHG Off-site/Offsets

None

Appendix C

Additional information on the Status of the Use of Carbon Offsets for CEQA Project Mitigation

EIR Content Analysis

Draft EIR

The Mosaic Project

October 2022

Lead Agency: Alameda County

Air District: Bay Area AQMD

State Clearinghouse No. 2021110301

Impact: Less than significant with mitigation

Phase: Operation

Summary: The project is “an outdoor recreation facility in unincorporated Alameda County that would consist of demolishing an existing 7,500 square foot garage, improving trails and miscellaneous dirt or gravel roads, and constructing the following components: twelve 400 square foot camping cabins, a two story 40 foot high 8,500 square foot central meeting and dining hall, a 1,025 square foot restroom/shower building, and a two story 2,600 square foot dwelling.” The project is “assumed to generate 15 MTCO_{2e}/year from propane use over 30 years.” The EIR cites BAAQMD’s adopted *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* (Justification Report) for threshold rationale but cites no specific numeric threshold. The EIR includes the following mitigation measure: “GHG-1.1b: The project applicant shall purchase 450 voluntary carbon credits. The project applicant shall provide proof of offset credit retirement on the relevant registry – including certificate numbers or a transaction ID that match the quantity purchased – along with a clearly identified purpose and the beneficiary of the retirement - prior to issuance of an occupancy permit for each development phase to the County.” The measure includes local prioritization (with extensive discussion), and, that the project “demonstrate that the reduction of GHG emissions are real, permanent, quantifiable, verifiable, enforceable, and additional (per the definition in California Health and Safety Code Sections 38562(d)(1) and (2)).”

Draft EIR

Graniterock Capitol Site Modernization Plan

September 2022

Lead Agency: City of San Jose

Air District: Bay Area AQMD

State Clearinghouse No. 2021010280

Impact: Less than Significant Impact with Mitigation Incorporated

Phase: Operation

Summary: The project is an expansion of a 22.18-acre existing recycling, manufacturing, and distribution facility for aggregate, asphalt, concrete, and other construction material, located at 120 Granite Rock Way in San José. The project will generate a total of 22,291 MTCO_{2e} per year, though 7,600 are pre-existing. The EIR states: “For the purposes of this analysis, an operational bright-line threshold of 660 MT CO_{2e} per year has been calculated for 2030 based on BAAQMD’s 1,100 bright-line threshold, as updated to account for the GHG reduction targets of SB 32.” MM GHG-1 provides an option to “construct on-site or fund off-site carbon sequestration projects (such as a forestry or wetlands projects for which inventory and reporting protocols have been adopted). If the project develops an off-site project, it must be registered with the Climate Action Reserve or otherwise be approved by BAAQMD in order to be used to

offset project emissions.” Numerous typical conditions are included. Of note is a geographic requirement that the offsets are in the U.S.

Draft EIR

Betabel Commercial Development Conditional Use Permit Project

July 2022

Lead Agency: San Benito County

Air District: Monterey Bay ARD

State Clearinghouse No. 2022040455

Impact: Less than significant with mitigation

Phase: Construction, Operation

Summary: “The project would develop/improve approximately 26 acres and create 108,425 square feet (sf) of commercial space, consisting of a gas station with convenience store, a restaurant, amusement buildings with exhibits, a motel and banquet hall with outdoor pool and outdoor movie screen, and an outdoor event center.” The project is estimated to generate maximum annual construction emissions of 1,448 MTCO_{2e} and annual operational emissions of 13,591 MTCO_{2e}. “MCUAPCD [*sic*] has not developed an evidence-based bright-line numeric threshold consistent with the State long-term GHG goals. Therefore, comparing project-generated emissions to a bright-line threshold is not an option for this project analysis. A locally applicable climate action plan or another plan to reduce GHGs is also not available to use for the project analysis. Consequently, based on the overall objective of the proposed 2017 Scoping Plan Update, a “no net increase” threshold is applied for the purposes of this project analysis. The intent of this analysis is not to present the use of a no net increase threshold as a generally applied threshold of significance for GHG impacts. Its use herein is related directly to the facts surrounding the project and availability of reliance on other threshold options.” This is effectively a threshold of 0 CO_{2e}. MM 3.8-1f: Purchase Carbon Offset Credits, requires purchase of offsets for remaining calculated emissions after all other mitigation measures are implemented.

