

Addressing Global Warming (Climate Change) in Environmental Impact Statements (EIS) and Environmental Impact Reports (EIR) in the Post AB-32 Regulatory Environment

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ABSTRACT

On September 27, 2006, the state of California passed into law the California Global Warming Solutions Act of 2006 (commonly referred to as AB-32). This landmark legislation requires the state of California to reduce its carbon emissions by approximately 25% by the year 2020. AB-32 states that global warming poses a serious threat to the environment of California. This legislation effectively ends the debate in California as to whether global warming is simply scientific speculation.

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require most proposed projects to evaluate their impacts on the environment and present feasible ways to offset their impacts. With growing public concern regarding climate change, and with the passage of AB-32, there is increasing pressure to address global warming within the context of CEQA/NEPA.

The purpose of this paper is to outline the contents of AB-32 and explore how climate change can be addressed in CEQA and NEPA analyses. Regarding the scope of the analysis from a regulatory perspective, climate change impacts should address two basic questions: 1) how will the project affect climate change, and 2) how will the project be affected by climate change. Various approaches to address these questions are discussed here along with a summary of recent court cases relevant to climate change and CEQA/NEPA.

INTRODUCTION

There is broad scientific consensus that humans are changing the chemical composition of our atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of trace greenhouse gasses (GHGs) such as carbon dioxide (CO₂) in our atmosphere. An increase in GHG emissions will result in an increase in the earth's average surface temperature, which is commonly referred to as global warming. Global warming will in turn affect weather patterns, average sea level, ocean acidification, chemical reaction rates, precipitation rates, etc., which is commonly referred to collectively as climate

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change. The Intergovernmental Panel on Climate Change (IPCC) has predicted that the average global temperature rise between 1990 and 2100 could be as great as 5.8°C (10.4°F) which could have massive deleterious impacts on the environment and society as we know it¹.

To date, there have been no significant environmental regulations enacted in the United States at the national level specifically designed to address climate change. As of January 2007, the U.S. Environmental Protection Agency (EPA) contends that it does not have the regulatory authority to list greenhouse gasses as pollutants. Although GHG emissions are currently not addressed at the federal level, certain state and local governments are passing legislation and regulations to reduce GHG emissions. For example, the state of California recently passed into law The Global Warming Solutions Act of 2006, commonly referred to as Assembly Bill 32 (AB-32), which is designed to significantly reduce GHG emissions generated by California in the near- and long-term future.

Projects that fall under the jurisdiction of the National Environmental Policy Act (NEPA) and/or the California Environmental Quality Act (CEQA) are facing increasing pressure to identify and address climate change within the scope of analysis for proposed projects, possibly requiring projects that contribute to climate change to provide a detailed analysis in Environmental Impact Statements (EISs) and Environmental Impact Reports (EIRs). Addressing climate change within the scope of the NEPA and CEQA analyses is made difficult by the paucity of explicit regulatory guidance on how to meaningfully apply existing NEPA/CEQA regulations to this evolving and important topic.

The purpose of this paper is to discuss climate change from a regulatory framework with a special emphasis on NEPA and CEQA compliance. This paper will include a summary of the landmark AB-32 legislation, an overview of NEPA/CEQA, present possible frameworks for addressing climate change from within NEPA and CEQA, and discuss major court cases affecting climate change regulation.

REGULATORY OVERVIEW OF AB-32 AND NEPA/CEQA

Assembly Bill-32

The California Global Warming Solutions Act of 2006, was co-authored by Assemblywoman Pavley and Assembly Speaker Nunez and signed into law by Governor Schwarzenegger on September 27, 2006. The bill is 13 pages in length and focuses on GHG emission reduction goals and specifies which California agencies are responsible for meeting these goals. There are no new prescriptive air quality regulations in the bill requiring emissions reductions by sector or application. Rather, AB-32 is California's roadmap to GHG emission reduction that lists goals and timelines and gives new authority to existing agencies to meet these goals.

