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A Summary of the Coastal Commission's Involvement in Climate Change and Global Warming Issues for a Briefing to the Coastal Commission

**(prepared by Commission Staff Climate Change Task Force)
December 12, 2008**

Purpose of this Summary Report and Commission Briefing

As a part of developing permit and local coastal program recommendations for Commission consideration, and pursuant to applicable Coastal Act policies, the Coastal Commission staff has long considered sea level rise and erosion rates and other effects of climate change in its analysis. Since 2006, the Commission staff has placed more focused attention on the broad issues of climate change and global warming and how to implement Coastal Act policies to work with other agencies to develop approaches to reduce, mitigate, and adapt to climate change effects on the coastal zone.

In 2006, the Commission staff formed an internal working group called the Climate Change Task Force (CCTF). The task force is a voluntary extra assignment and includes members from most of the Commission districts and units. The CCTF is working to enhance the Commission staff's knowledge and effectiveness in addressing climate change issues in the Coastal Commission's core Coastal Act regulatory and planning work.

The purpose of this report prepared by the Climate Change Task Force and the briefing at the December 12, 2008 Commission meeting is to provide a summary for the Commission, the staff, and the public on the status of the Commission staff's work on climate change issues and the focus for upcoming work. The written report is a comprehensive summary of the Commission's current and future involvement in climate change issues and includes a compilation of references to key studies, references, legislation, executive orders, and work of other agencies. Although the Commission lacks adequate resources (as discussed herein), to adequately address all the climate change issues relevant to the Commission work and the Coastal Act, we

have been analyzing options, setting goals and prioritizing our work given these constraints. Proposed goals and objectives for addressing climate change that describe a general focus and path for the Commission staff's work are also included. This report contains substantial background information for Commissioners, staff and the public. It is designed to skim through and get the major points from sub-heading and bullets and have information to refer to as needed in the future.

The Commission briefing on December 12 is an informational discussion item only. No Commission action is needed or recommended.

Budget Shortfalls and Budget Cuts Constrain Staff Work on Climate Change

The severe budget cuts and shortfalls the Coastal Commission has experienced throughout its existence have been increasingly severe in the last few years, including an additional general fund budget cut for FY 08-09 of \$617,000 and 9 positions (6.5 permanent and 2.5 limited-term). The cumulative effect of structural budget shortfalls and new cuts required Commission layoffs and has resulted in staff reductions and the need to keep additional positions vacant to obtain needed salary savings to meet budget constraints. When first established in 2006 the Commission staff internal CCTF working group was a robust group of active participants. With budget cuts and several key members leaving the Commission for other jobs, current participation is reduced and many can only be involved at a very minimal level in part because they are covering additional workload due to staff losses.

These increased budget constraints and the delay of approved grant funds and the delay of the starts of an approved fellowship (discussed more below), have put severe limitations on the climate change work the Commission staff has been able to accomplish. Because of the Commission's vital role in implementing the Coastal Act and coastal management many agencies and departments and academic researchers have requested the Commission staff's participation in climate change tasks focus, interagency efforts and review of research. Due to staff shortages and budget cuts, staff has participated at a less than optimal level. In many cases, the Commission is not represented at key working groups and has not been able to fully support important other state and local government efforts on climate change.

Nevertheless, the Commission staff has made some significant steps forward and the Commission has taken some important regulatory and planning actions related to climate change that are summarized in this report. An important part of this report is a bullet list of ***Working List of Goals and Objectives for Coastal Commission's Staff Work on Climate Change*** (page 28-31). This list updates the list in the 2006 report to the Commission on climate change and focuses on further integrating climate change issues into the Commission's day-to-day permit and LCP planning work and its collaborative work with other agencies to meet state mandates. We welcome suggestions and comments from Commissioners and members of the public.

December 2006 Commission Workshop

At its December 14, 2006 meeting, the Coastal Commission held a public workshop on Climate Change and global warming. The workshop included a staff report highlighting the key Coastal Act policies that address climate change issues and coastal resources, and three guest speakers. Former Assembly Member Fran Pavley - principal author of AB 32 (also former Coastal Commissioner) and now newly elected State Senator (November 2008), was a key speaker and Dr. Susanne Moser and Dr. James Barry also presented summaries of their work regarding climate change. (<http://www.coastal.ca.gov/meetings/mtg-mm6-12.html>)

Coastal Impact Assistance Program (CIAP)