Draft EIR

Sargent Ranch Quarry

July 2022

Lead Agency: County of Santa Clara

Air District: BAAQMD

State Clearinghouse No. 2016072058

Impact: Less than significant with mitigation

Phase: Construction, Operation

Summary: “The project proposes operation of a sand and gravel mining operation and construction and operation of aggregate processing facilities on an approximately 403-acre site four miles south of the City of Gilroy, California. The mined material (sand and gravel aggregates) would be extracted in four phases over 30 years and would be transported off-site by a combination of truck and train hauling. At the end of the Project’s life, final reclamation of the last surface mining phase would occur, and the aggregate processing facility site would also be reclaimed.” The project is assumed to generate 7,408 metric tons CO_{2e} per year (amortized construction emissions plus estimated first year operational emissions.) Citing BAAQMD guidance on thresholds as “not applicable,” the EIR states: “In the absence of an updated mass emissions threshold for industrial uses in rural areas that is applicable to the Project and consistent with the targets established by SB 32, this EIR in Impact 3.8-1 considers any net increase in Project-related GHG emissions to be significant.” Mitigation Measure 3.8-1a requires the purchase of 7,408 metric tons CO_{2e} (amortized construction emissions plus estimated first year operational emissions.) Of note, the applicant is given a choice of:

“Option 1: The Applicant shall continue to make the offset payment each subsequent year in the complete amount of 7,408 metric tons CO_{2e}.”

–or–

“Option 2: The Applicant shall purchase offset credits in the amount of 7,408 metric tons CO_{2e} minus the difference between 7,408 metric tons and the actual CO_{2e} emissions that the project generated in the prior year...”

Draft EIR

500-year Flood Protection Project

January 2022

Lead Agency: Three Rivers Levee Improvement Authority

Air District: Sacramento Metropolitan AQMD

State Clearinghouse No. 2021070157

Impact: Less than significant with mitigation

Phase: Construction

Summary: The project is a flood protection and levee improvement project near Marysville, CA. Total GHG emissions were calculated to be 11,875.6 MTCO_{2e} per year. The project established a threshold of 1,100 tons based on SMAQMD threshold guidance for construction-related projects. Due to a determination of significant GHG emissions from construction activities, Mitigation Measure 3.9-1 directs that the applicant, Three Rivers Levee Improvement Authority (also the Lead Agency), acquire carbon offset credits that are demonstrably real, permanent, additional, quantifiable, verifiable, and enforceable for emissions that exceed the SMAQMD GHG emissions threshold of 1,100 MT of CO_{2e}. The DEIR states: “Carbon offset credits will comply with CARB’s Cap-and-Trade program and will be purchased from an accredited carbon credit market.” Little additional detail is provided in the DEIR.

Draft EIR

The Preserve Project

November 2021

Lead Agency: City of Rancho Cordova

Air District: Sacramento Metropolitan AQMD

State Clearinghouse No. 2019100515

Impact: Less than significant with mitigation

Phase: Operation

Summary: The project is a 440-unit single-family residential subdivision that includes parks and open space. The project is not infill, not near high-quality transit, and assumed to include natural gas appliances. Project GHG emissions are 4,562.42 MTCO_{2e} per year. Since the emissions are primarily from VMT, the project assumed a 15% VMT reduction threshold and calculated the equivalent emissions reduction. Due to a determination of significant GHG emissions due to VMT Mitigation Measure 4.1-7 directs that the applicant purchase 617.3 MTCO_{2e} GHG emission offsets per year.

Draft EIR

Idaho-Maryland Mine Project

December 2021

Lead Agency: Nevada County

Air District: Northern Sierra AQMD

State Clearinghouse No. 2020070378

Impact: Less than significant with mitigation

Phase: Construction

Summary: The project is a 175-acre underground mining project. The project creates 3,444.55 MTCO_{2e} per year of GHG emissions during the construction phase. There are additional operational emissions but these are considered below threshold. The EIR states: “For a conservative evaluation, the SMAQMD 1,100 MT CO_{2e} per year construction GHG threshold has been applied to project construction.” No clear explanation is given for why a different air districts guidance is being used, but it is understandable given

that the Northern Sierra AQMD has no guidance. Mitigation Measure 4.3-7 directs that the applicant shall purchase carbon offsets and contains extensive guidance. Notably, the NSAQMD is not mentioned in the mitigation.

Draft EIR

Pacheco Reservoir Expansion Project

November 2021

Lead Agency: Santa Clara Valley Water District

Air District: Bay Area AQMD; Monterey Bay Unified APCD; San Joaquin Valley APCD

State Clearinghouse No. 2017082020

Impact: Less than significant with mitigation

Phase: Construction

Summary: The project is a reservoir expansion in Santa Clara County that would generate 91,640 MTCO_{2e} GHG emissions during the construction phase (proposed project). The project lies within two air districts: BAAQMD and SJVAPCD. The EIR states: “In lieu of a quantitative threshold, this EIR uses a net-zero threshold consistent with CARB 2017 Scoping Plan guidance (CARB 2017). The net-zero threshold is used both to determine whether the Project’s GHG emissions would cause a significant environmental impact and to determine if the Project would conflict with GHG reduction plans, policies, or regulations.” Mitigation Measure GHG-2 directs that the applicant purchase GHG offsets prior to construction, with the specific amount to be set based on the final project selection. There is minimal detail but a geographic preference is indicated: “Valley Water shall prioritize implementation of offsets generated within or as close to Santa Clara County as possible but may also purchase offsets from the rest of California and from other states with offset validity laws at least as strict as California’s, in order of preference.” P. 3.10-27