AB-32 begins by stating:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine

ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

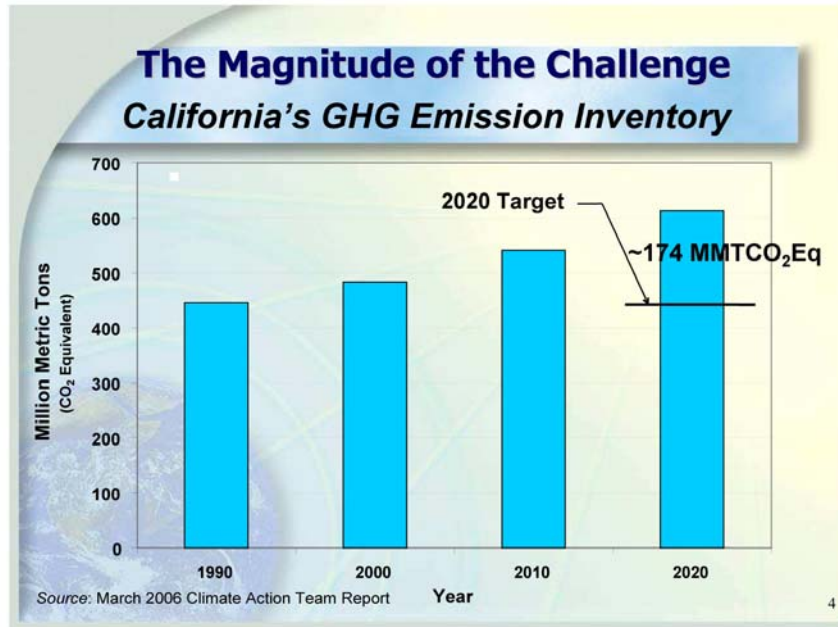
This statement is meant to effectively end the debate as to whether there is meaningful scientific disagreement on the existence and consequences of global warming. The bill recognizes that GHG reduction in California will require similar reductions by other states and countries in order to be meaningful. As such, California's voluntary emission reductions specified in AB-32 are an attempt to establish a global leadership role on climate change abatement and to act as a blueprint for other states and nations to reduce their respective GHG emissions.

The heart of the bill is the requirement that statewide GHG emissions must be reduced to 1990 levels by the year 2020. The bill requires the California Air Resources Board (CARB) to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions, as specified. By January 1, 2008, CARB is required to adopt regulations to require reporting of statewide GHG emissions and determine the official emissions level thought to exist in 1990, which will effectively set the 2020 emission cap. No later than January 1, 2011 CARB is required to set enforceable regulations, which will go into effect January 1, 2012, and which will be designed to meet the 2020 GHG emission target.

The bill authorizes the use of market-based compliance mechanisms, which are also known as cap and trade programs. Market-based approaches to GHG emission reduction are currently in use in Europe and have been used in the United States to address acid rain precursors; a GHG cap and trade program is also being implemented in the Northeastern and Mid-Atlantic states (RGGI). There is also specific language to support the use of AB-32 to abate other air quality issues, such as ozone, particulate matter, and toxic air contaminant exposures "to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit".

Until CARB finalizes the 1990 emission inventory, most policy makers are using the Climate Action Team Report submitted to the Californian Governor and Legislature in March of 2006 for GHG inventory estimates². The draft GHG budget was recently presented by CARB on January 22, 2007 and is reproduced here as Figures 1 through 3³. As shown in Figure 1, California needs to reduce GHG emissions by approximately 25% by the year 2020 to achieve the goals specified in AB-32. As shown in Figure 2, CO₂ represents approximately 83% of California's GHG emissions. Lastly, as shown in Figure 3, the transportation sector is responsible for roughly 40% of GHG emissions, with electric power and industrial processing contributing approximately 20% each.

Figure 1. California's GHG Emission Inventory



Note: The blue bars represent the business as usual emission inventory with no climate change regulations. To have the year 2020 emission equal those of 1990, approximately 174 Million Metric Tons of CO₂ Equivalent GHG emissions will have to be reduced³.

Figure 2. Chemical Speciation of GHG Emissions in the 2002 Californian Emissions Budget³

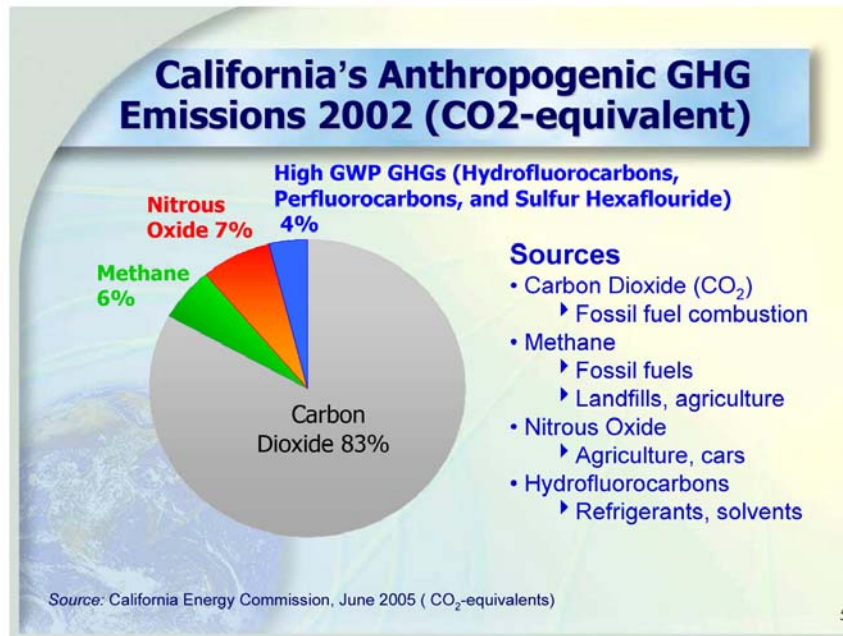
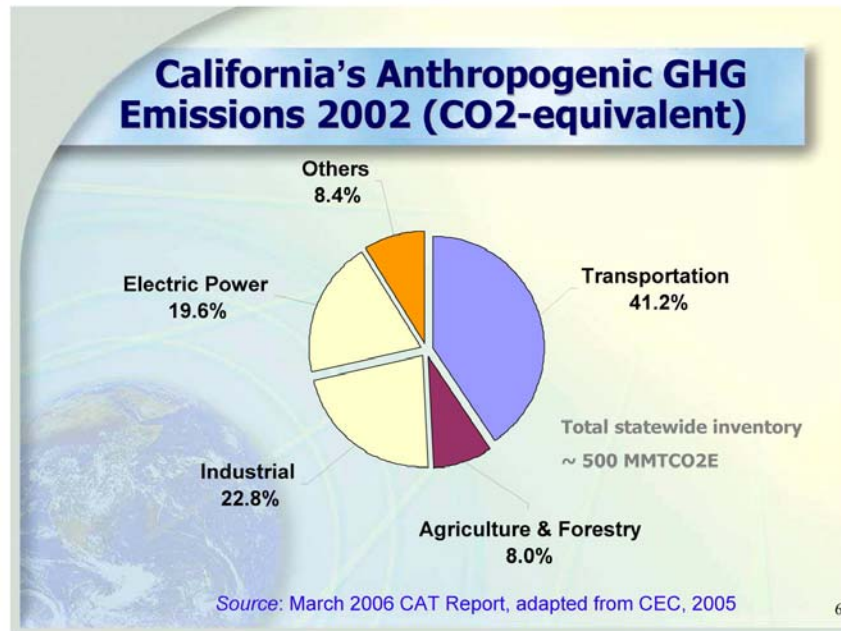