The Commission submitted several proposals in July 2007 to the Resources Agency for funding through inclusion in the State CIAP Plan. The CIAP is a federal grant program funded by offshore oil and gas revenues designed to provide assistance to coastal states and local governments. Commission staff worked with Resources staff to revise several proposals, and one of the four proposals chosen to be funded, is *"Climate Change and the California Coastal Act – Rising to the Challenge - A Guide to Addressing Coastal Act Issues."* The project will provide Coastal Commission staff, local governments, and other interested parties with a resource to help them better understand how the Coastal Commission – in exercising its authorities under the Coastal Act – considers and can help address the issue of global climate change in the decisions it makes regarding development within the coastal zone, using specific local coastal plan updates and amendments and other projects as case studies. Funding for this project was originally estimated to begin in January 2008. Delays occurred in releasing grant funds and funds are now expected in mid-2009. This delay in CIAP funds has caused a slow down in the progress of the Coastal Commission staff's work on climate change planning issues.

National Oceanic and Atmospheric Administration (NOAA) Coastal Fellow

The Climate Change Task Force collaborated on the development of a proposal – *"Climate Change and the California Coastal Act: Rising to the Challenge Planning and Partnering for Reduction, Mitigation and Adaptation"* – which was submitted to NOAA in October 2007, as part of the Coastal Management Fellowship Program. The program matches post-graduate students with state coastal management programs, with NOAA providing the majority of the fellows' stipends. The proposal was selected to be one of the projects matched with a post-graduate student as part of the two-year fellowship program. Unfortunately, the Fellow who was selected by the Commission to start the fellowship in September 2008 was unable to relocate to California. NOAA has approved the Commission's project for the next year's program. The matching workshop will take place in May 2009, and we are optimistic that we will have a Fellow starting in September 2009. This delay in obtaining the staff services of a NOAA

Coastal Fellow has also slowed down the Coastal Commission staff work on climate change. The San Francisco Bay Conservation and Development Commission (BCDC) was also approved for a NOAA Coastal Fellow for September 2009. The Coastal Commission staff and BCDC staff intend to co-ordinate the work of the coastal fellows.

Staff Education

Since climate change and coastal impacts raise many issues which cross-cut across many disciplines, we have had a variety of staff involved. The CCTF has been broken into sub-committees to address various topics such as smart growth, green building, LCPs, public information, adaptation, sequestration, and habitat.

International and National Programs Addressing Climate Change

The activities and research today related to climate change have been the result of years of work by independent scientists, research institutes, national organizations, and international forums and reflect the growing recognition of the importance of this issue, including very significant impacts in oceans and coasts. Some of the most prominent non-governmental programs are the Intergovernmental Panel on Climate Change (IPCC), The Pew Center on Global Climate Change, and the Union of Concerned Scientists.

- **IPCC:** In 1988, the World Meteorological Organization and the United Nations Environment Program established the Intergovernmental Panel on Climate Change (IPCC) to provide the decision-makers and others interested in climate change with an objective source of information about climate change. Since 1990, the IPCC has issued four major assessment reports and one major supplement. The first Assessment Report in 1990 played a decisive role in the formation of the UN Framework Convention on Climate Change and development of National Greenhouse Gas Inventories. The 1995 Second Assessment Report provided input for the Kyoto Protocol. The 2007 Fourth Assessment Report is frequently referenced for an understanding of the risks of human-caused climate change, and its preparers were awarded the 2007 Nobel Prize for Peace. (<http://www.ipcc.ch/>)
- **Pew Center on Global Climate Change:** The Pew Center on Global Climate Change was formed in 1998 to provide a source for information on climate change and to encourage and motivate innovative solutions to the problems of climate change. The Center has published over 100 reports in the past 10 years covering options for emission controls and reductions, assessments of emissions from different US economic sectors, mitigation and policy options, social equity reports and foundational reports that explain the connections

between greenhouse gas emissions and climate change.

(<http://www.pewclimate.org/>)

- **Union of Concerned Scientists:** The Union of Concerned Scientists has undertaken the development of a series of reports on regional climate change. The first, in 2001 covered the Gulf Coast, and in 2004, they released, "Our Changing Climate: Assessing Change to California". These reports are intended to raise awareness about the local impacts of climate change, explaining changes that are expected to happen to regional temperature, precipitation and other climate variables. The reports also analyze the local, environmental and socio-economic consequences of these changes. (<http://www.ucsusa.org/>)