Draft EIR

Innovation Park PUD

November 16, 2021

Lead Agency: City of Sacramento

Air District: Sacramento Metro AQMD

State Clearinghouse No. 2019039011

Impact: Less than significant with mitigation

Phase: Construction, Operation

Summary: The project is a 183-acre mixed-use development focused on large commercial and institutional uses. Construction phase (2022-2038) GHG emissions total 33,794 MTCO_{2e} which exceed the SMAQMD’s construction annual significance threshold of 1,100 metric tons CO_{2e} per year. Mitigation Measure 4.6-1b requires the purchase of carbon offsets for any GHG emissions that occur in the construction phase that exceed the annual significance threshold (to be calculated annually). In addition, it is anticipated that many onsite uses—especially the medical facility—will require combustion of natural gas (thus not meeting SMAQMD Tier 1 requirements). Operational phase emissions are 49,144 MTCO_{2e} per year, exceeding the 1,100 MTCO_{2e} threshold. Therefore, Mitigation Measure 4.6-2b requires the purchase of carbon offsets for natural gas combustion GHG emissions. Minimal detail on these offsets is provided. SMAQMD has a list of various on-site mitigations they recommend which are broken into two tiers based on the scope of the impact. Most Tier 1 and 2 on-site mitigations were provided.

Draft EIR

CenterPoint Properties Project

November 9, 2021

Lead Agency: Contra Costa County

Air District: Bay Area AQMD

State Clearinghouse No. 2019110003

Impact: Less than significant with mitigation

Phase: Construction, Operation

Summary: The project proposes 555,000 sq.ft. of warehouses in North Richmond. Construction phase GHG emissions total 2,051 MTCO_{2e} and operations phase emissions are 5,522 MTCO_{2e} per year in 2021 (and decrease over time). The EIR states: “The County utilizes BAAQMD quantitative thresholds for evaluation of GHG emissions. BAAQMD provides multiple options in its 2017 BAAQMD CEQA Guidelines for operational GHG emissions generation significance thresholds. However, at the time of this analysis, the BAAQMD has not yet provided a construction-related GHG emissions generation significance threshold, but it does recommend that construction-generated GHGs be quantified and disclosed. Because the proposed project would be constructed after 2020, the BAAQMD’s quantitative threshold of significance of 1,100 MT CO_{2e} per year was adjusted to a “substantial progress” threshold that was calculated based on the SB 32 target of 40 percent below 1990 levels (i.e., 60 percent of 1990 levels). The mass emission threshold of significance applied in this analysis is 660 MT of CO_{2e} per year (1,100 x 0.60 = 660).” For operations phase the county used a service population threshold of 3.2. Due to construction and operational GHG emissions exceeding thresholds, Mitigation Measure GHG-1 directs the purchase of carbon offsets and identifies some typical criteria. The measure also includes the following language: “If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects (e.g., alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon “credits” from another entity that will undertake mitigation.” The measure also cites a preference for geographic proximity for off-site mitigation and offsets. The applicant is given the option of purchasing offsets annually or: “Alternatively, the project applicant may purchase the total amount estimated over the lifetime of the proposed project (30 years), which is estimated to be 35,112 MT CO_{2e}.”

Draft EIR

Marea Village Mixed Use Development Project

September 2021

Lead Agency: City of Encinitas

Air District: South Coast AQMD

State Clearinghouse No. 2021020272

Impact: Less than significant with mitigation

Phase: Construction, Operation

Summary: The project is a “mixed-use development consisting of 94 for-lease apartments, a 30-room boutique resort hotel, and 18,261 square feet (SF) of mixed-use development on approximately 3.8 acres located at 1900 and 1950 North Coast Highway 101 in the City of Encinitas.” The proposed project includes design features that would reduce project related GHG emissions such as: water-efficient fixtures, solid waste diversion, high-efficiency lighting, on-site PV solar panels, and EV charging stations. The project is expected to increase net GHG emissions by 1,488.16 MTCO_{2e}/yr, or 5.4 MTCO_{2e}/yr per capita (operation and amortized construction). The EIR states: “The significance threshold for the project was developed based on the City’s CAP.” The logic was consistency with SB 32 and related to the city’s baseline emissions. Mitigation Measure GHG-1 identifies that remaining emissions would require “the applicant or its designee shall purchase and retire greenhouse gas offsets.” Some standards are provided.

Draft EIR

College Park Project

September 2021

Lead Agency: City of Rocklin

Air District: Placer County APCD

State Clearinghouse No. 2019012056

Impact: Less than significant with mitigation

Phase: Operation

Summary: The project is a 108-acre mixed use project on two sites with residential and commercial uses. Operational emissions are 11,763.7 MTCO₂e per year, which exceeds the PCAPDCD brightline threshold of 10,000. Mitigation Measure 3.7-1 requires the applicant to “demonstrate a reduction of GHG emissions via mitigation requirements and/or implement an off-site GHG emissions reduction program or pay GHG offset fees...” On-site mitigation includes:

- cool roofs on project buildings,
- EV charging stations,
- telecommuting and alternative work schedules,
- a bus rapid transit system.