Figure 3. Fraction of GHG Emissions Grouped by Sector of Origin in the 2002 Californian Emissions Budget³



National Environmental Policy Act

For a detailed review of NEPA, readers are referred to *The NEPA Book: A step-by-step guide on how to comply with the National Environmental Policy Act*⁴. As a courtesy to the reader, a summary of NEPA appearing in Environmental Protection⁵ is included below.

A concise piece of federal legislation, enacted in 1970 and referred to as the nation's environmental charter, is the National Environmental Policy Act (NEPA) (42 United States Code 4321 et. seq.). This law established a national environmental policy with goals to protect, maintain and enhance the physical and natural environment and the relationship of people with that environment. NEPA provides federal agencies with a roadmap to environmental decision making and also influences environmental decision making on a variety of private sector projects.

NEPA created a staff of personal environmental advisors to the president known as the Council on Environmental Quality (CEQ). The CEQ conducts studies, gathers information and produces annual reports relative to our nation's environmental quality. The CEQ oversees the EPA's planning and policy making. The CEQ also oversees compliance with NEPA's environmental impact statement requirements.

Before a major federal action can be approved, it must first assess potential environmental impacts. Major federal actions include new or revised federal agency rules, regulations, policies, plans and procedures. Major federal actions also include permitting of such projects as hydroelectric plants, nuclear reactors and interstate

pipelines. Even private sector projects using federal funds or located on federal land must engage in the environmental impact evaluation process.⁵

Basically, when a federal agency is determining whether to approve a proposed action, it should first determine if the action is categorically excluded under its NEPA regulations. Categorical exclusions are categories of actions determined by the federal agency as exempt actions, because they do not individually or cumulatively have a significant effect on the environment.⁵

Proposed federal actions that may have a significant environmental effect must prepare a concise public document providing sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). The concise public document is the environmental assessment (EA). The EA serves as a pre-test for an EIS or FONSI⁵. The CEQ NEPA regulations define the term “significantly” in terms of context and intensity (40 CFR 1508.27). Context relates to the particular geography where the action would take place and whether in a local, regional, or broader context, the impact would cause a significant effect on the human environment. The CEQ regulations list criteria related to the intensity of the action, including:

- The degree to which the proposed action affects public health or safety.
- The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

“If the proposed activity’s EA reveals significant environmental effects, an EIS will have to be prepared. The EIS process requires public notice, public comment and a record of decision on:

- the environmental impact of the proposed activity;
- any adverse environmental effects which can not be avoided should the proposed activity be implemented;
- alternatives to the proposed activity;
- the relationship between local and short term uses of the environment and the maintenance and enhancement of long term productivity; and
- any irreversible and irretrievable commitments of resources which would be involved in the proposed activity should it be implemented.