Off-site mitigation is encouraged including:

- installation of regional electric vehicle charging stations,
- paying for electrification of public-school buses, and
- investing in local urban forests.

The offset option includes geographic preference: “The purchase of carbon credits shall be prioritized in the following manner: offsite within the City of Rocklin, the SVAB portion of Placer County, within Placer County, or within California.” Some additional standards are provided.

Appendix D

Selected Annotated Bibliography and Additional Resources

Badgley, G., Freeman, J., Hamman, J. J., Haya, B., Trugman, A. T., Anderegg, W. R. L., & Cullenward, D. (2021). Systematic over-crediting in California's forest carbon offsets program. *Global Change Biology*, gcb.15943. <https://doi.org/10.1111/gcb.15943>

Abstract

“Carbon offsets are widely used by individuals, corporations, and governments to mitigate their greenhouse gas emissions on the assumption that offsets reflect equivalent climate benefits achieved elsewhere. These climate-equivalence claims depend on offsets providing real and additional climate benefits beyond what would have happened, counterfactually, without the offsets project. Here, we evaluate the design of California's prominent forest carbon offsets program and demonstrate that its climate-equivalence claims fall far short on the basis of directly observable evidence. By design, California's program awards large volumes of offset credits to forest projects with carbon stocks that exceed regional averages. This paradigm allows for adverse selection, which could occur if project developers preferentially select forests that are ecologically distinct from unrepresentative regional averages. By digitizing and analyzing comprehensive offset project records alongside detailed forest inventory data, we provide direct evidence that comparing projects against coarse regional carbon averages has led to systematic over-crediting of 30.0 million tCO₂e (90% CI: 20.5–38.6 million tCO₂e) or 29.4% of the credits we analyzed (90% CI: 20.1%–37.8%). These excess credits are worth an estimated \$410 million (90% CI: \$280–\$ 528 million) at recent market prices. Rather than improve forest management to store additional carbon, California's forest offsets program creates incentives to generate offset credits that do not reflect real climate benefits.”

Bay Area Air Quality Management District [BAAQMD]. (2022). *California Environmental Quality Act: Air quality guidelines*. <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>

Describes the air district's recommended thresholds of significance. Includes “detailed discussion of the basis for the thresholds” and “information provided in this report is intended to provide the substantial evidence that lead agencies will need to support their determinations about significance using these thresholds.” The district sets a performance threshold rather than numeric threshold as they had previously. The performance threshold includes: no use of natural gas, electricity efficiency, EV charging, and VMT reduction -or- compliance with a qualified CAP. Notably, the report does not mention the use of carbon offsets.

“Burned trees and billions in cash: How a California climate program lets companies keep polluting.” (2021, September 8). *Los Angeles Times*. <https://www.latimes.com/politics/story/2021-09-08/what-is-the-california-climate-credit-does-it-cut-pollution>

Investigative report mainly based on a study by CarbonPlan (see reference) that is critical of the effectiveness of carbon offsets under the California Cap-and-Trade Program. The claim is that the “state is significantly exaggerating the environmental value of the offsets California polluters are buying.” Focuses on the case of Eddie Ranch carbon credits bought by PBF Energy. Identified Alaska as the largest source of offsets valued at \$500 million. Identifies climate justice as an issue especially when cap-and-trade allows continued pollution in a community.

California Air Resources Board [CARB]. (2017). *California’s 2017 climate change scoping plan*. <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan>

“CARB recommends that projects incorporate design features and GHG reduction measures, to the degree feasible, to minimize GHG emissions. Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development. There are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects that achieve zero net additional GHG emissions” (p. 101).

“To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project’s region that contribute potential air quality, health, and economic co-benefits locally” (p. 102).

California Air Resources Board [CARB]. (2021, April 29). *CARB responses to questions from ProPublica on California’s Forest Offset Protocol*.

<https://ww2.arb.ca.gov/sites/default/files/2021-04/nc-carb-response-to-propublica-forest-questions.pdf>

This memo is a CARB response to questions from ProPublica mostly regarding a report by CarbonPlan—cited above as Badgley, et al. (2021)—that is critical of carbon offsets. CARB states (p. 1): “CARB does not agree and notes that the methodologies in the CARB-approved U.S. Forest Protocol were developed through a full public, regulatory process. Projects are required to utilize the CARB-approved methodology. Credits issued to projects that meet the U.S. Forest Protocol requirements represent real, quantifiable, permanent, verifiable, enforceable, and additional reduction.” The memo contains a detailed and vigorous defense of the use of carbon offsets.

California Air Resources Board [CARB]. (2022, December). *2022 Scoping plan for achieving carbon neutrality*. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

Most notable, the 2022 Scoping Plan contains Appendix D: Local Actions which makes numerous statements regarding the use of off-site mitigation and carbon offsets.

“...this section encourages project applicants and local governments to use local and non-local off-site GHG mitigation approaches (including carbon offset credits) consistent with CEQA’s requirements.” (p. 28).

“4.1.3 Conditions Applicable to Carbon Offset Credits

If implementation of all feasible on-site GHG reduction measures and all feasible off-site GHG reduction measures are insufficient to reduce a project’s impact to a less-than-significant level, then the lead agency or project applicant should consider purchasing and retiring carbon offset credits. The State recommends that carbon offset credits retired as CEQA mitigation be registered with a recognized and reputable carbon registry on the voluntary market. For example, while CARB does not review or authorize voluntary-market offset registries or protocols for use as CEQA mitigation, CARB notes that the registries approved by CARB for the Cap-and-Trade Program also serve as voluntary market credit registries, with voluntary market offsets available for CEQA mitigation purposes.” (p. 32)

“However, there are recent examples of land use development projects in California that have demonstrated that it is feasible to design projects of nearly any scale that achieve net-zero GHG emissions. Several projects have received certification from the Governor under AB 900, the Jobs and Economic Improvement through Environmental Leadership Act (Buchanan, Chapter 354, Statutes of 2011) and a similar program authorized under SB 7 (Atkins, Chapter 19, Statutes of 2021), demonstrating an ability to design economically viable projects that create jobs while contributing net-zero GHG emissions. These projects have included mixed-use housing and commercial developments, large-scale residential projects, sports arenas, a medical center, and business campuses.” (p. 24).

California Department of Fish and Wildlife. (2017, June 12). *Newhall Ranch resource management and development plan and spineflower conservation plan: Final additional environmental analysis (AEA)*. <https://wildlife.ca.gov/Regions/5/Newhall>

The Newhall Ranch AEA establishes 13 mitigation measures (MM) for the project-generated GHG emissions. Mitigation measures MM 2-1 through MM 2-9 are site specific (i.e., on-site), MM 2-11 and 2-12 are “local offsite,” and MM 2-10 and 2-13 are carbon offsets. The total project emissions would be 526,103 MT CO₂e/year in 2030. MM 2-1 through 2-10 would mitigate 248,730 MT CO₂e/year. MM 2-11 and 2-12 would mitigate 500 (<0.1%) and 39,813 (8%) MT CO₂e/year respectively. The remaining 237,059 MT CO₂e/year would be mitigated through carbon offsets per MM 2-13 (as detailed in the Newhall Ranch Greenhouse Gas Reduction Plan).

California Natural Resources Agency [CNRA]. (2009, December). *Final statement of reasons for regulatory action: Amendments to the state CEQA guidelines addressing analysis and mitigation of greenhouse gas emissions pursuant to SB97*.

<https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018CEQAFinalStatementof%20Reasons111218.pdf>

Report to justify changes to CEQA Guidelines pursuant to SB 97. One change was the including of the following: “Measures to mitigate the significant effects of greenhouse gas emissions may include, among others: ... (3) Off-site measures, including offsets that are not otherwise

required, to mitigate a project's emissions;” (Cal. Code Regs. tit. 14 § 15126.). The report states: “Some comments opined that offsets are highly uncertain and of questionable legitimacy. The Initial Statement of Reasons, however, cites several sources discussing examples of offsets being used in a CEQA context. Further, the ARB Scoping Plan describes offsets as way to “provide regulated entities a source of low-cost emission reductions, and . . . encourage the spread of clean, efficient technology within and outside California.” (Scoping Plan, Appendix C, at p. C-21.) The Natural Resources Agency finds that the offset concept is consistent with the existing CEQA Guidelines’ definition of “mitigation,” which includes “[r]ectifying the impact by repairing, rehabilitating, or restoring the impacted environment” and “[c]ompensating for the impact by replacing or providing substitute resources or environments.” (State CEQA Guidelines, 15370(c), (e).)” (p. 89).

Dudek. (2018, December). *Evaluation of greenhouse gas emissions offset availability within San Diego County* (White Paper).

<https://www.ci.oceanside.ca.us/civicax/filebank/blobdload.aspx?BlobID=49641>

This paper by consulting firm Dudek examines whether there are sufficient countywide opportunities to mitigate GHG emissions beyond the on-site mitigations. The paper concludes: “As such, and as indicated in the above graphic, the current estimated GHG offset demand is greater than the potential estimated GHG offset supply, and offsets that originate outside of the County are necessary to meet the demand from County projects with offset commitments under CEQA. In other words, requiring the purchase of carbon offsets under geographic priority 2 (off-site within the unincorporated areas of the County of San Diego) and geographic priority 3 (off-site within the County of San Diego) is determined to be infeasible at this time” (p. 3).