The scope of the EIS relates to impacts to the “human environment” and may require a review, consideration and statement of environmental impacts relative, but not limited to:

- Air quality (emissions, ambient air, navigable air space, ambient noise, etc.);
- Water (effluent quality, drainage, supply, use, etc.);
- Land use (farm land, timber land, park lands, zoning, community plans, etc.);
- Landforms (topography, wetlands, flood plains, coastal zones, shorelines, etc.);
- Hazardous substances (site contamination, explosives, pesticide use, etc.);
- Wastes (solid, hazardous, radioactive, mixed, etc.);
- Subsurface (soils, underground storage tanks, seismic, underground injection, groundwater, etc.);
- Wildlife (threatened or endangered species, vegetation, ecologically critical areas, etc.);
- Cultural (historic, archaeological, architectural, controversial, etc.);
- Utilities/services (energy, fuel, etc.); and/or
- Transportation (public transit, traffic circulation, parking, etc.).”⁴ (Bowman 2001.)

California Environmental Quality Act

For a detailed review of CEQA readers are referred to *CEQA Desktop: A step-by-step guide on how to comply with the California Environmental Quality Act*⁶. As a courtesy to the reader, an augmented summary of CEQA prepared by the California Resources Agency⁷ is presented below.

The basic goal of the California Environmental Quality Act (CEQA) (Pub. Res. Code §21000 et seq.) is to develop and maintain a high-quality environment now and in the future, while the specific goals of CEQA are for California’s public agencies to:

1. identify the significant environmental effects of their actions; and, either
2. avoid those significant environmental effects, where feasible; or
3. mitigate those significant environmental effects, where feasible.

CEQA applies to projects proposed to be undertaken or requiring approval by State and local government agencies subject to the jurisdiction of California. Projects are discretionary activities which have the potential to have a physical impact on the environment and may include the enactment of zoning ordinances, the issuance of conditional use permits and the approval of tentative subdivision maps.

Where a project requires approvals from more than one public agency, CEQA requires ones of these public agencies to serve as the lead agency. A lead agency must complete the environmental review process required by CEQA. The most basic steps of the environmental review process are:

- Determine if the activity is a project subject to CEQA;

- Determine if the project is exempt from CEQA;
- Perform an Initial Study to identify the potential environmental impacts of the project and determine whether the identified impacts are significant.

Based on its findings of significance, the lead agency prepares one of the following environmental review documents:

- Negative Declaration if it finds no significant impacts;
- Mitigated Negative Declaration if it finds significant impacts but revises the project to avoid or mitigate those significant impacts;
- Environmental Impact Report (EIR) if it finds significant impacts.

The purpose of an EIR is to provide State and local agencies and the general public with detailed information on the potentially significant environmental effects which a proposed project is likely to have and to list ways which the significant environmental effects may be minimized and indicate alternatives to the project.⁷ (California Resources Agency 2005.)

CEQA defines a “significant effect” on the environment as a substantial or potentially substantial adverse change in the physical environment. The determination of significance is facilitated by public agencies that develop “thresholds of significance” which are identifiable quantitative, or qualitative metrics to determine if an action will have a significant effect on the environment. For example, in its “Guide to Air Quality Assessment”⁸, the Sacramento Air Quality Management District (SAQMD) indicates that if a project results in less than 65 pounds per day of nitrogen oxides (NO_x) emitted into the atmosphere, those NO_x emissions are deemed “less than significant”.

Addressing GHG emission in CEQA documentation requires familiarity with three key concepts: 1) cumulative impacts, 2) *de minimis* arguments, and 3) constitutional limitations of CEQA (which also apply to NEPA).

A cumulative impact refers to an action that, on its own, may not appreciably impact the environment but when viewed in conjunction with other actions and activities is considerable. For example, the emissions from a single vehicle will not lead to an appreciable increase in ambient ozone concentrations, however; on the whole, vehicle fleets are a primary source of ozone precursors.

As it relates to CEQA, a *de minimis* argument essentially states that if an individual project contributes a relatively small amount to an existing environmental problem, the new project should be deemed as not being a considerable contribution to the cumulative impact and, therefore, less than significant. For example, if a factory only emits 0.0001% of the total NO_x emissions in an airshed, one could argue that the factory is a trivial contribution to the environmental problem and should thus be deemed less than significant. Numerous CEQA court cases have invalidated the *de minimis* argument finding that it is contrary to the concept of a cumulative impact. However, case law has stopped short of declaring that “the addition of one additional molecule to an existing problem” constitutes a cumulative impact (see *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98).

The U.S. Constitution, as interpreted by the seminal USSC cases, *Nollan* (*Nollan v. California Coastal Commission* 483 U.S. 825 (1987)) and *Dolan* (*Dolan v. City of Tigard* 512 U.S. 374 (1994)), limits the ability of an agency to require mitigation measures through the governmental police powers, including CEQA. Mitigation measures required for a project must have a direct nexus to the impact resulting from that project, and be “roughly proportional,” to the impact of the project. This limitation is important when addressing GHG emissions in CEQA because it, in effect, states that a CEQA mitigation measure can’t require a project to reduce GHG in excess of those created by the contributions from the project itself. As a result, requiring a project to be carbon neutral is the most stringent mitigation possible, and it is not possible to require that a project remove more GHG emissions than it creates.