Gillenwater, M., Broekhoff, D., Trexler, M., Hyman, J., & Fowler, R. (2007). Policing the voluntary carbon market. *Nature Climate Change*, 1(711), 85–87.

<https://doi.org/10.1038/climate.2007.58>

Identifies three problems with the global voluntary carbon market: (1) additionality, (2) monitoring and verification, and (3) determination of ownership. Specifically, on additionality, the article states: “There is no correct technique for determining additionality because it involves the evaluation of counterfactual circumstances. No test for additionality can provide certainty about what would have happened otherwise. The challenge is akin to statistical hypothesis testing. Adopt tests that are too stringent, and one risks disqualifying many truly additional projects, thus restricting off set supplies and increasing their prices. But adopt tests that are too lenient, and the market will be dominated by ‘free riders’ who would have implemented their projects anyway” (p. 86).

Governor’s Office of Planning and Research. (2017). *State of California general plan guidelines*. Retrieved from: <https://opr.ca.gov/planning/general-plan/guidelines.html>

“CEQA recognizes offsets and sequestration as potential mitigation for GHG emissions. Lead agencies have discretion to choose what is considered feasible and what they are capable of monitoring. Onsite or local offsets and sequestration measures may be more easily monitored and supported with substantial evidence. In identifying sequestration projects, offsets/offsite mitigation as possible strategies for GHG reductions, cities and counties should keep in mind that achieving long term targets may be challenging and that innovative approaches to addressing emissions locally may be necessary . . . Offsets/offsite mitigation should be employed after other measures are generally exhausted, and the proposed measure(s) should be tied to impacts resulting from the project. For example, if a retrofit program is proposed to support GHG reductions within the community covered by the plan, then reductions resulting from the measure are appropriate to count towards achievement of a specific target, assuming the retrofit program is additional to legal requirements (see discussion below). The lead agency should find, based on substantial evidence, that any measure, including offsets or sequestration measures, is capable of being accomplished successfully within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines § 15364).” (p. 231).

Governor’s Office of Planning and Research. (2018, Dec.). *Discussion draft: CEQA and climate change advisory*. <https://opr.ca.gov/ceqa/ceqa-climate-change.html>

“Next, if the project requires further mitigation, lead agencies may consider off-site measures that are additional to on-site measures. A lead agency has the discretion to select off-site mitigation measures that are based locally, regionally, or in-state over investments in out-of-state or international mitigation measures. As with on-site mitigation measures, there may be practical reasons related to prefer local off-site measures over measures farther afield. Examples of off-site mitigation could include funding a local or regional off-site greenhouse gas mitigation project or purchasing verifiable carbon credits. CEQA does not prohibit off-site mitigation measures, but lead agencies must support with substantial evidence in the record their determination that mitigation will be effective and fully enforceable. (CEQA Guidelines, § 15126.4.) To do so, lead agencies may need to require more stringent protocols to verify the effective and enforceability of off-site mitigation measures. (Id., §§ 15126.4, 15364.)” p. 17).

Institute for Local Government. (2011, Sept.). *Evaluating greenhouse gas emissions as part of California’s environmental review process: A local official’s guide*. <https://www.ca-ilg.org/document/evaluating-greenhouse-gas-emissions-part-californias-environmental-review-ceqa-process>

Includes a section on “Off-Site Mitigation Measures” (p. 10). Identifies the potential for using GHG offsets and considerations.

Malaczynski, J. D., & Duane, T. P. (2009). Reducing greenhouse gas emissions from vehicle miles traveled: Integrating the California Environmental Quality Act with the California Global Warming Solutions Act. *Ecology Law Quarterly*, 36(1), 71–135.

Introduces a novel approach to CEQA mitigation wherein entities covered under cap-and-trade could direct carbon offset funds to enhance the feasibility of more ambitious CEQA transportation mitigation projects. Presumably this would supplement project applicant required feasible mitigation. From the abstract: “This Article addresses how AB 32's developing market-based GHG emissions reduction policy, allowing for carbon offsets, could interact with implementation of the California Environmental Quality Act (CEQA) to support emissions reductions from transportation-related land use projects” (p. 72).

Millard-Ball, A., & Ortolano, L. (2010). Constructing carbon offsets: The obstacles to quantifying emission reductions. *Energy Policy*, 38(1), 533–546.

<https://doi.org/10.1016/j.enpol.2009.10.005>

Defines the theoretical challenge of showing additionality:

“Carbon offsets, by definition, do not exist in any tangible form. An offset can neither be measured directly nor observed in reality, because it represents the absence of a certain quantity of emissions that would have been emitted under a counterfactual “without-project” or baseline scenario. Quantifying emission reductions from an offset project thus relies on measuring actual post-project emissions and constructing the unobserved baseline; the size of the offset is the difference between the two. The development of methodologies to estimate these emission reductions is a prerequisite to monetizing a carbon offset.” (p. 533).

Also, address the lack of offsets in the market that are transport projects due to the complexities of quantification.

Olsson, A., Grönkvist, S., Lind, M., & Yan, J. (2016). The elephant in the room – A comparative study of uncertainties in carbon offsets. *Environmental Science & Policy*, 56, 32–38.

<https://doi.org/10.1016/j.envsci.2015.11.004>

Focused on the UNFCCC and CDM program but identifies measurement uncertainties with carbon offsets. These include: “the issue of permanence” and “the rebound effect.” The permanence issue is whether the GHG offset is permanent and remains effective over the long-term. The rebound effect is the recognition that the offset could induce other emission increases. For example, energy efficiency technologies (which lower consumer expenditures) that induce increased consumption of energy. Box 1 of the article contains numerous examples of these uncertainties. From their conclusion: “LULUCF [land use, land-use change and forestry] is often associated with uncertainties and nonmeasurability, while similar issues are ignored when it comes to the energy sector. The exclusion of most possible LULUCF activities from the CDM sends a signal that the uncertainties of LULUCF activities are harder to manage than those of non-LULUCF activities. Following our assessment of the conservativeness factors and rebound effects on quantification of the impact of CDM projects, we conclude that uncertainties in all

eight CDM project categories are high. Generally, if the conservativeness factor is low, the rebound effect is high and vice versa (see Table 1). Our view is therefore that the CDM must be seen as an imperfect, though feasible, way of engaging non-Annex I countries in the mitigation task, a rational compromise where some uncertainties are accepted in order to achieve clean development. Our argument is that uncertainties (whether measurable or unmeasurable) should be treated consistently for all CDM categories. The unmeasurable uncertainties of certain CDM projects have become something of an ‘elephant in the room’, an issue that no one wants to address. To address this unfortunate situation, conservativeness factors and rebound factors (Table 1) may be used to compensate for the uncertainties within the CDM for all project categories” (p. 37).

Schuster, B., Walter, R., Reed, J., Vermilion, N., Hendrix, M., Qureshi, H., Boparai, P., Mitchell, D., and Glaize, P. (2020, summer) Open the golden door to international carbon credits! *AEP Environmental Monitor*, Summer 2020.

The Association of Environmental Professional Climate Change Committee analyzed the California Fourth District Court of Appeal Golden Door Properties, LLC, v. County of San Diego case: “The decision is expansive, is both legally and factually complex, and arises out of a lengthy administrative and legal process that has occurred over nearly a decade. We do not intend to address all issues in the ruling. Instead, we focus on GHG offset credits, how they can constitute valid CEQA mitigation and why the location of valid GHG offset credits does not matter scientifically and should not matter under CEQA” (p. 5). The article essentially makes arguments for why the case was wrongly decided, though that is not its stated purpose.

Wang, R. (2013). Adopting local climate policies: What have California cities done and why? *Urban Affairs Review*, 49(4), 593–613. <https://journals-sagepub-com.ezproxy.lib.calpoly.edu/doi/full/10.1177/1078087412469348>

The article has data from 2008 showing that 2% of CEQA mitigation measures/strategies applied to projects that year were the “purchase of offsets (e.g., payment of a fee for participation in other funding mechanism for GHG reductions off-site)” (p. 603). This is a useful baseline for showing change over time.

Other Resources

CARB Compliance Offset Program

<https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/about>

“The Compliance Offsets Program is an important cost-containment element within the broader Cap-and-Trade Program. The California Air Resources Board issues ARB Offset Credits to qualifying projects that reduce or sequester greenhouse gases (GHG) pursuant to six Board-approved Compliance Offset Protocols. Compliance offsets are tradable credits that represent verified GHG emissions reductions or removal enhancements from sources not subject to a

compliance obligation in the Cap-and-Trade Program. In addition to their climate and other environmental benefits, offset credits provide important cost containment and compliance flexibility for covered entities.”

“Under the Cap-and-Trade Program, covered entities may use compliance offset credits to satisfy a small percentage of their overall compliance obligation. This percentage – called the quantitative usage limit – applies to each individual covered or opt-in covered entity for each compliance period. Compliance entities may use ARB Offset Credits to meet up to 8 percent of their compliance obligation for emissions through 2020; 4 percent of their compliance obligation for emissions from 2021-2025; and 6 percent for emissions from 2026-2030. Starting with 2021 emissions, no more than one half of the quantitative usage limit may be sourced from projects that do not provide direct environmental benefits in the state.”

CEQA Guidelines

<https://opr.ca.gov/ceqa/guidelines/>

“Measures to mitigate the significant effects of greenhouse gas emissions may include, among others: . . . (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions” Cal. Code Regs. tit. 14 § 15126.4 (c)

<https://casetext.com/regulation/california-code-of-regulations/title-14-natural-resources/division-6-resources-agency/chapter-3-guidelines-for-implementation-of-the-california-environmental-quality-act/article-9-contents-of-environmental-impact-reports/section-151264-consideration-and-discussion-of-mitigation-measures-proposed-to-minimize-significant-effects>

Carbon Offset Research and Education (CORE) Initiative of the Stockholm Environment Institute and the Greenhouse Gas Management Institute.