A FRAMEWORK FOR ADDRESSING CLIMATE CHANGE WITHIN ENVIRONMENTAL ANALYSIS OF CEQA/NEPA

Overview

Nowhere within AB-32 is either NEPA or CEQA explicitly addressed. However, since the bill indicates that “global warming poses a serious threat to ... the environment of California”, climate change, and the need to address and mitigate it, immediately leaves the domain of scientific speculation and becomes political and regulatory reality. Since a key objective of CEQA is the disclosure to the public the reasons for agency approval of projects with significant environment effects, it would be difficult to argue that one should not consider climate change in CEQA documents after the passage of AB-32.

At the federal level, there has been no major legislation or direction that clearly states that global warming poses a threat to the environment, so, in the short term, it is still conceivable that one could ignore, or give a cursory analysis of, climate change in NEPA documents. The authors are not proposing that ignoring climate change in NEPA documents is the preferred strategy, rather, barring any federal guidance, it is still conceivable that one could defensibly maintain the status quo and exclude any climate change discussion from many NEPA documents.

When addressing climate change in via CEQA/NEPA, one has to address three fundamental questions:

1. How will the project *affect* climate change?
2. How will the project be *affected by* climate change?
3. If the project contributes considerably to climate change, what constitutes feasible “Fair Share” mitigation?

In the most general sense, one can determine whether a project *affects* climate change by determining if the project will alter the earth’s radiative budget. Examples of activities that would change the earth’s radiative budget include, but are not limited to:

1. *Direct emissions of GHG.* This is the most straightforward way that a project will affect climate change, and the one that most people immediately will think of when addressing global warming. Examples include the construction of a new factory or power plant that

emits GHGs. Possibly included would be lifecycle and construction emissions associated with materials used and transported to the construction site as well as direct emissions from the construction equipment.

2. *Indirect emissions of GHG.* This refers to a project that does not directly emit GHGs but is expected to result in increased GHGs as a result of the project. For example, above and beyond the GHG emissions associated with the building of a freeway or the emissions associated with mining and transporting materials to the site), the creation of a new interstate freeway may result in increased vehicles miles traveled (VMT) in the region, which in turn will result in increased emissions of GHGs.
3. *Alteration of sinks of GHG.* This refers to the alteration or removal of processes or land uses that uptake or sequester GHGs. For example, since trees sequester atmospheric carbon, clear cutting a forests will remove a GHG sink and thereby accelerate global warming. Another example would be the decision to change a land's use from one type of crop for another with a lower sequestration rate.
4. *Changes in land albedo (reflectivity).* Projects that change the average albedo of land will affect the earth's radiative balance and could affect global warming. Changes in earth's average albedo by the melting of the polar ice caps is expected to have an enormous impact on climate change. To a lesser extent, a project that changes a land parcel's albedo will also affect climate change. For example, a project that requires paving of a large area of land that is primarily ice would accelerate global warming. This is perhaps the most subtle way that a project can affect the radiative budget and will be likely be considered a secondary concern to three items listed above since it does not involve changes in GHG emissions or sinks.

In addition to the determination of how a project will contribute to climate change, one may also have to address how a project will be *affected by* potential changes in climate. Since an analysis of the no-project baseline is required in many EIRs/EISs, one must consider the possibility that the future will be affected by climate change. Examples of expected changes due to the global warming include:

1. Change in water availability and quality.
2. Increase in the frequency and severity of extreme weather events such as storms, heat waves, and flooding.
3. Changes in cloud cover and rainfall patterns.
4. Increases frequency and severity of ozone exceedances due in part to changes in photochemistry.
5. Sea level rise.
6. Increased intrusion of seawater into estuaries due to sea level rise.
7. Many, many other effects.

For example, if an endangered species nests in a coastal area, development of land near the coastal area may have to account for anticipated rises in sea level which would effectively push the hypothetical nesting area inland. Determining how climate change may affect a project may be inherently difficult given the speculative nature of many potential effects when applied to a

geographically specific area. However, failure to properly address the effects that climate change may have on a proposed project has previously resulted in litigation.

Nuts and Bolts—What to Put in Your NEPA/CEQA Documents

CEQA Projects that Affect Climate Change

CEQA requires an Initial Study to determine if it can be “fairly argued ... based on substantial evidence ... that a project may have a significant effect on the environment”⁶. Substantial evidence is considered facts and expert opinion based on facts, and is not conjecture or speculation. Given the wording of AB-32 it will be quite difficult to state that there is not a “fair argument” that activities that affect the GHG budget *may* have a significant effect on the environment. As a result, an Initial Study of any project that has GHG relevance will likely be deemed environmentally significant.

Currently, there are no statewide significance criteria or approved mitigation methods to address projects that will affect the GHG budget. In the absence of regulatory guidance, and prior to the resolution on various lawsuits germane to this topic, CEQA documents must address GHG emissions on a case-by-case basis using ad-hoc methods and individual judgment of existing CEQA guidance.

The remainder of this section explores the various methodologies that could be used to address climate change via CEQA in the absence of regulatory guidance. Options are presented in order of difficulty to implement.

Approach 1. Do not address GHG emissions at all in a CEQA document.

This approach is effectively the continuation of the status quo where GHG emissions and climate change are rarely mentioned in CEQA documents. Because it is difficult to determine how a proposed project would contribute to climate change and what the overall impacts would be based on that contribution, some lead agencies have determined it to be speculative to attempt to analyze a project’s contribution to climate change. Obviously, this is the easiest approach, but it is likely that the omission of a climate change discussion on a major project will result in critical remarks during the comment period. Unless one is sure that there will be no litigation associated with the project, this approach could easily be rejected by judicial review if the project’s environmental document is challenged.

Approach 2. Discuss climate change only qualitatively.

Given the passing of AB-32, and the current focus on climate change, most documents, at a bare minimum will likely have to address climate change in general terms. This approach would, at the minimum, meet CEQA’s directive related to disclosure of impacts but certainly would not attempt to define appropriate mitigation for the impact. Lacking quantification of impact, there would be no way to estimate what a project’s fair share of potential mitigation should be. However, one could still conclude that there is currently a lack of guidance on how to perform a climate change analysis within CEQA and restrict the discussion to a qualitative discussion.

Approach 3. Discuss climate change only quantitatively.

Similar to Approach 2, this approach does not attempt to address significance criteria or mitigation methods. In this approach a quantitative analysis of how a project would affect the GHG budget would be performed and discussed. Citing a lack of regulatory guidance, the significance of these impacts would not be addressed. This approach would probably not meet CEQA's requirement for the disclosure of any significant effects.

Approach 4. Discuss climate change with significance criteria and mitigation methods.

Although the most environmentally defensible, this approach is the most difficult and open to interpretation. This approach will likely require a quantitative analysis of changes to the GHG emissions budget and a determination whether these changes are significant. The air quality analyst must, on an ad-hoc basis for each project, determine the significance criteria and mitigation methods for this approach.

Both qualitative and quantitative approaches to determining significance criteria can be employed. A qualitative approach could be used when the project is in an area with some local government guidance on how to address climate change. For example, Marin County is one of the few counties that currently has a Greenhouse Gas Reduction Plan. This plan does not specifically mention CEQA or NEPA, however, it does list various measures that the County plans to employ to achieve GHG emissions reduction. One could make an argument that proposed projects in the Marin area, if they implemented all appropriate actions listed in the Marin County GHG reduction plan relevant to the proposed project, would have less than significant GHG emissions. This qualitative approach would obviate the need to make quantitative calculations on the GHG emission inventory while still conforming to a regions GHG reduction plan.

A quantitative approach would require the determination of the GHG emissions associated with the project and various project alternatives. The project emissions would then be compared to a threshold of significance, and potentially mitigated to a less than significant level. Although time consuming, there are adequate tools available to reasonably determine most project's GHG emissions. The quantitative effect on the GHG budget of some mitigation measures, such as requiring solar panels on new homes, will be relatively easy to quantify, whereas other mitigation measures, such as encouraging telecommuting, will require a more subjective analysis.

Perhaps the most subjective aspect of Approach 4 is the specification of significance thresholds. Based on constitutional limitations of CEQA, the most restrictive significance threshold possible is to require that the project is carbon neutral. Also based on court law a *de minimis* argument that a project's emissions are small in comparison to the global GHG budget is likely not to be an acceptable significance criteria.

Applicants should request guidance from lead agencies as to the most appropriate significance threshold for any given project.

In the absence of any guidance, one could consider a net zero GHG threshold, and then apply mitigation to the project's GHG contribution until it is carbon neutral. If a project, as mitigated,

can be demonstrated not to result in any net GHG emissions (or otherwise contribute to climate change), this is a defensible approach.

Alternatively, one might consider the ARB goal of reducing 2020 GHG emissions by approximate 25% compared to “business as usual” emissions. Selecting a significance criterion that states a project must reduce emissions by 25% below unmitigated levels is also a defensible approach. However, if a lead agency were to require a project proponent to result in a net reduction of GHG emissions compared to the existing baseline at the time of project evaluation, it would be requiring mitigation for prior development for which the proponent may bear no responsibility. It is hard to see how imposition of such mitigation would satisfy the “rough proportionality” and nexus tests established by the U.S. Supreme Court in the Nollan and Dolan cases.

In the context of reductions below unmitigated levels, it is conceivable that a significance threshold for project evaluations of greater than zero net GHG emissions might be valid. The overall goal of AB-32 (as well as the Kyoto Protocol) is not reduction of GHG emissions to zero, but rather stabilization at a level that existed in the past (5% below 1990 levels for the Kyoto Protocol and 1990 levels for AB-32), so as to reduce contributions to climate change. One might argue that future goals of state, federal, and international climate change regulation may be to stabilize global GHG emissions at even lower levels than those present in 1990.