<http://www.co2offsetresearch.org/index.html>

Carbon Offset Entities Approved by CARB for Compliance Offsets

American Carbon Registry

<https://americancarbonregistry.org/>

Climate Action Reserve

<https://www.climateactionreserve.org/>

Verra

<https://verra.org/>

Court Cases

Our Children’s Earth Foundation v. California Air Resources Board, 234 Cal. App. 4th 870 (2015).

- The California Court of Appeal ruled that the offset component of California’s Cap-and-Trade Program for greenhouse gas emissions did not violate the California Global Warming Solutions Act of 2006 (AB 32).

California Native Plant Society v. City of Rancho Cordova (2009) 172 Cal. App. 4th 603, 619-626.)

- The court rejected the notion that a wetlands mitigation measure relying on a “no net loss” performance standard had to identify specific off-site mitigation areas and allowed the city to defer the exact details of the mitigation measure.

Center for Biological Diversity v. Department of Fish & Wildlife, 1 Cal.App.5th 452, 204 Cal. Rptr. 3d 663 (Cal. Ct. App. 2016) [a.k.a. Newhall Ranch case]

- Though the case was not specifically about offsets, the 2017 Settlement Agreement approved a GHG Reduction Plan that allowed the use of carbon offsets as well as a number of off-site mitigations: “Among other things, the Net Zero Plan is currently anticipated at full buildout to result in more than approximately 10,000 solar installations producing approximately 250 million kWh of renewable electricity every year. The Net Zero Plan also is currently anticipated at full buildout to result in installation of approximately 25,000 electric vehicle chargers within the development and across Los Angeles County, as well as approximately \$14 million in subsidies toward the purchase of electric vehicles; these measures are currently anticipated to reduce vehicle miles traveled by internal combustion engine cars and trucks by up to approximately 250 million miles per year.”

Golden Door Properties, LLC v. County of San Diego, 50 Cal. App. 5th 467 (2020)

- The project applicant wanted to reduce GHG emissions to net zero partially through the use of carbon offsets. The court rejected the carbon offset mitigation due to “unenforceable performance standards and improperly defers and delegates mitigation.”
- “The court concluded the mitigation measure was inadequate because it did not ensure that offset credits would result in emissions reductions that would be genuine, quantifiable, additional and verifiable. It also faulted the measure because it gave the County planning director authority to approve a project’s use of particular offset credits without providing clear, objective standards to guide those determinations.”
<https://www.californialandusedevelopmentlaw.com/2020/11/20/greenhouse-gas-mitigation-measure-allowing-purchase-of-offset-credits-fails-to-comply-with-ceqa/>
- Whether the case is precedent setting is unclear. The court wrote: “To be abundantly clear, our holdings are necessarily limited to the facts of this case, and in particular, M-GHG-1. Our decision is not intended to be and should not be construed as blanket prohibition on using carbon offsets—even those originating outside of California—to mitigate GHG emissions under CEQA.”

Elfin Forest Harmony Grove Town Council v. Cnty. of San Diego, No. D077611 (Cal. Ct. App. Oct. 14, 2021)

- The court wrote: “We conclude the Projects’s greenhouse gas mitigation measures M-GHG-1 and M-GHG-2 suffer from many of the same flaws as M-GHG-1 in *Golden Door, supra*, 50 Cal.App.5th 467 in that they lack objective performance criteria to ensure the effective and actual mitigation of greenhouse gas emissions, and also improperly defer mitigation” (p. 3).

Unpublished case number: 37-2019-00038820-CU-TT-CTL. Case title: *Petition of Sierra Club*. Date: 10/07/2021. Superior Court of California, County of San Diego. [a.k.a. Otay Village 14 case]

- The court made similar findings to the *Golden Door* case that the use of carbon offsets in the EIR is inadequate.

Settlement Agreement between Climate Resolve, a California nonprofit public benefit corporation, on the one hand, and Centennial Founders LLC, a Delaware Limited Liability Company (“Centennial”), and Tejon Ranchcorp, a California corporation (“Tejon Ranchcorp”) on the other hand. (Los Angeles County Superior Court, No. 19STCP01917, Nov. 30, 2021)

- From the Settlement Agreement: “Centennial shall not purchase emissions offsets to fulfill its mitigation obligations under this Agreement, including but not limited to those offsets offered by CARB, CAR, American Carbon Registry and Verra, unless approved as a last resort compliance option for one phase of the Project by a majority vote of the CMG Board, and only to the extent that the Board determines that it will be otherwise infeasible for Centennial to reduce or avoid the GHG emissions of that phase of the project to become a Net Zero GHG Project under the terms of the Agreement. Such a Board vote would be on a temporary, phase-by-phase case and would not be applicable to the entire Project” (p. 10).