As an example, if the average U.S. household results in direct emissions (heating, electricity, and waste—but excluding transportation) of 4 tons of CO₂ equivalent per annum (EPA web site, http://www.epa.gov/climatechange/emissions/ind_home.html, accessed January 28, 2007) at present, a fifty percent reduction goal would be an average of 2 tons per annum. There could be an argument for NEPA and CEQA analysis that new economic development might not contribute “considerably” to climate change if its GHG emissions intensity met future benchmarks for its sector that are part of an overall plan for a transition to a lower GHG emissions future. Using our household example, if a new residential subdivision could demonstrate that its net direct emissions per household were 50% of comparable existing housing stock in the local market, over time, it could be argued that emissions in the residential sector are making the transition to the desired future. The 50% figure is arbitrary for demonstration of the point; any actual significance criteria would need to take into account housing growth as well as realistic concept of change in GHG emissions from existing housing.

Mitigation measures to offset or reduce project emissions are likely to be project specific. Some of the project measures that could be adopted are listed below. This is a partial list as there are a myriad of opportunities to reduce energy use, transportation emissions, and other direct and indirect sources of GHG emissions although only certain mitigations strategies will likely apply to any specific project or planning effort.

- For buildings, require energy-efficient design such as that encapsulated in The Leadership in Energy and Environmental Design (LEED) Green Building Ratings. LEED standards are widely recognized benchmarks for the design, construction, and operation of energy-efficient commercial and residential buildings (energy efficiency is only part of LEED—a big part of the rating is also indoor air quality [IAQ]).

- Require incorporation of transit into project design through considerations of siting, location, and transit linkages.
- Require vehicle-reduction measures through carpooling, public transit incentives, and linkages or electric shuttle service to public transit as well as local and regional pedestrian and bike trails.
- Require energy-efficient retrofit of existing building stock to offset increased energy demands of new buildings.
- Require purchase of energy-efficient appliances and office equipment (Energy Star-compliant, etc.).
- Promote waste reduction measures and recycling (reduces cost to transport and dispose waste and energy associated with product manufacture).
- Require fleet vehicles to be low-emissions vehicles (high-mileage, hybrid, electric, etc.).
- Incorporate on-site renewable energy production (such as solar installations on building rooftops), waste heat capture (for industrial projects to provide process and/or building heat), and water re-use.
- In planning, promote mixed-use, compact, and higher-density development to reduce trip distance, promote alternatives to vehicle travel, and promote efficiency in delivery of services and goods.
- Purchase carbon offset credits from an existing carbon trading markets (such as the Chicago Climate Exchange (CCX) or purchase credits from future market-based systems (such as what may be developed in California by CARB).

Note that CEQA does not require that all significant impacts be mitigated to less than significant values for a project to be approved. Lead agencies can also choose to designate certain impacts, such as GHG emissions, to be ‘significant and unavoidable’.

CEQA Projects Affected by Climate Change

For projects that don’t *affect* climate change but are *affected by* climate change the “fair argument” criterion is subtler. Clearly, any effect of climate change specifically mentioned in AB-32 such as rises in sea level and changes in snow pack should be addressed, but it is not yet clear to what extent climate change impacts not mentioned in AB-32 should be dealt with. It is expected that California agencies will canonize likely consequences of climate change that fall under its purview. For example, it is expected that the California Department of Water Resources (DWR) will formalize a list of foreseeable water quality issues associated with varying degrees of climate change.

Once government agencies make these lists available, they should be used to determine to what extent a project is affected by climate change. In the short term, when various California departments have yet to issue guidance, one must rely on one’s own interpretation of the “fair argument” standard until guidance or case law becomes available.

One defensible approach to addressing projects affected by climate change would be to incorporate a range of climate change predictions (including the most conservative) into the no-

project baseline. Consider a project that would create a new industrial plant that discharges wastewater into a nearby lake. To determine the possible impacts of the discharge on the water body, one has to characterize the baseline future condition of the lake for the dates that the plant will be in operation. If climate change may potentially change the depth of the lake within the foreseeable future, one could consider the most conservative lake depth for baseline analysis.

Contrasting NEPA and CEQA Climate Change Approaches

CEQA and NEPA have fundamental differences in their objectives and approaches that result in differences in how they examine climate change. CEQA is based on the premise that a lead agency must examine the project to determine whether it may result in an adverse effect on the environment, determine the significance of that effect, and adopt feasible and fully enforceable mitigation measures whenever feasible. CEQA review centers largely on the lead agency. While CEQA requires the review of draft documents by other agencies and the public, it does not require the integration of other agencies' permitting or review processes as part of the CEQA process.

NEPA, on the other hand, is concerned primarily with informing agencies and the public of the environmental consequences of a proposed project or action. NEPA requires the integration of other federal agencies' regulatory processes, and the reconciliation of environmental issues within the NEPA process. A NEPA agency will prepare an EIS when an action will have a significant adverse effect, the EIS will not necessarily disclose the significance of the individual effects (biology, air quality, etc.) of the project. Nor, does NEPA require the EIS to include mitigation for the project's effects beyond those recommended by the other agencies.

In essence NEPA only requires that a 'hard look' at the problem be made. The EPA does not currently consider greenhouse gasses pollutants and has not provided any recommended list of mitigation measures that it recommends to stem climate change. In effect, there is no federal agency that is putting pressure on other agencies to address climate change. Until there is clear guidance, at a federal agency level that climate change analysis is required, for the near term the need to address GHG emissions in an EIS is less than the need to address it in an EIR.

READING THE TEA LEAVES: PENDING CLIMATE CHANGE COURT CASES THAT WILL AFFECT CEQA/NEPA

Addressing climate change within the CEQA/NEPA process is currently in a transitional period. Until CEQA and NEPA regulations are modified to explicitly address climate change, guidance on how projects should address climate change is likely to be driven by litigation. In this section, four court cases that may influence how climate change is to be addressed in the CEQA/NEPA process are presented.

Massachusetts vs. Environmental Protection Agency

Twelve U.S. states and cities (e.g., New York and California), in conjunction with most major environmental organizations (e.g., Greenpeace, Sierra Club, and Natural Resources Defense Council), collectively known as the petitioners, have sued to force the EPA to regulate greenhouse gasses as a pollutant pursuant to the Clean Air Act (CAA). The petitioners contend

that the CAA gives the EPA the necessary authority, and the mandate, to address GHGs in light of the scientific evidence on global warming. The EPA contends that it does not have the regulatory power to address greenhouse gasses, and even if it did, it would choose not to.

Pivotal to this case is the exact definition of an air pollutant, not as defined by scientists, but as stipulated in the CAA. The petitioners claim that CO₂ is a pollutant and therefore must be regulated by the EPA. EPA claims that CO₂ is not a pollutant and therefore it has no ability to regulate it via the CAA. Thus the Supreme Court is not deciding whether there is scientific validity of climate change theories, rather, it is making a narrow ruling as to whether the EPA can regulate CO₂ emissions through the CAA.

This case was argued before the Supreme Court on November 29, 2006 and expected to be decided by summer of 2007.

Orange County Transportation Authority's Long-Range Transportation Plan Draft EIR

The Attorney General of California (CA AG) provided comments on the Orange County Transportation Authority's (OCTA's) 2030 transportation plan developed for Orange County. In the OCTA draft EIR, it was estimated that there would be a 45% increase in VMT in the coming years, however, they did not make mention of GHG emissions or climate change. The CA AG was critical of the document claiming that the EIR failed to address climate change as required by CEQA. OCTA responded to comments indicating that 1) there is no accepted methodology for analyzing climate change impacts, 2) there are no accepted significance thresholds for addressing climate change through CEQA, and 3) that even though VMT goes up, vehicle hours traveled (VHT) would decrease which would result in a reduction of GHG emissions when compared to no-project scenarios.

The CA AG's comment letter is important for two reasons. First, the comments demonstrate that the Attorney General's office considers climate change to be a significant concern and that it should be addressed through CEQA. And second, the letter is well formulated and can effectively act as a blueprint that other parties can use to comment on other EIRs that may have climate change implications.

Friends of the Earth vs. Import-Export Bank

Friends of the Earth, et al. v. Mosbacher is pending in a Northern Californian Federal District Court. Friends et al. is seeking to require the Export-Import Bank to consider the CO₂ impacts of projects it funds. The cities of Oakland, Arcata and Santa Monica, California and Boulder, Colorado allege that 32 billion dollars worth of oil and other fossil fuel projects under the purview of the Overseas Private Investment Corporation (OPIC) failed to address climate change which they claim is required by NEPA. The merits of the lawsuit were heard in U.S. District Court on April 14, 2006 and the parties are awaiting a decision.

Center for Biological Diversity vs. City of Banning

The Center for Biological Diversity filed a lawsuit in November 2006 in Riverside Superior Court to challenge the City of Banning's approval of the 1,500-home Black Bench residential development, charging that it will contribute to global warming, air pollution and other

environmental harm. The Center claims that the City's EIR violated CEQA because, in part, it ignored the project's greenhouse gas emissions which the Center asserts would be a major new source.

FINAL THOUGHTS

We are currently in a period of transition within the regulatory community with regards to climate change. With the landmark passing of California's AB-32, the issue of climate change has moved from scientific speculation into reality. It is anticipated that other states, and eventually the federal government, will pass legislations similar to AB-32.

AB-32 is essentially a roadmap and timeline of how climate change will be addressed in California. Consequently, it does not issue any new explicit regulations or guidelines for the environmental analysis of new projects. However, AB-32 does give great credence to the argument that climate change should be addressed during the CEQA/NEPA process.

Prior to the explicit issuance of new CEQA/NEPA guidance, it is anticipated that climate change will be likely be determined by court cases. In the meantime, the framework and methodology discussed in this paper can form the basis by which one can address climate change in CEQA/NEPA documents.

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