GLOSSARY

A variety of terms have been used to discuss human influences on the global climate; some terms have been taken from common usage, some terms from specialized areas of study, and some terms have been created specifically for climate change discussions. The main approaches to addressing climate change can be divided into measures aimed at reducing climatic change by controlling the causes of climate change (often called mitigation) and measures aimed at reducing the adverse consequences of climate change by either reducing vulnerability or improving resilience (often called adaptation). The term mitigation causes the greatest misunderstanding for many people. The term mitigation was borrowed from the hazards community, where mitigation is the first phase of hazard planning. It includes efforts to prevent hazards from developing into disasters altogether, or to reduce the effects of disasters when they occur. In the area of climate change, mitigation refers to the reduction or capture of greenhouse gases and prevent their release into the atmosphere. However, resource managers typically use the term mitigation quite differently. For resource managers, mitigation is one of the last steps of resource protection, where it includes actions to ameliorate impacts after all avoidance and impact reduction had occurred. This report covers issues where both versions of mitigation are relevant -- resource protection and measures to reduce climate change. To avoid confusion, terms such as "greenhouse gas reduction" or "emission controls" are used rather than mitigation. A short list of definitions of regularly used climate terms is provided to minimize confusion about terms that are used throughout this report.

Adaptation: Adjustments that improve a social or natural system's capacity to cope with the effects of the changing climate; such adjustments will generally reduce vulnerability to potential loss or damage or help increase resiliency. (Luers and Moser, 2006)

Carbon Footprint: A measure of the impact that human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide. (<http://www.carbonfootprint.com/>). An activity with a carbon footprint of zero is said to be "carbon neutral".

(continued)

GLOSSARY (continued):

Climate Change: Any long-term significant change in the “average weather” that a given region experiences. Average weather may include average temperature, precipitation and wind patterns. In recent usage, especially in the context of environmental policy, the term "climate change" often refers to changes in modern climate. (modified from Wikipedia)

Emissions Scenarios: Scenarios representing alternative rates of global Green House Gas (GHG) emissions growth, which are dependent on rates of economic growth, the success of emission reduction strategies, and rates of clean technology development and diffusion, among other factors. (Bedsworth and Hanak, 2008)

Global Warming: Global warming is the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation. (modified from Wikipedia)

Greenhouse Gases: Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit long-wavelength radiation are essential to maintaining the temperatures of the Earth in habitable ranges. The most common greenhouse gases are water vapor, carbon dioxide, methane, ozone and nitrous oxides. Carbon dioxide is the major anthropogenic greenhouse gas and all greenhouse gases are often quantified collectively by their carbon dioxide equivalency, or the amount of CO₂ that would have the same global warming potential (GWP), when measured over a specified time period. (modified from Wikipedia)

Mitigation (As used in climate science): A set of policies and programs designed to reduce emissions of greenhouse gases. (Luers and Moser, 2006)

Mitigation (As used in resource management): A set of actions to ameliorate impacts after all avoidance and impact reduction had occurred.

Resilience: A system's ability to absorb and rebound from changes in the climate, including extreme events. (Luers and Moser, 2006)

Vulnerability: Susceptibility to sustained damage from weather extremes and climate variability and change. (Luers and Moser, 2006)

Bedsworth, L. and E. Hanak, 2008. Preparing California for a Changing Climate Public Policy Institute of California. San Francisco, CA.

Luers, A.L. and S.C. Moser, 2006. Preparing for the Impacts of Climate Change in California: Opportunities and Constraints for Adaptation, California Climate Change Center, Sacramento, CA.

Summary of the Major California Laws and Orders that Cover Climate Change and Global Warming and the Key Responsible Agencies

The State of California is at the forefront of efforts in the United States to address climate change. The Legislature has enacted, and the Governor has signed, a wide range of legislation addressing climate change. The Governor has also issued a series of executive orders directing state agencies to exercise their existing authority to address climate change. Numerous state agencies have initiated activities, both regulatory and non-regulatory, to address many components of climate change. Listed below are some of the more significant initiatives, with an emphasis on initiatives that are likely to directly affect the Commission's work.

- **AB 32** - The California Global Warming Solutions Act of 2006 (AB 32, Nunez and Pavley) requires the California Air Resources Board (CARB) to achieve reductions of greenhouse gas emissions to the 1990 level by 2020. (<http://www.arb.ca.gov/cc/docs/ab32text.pdf>)
 - CARB will consider adopting a “scoping plan” laying out its strategy for meeting the 2020 target at its meeting on December 11-12, 2008. The draft scoping plan recommends a mixture of regulatory and voluntary actions, market mechanisms, fees, and expenditures. This includes establishing regional targets for minimizing vehicle miles traveled through changes in land use and transportation patterns. Coastal Commission staff submitted a comment letter regarding the draft scoping plan.
 - CARB must adopt regulations to implement AB 32 by January 1, 2011. Those regulations will go into effect on January 1, 2012.
- **SB 97** - SB 97 (Dutton) enacted in 2007 requires the Office of Planning and Research (OPR) and the Resources Agency to prepare and adopt CEQA guidelines for the mitigation of greenhouse gas emissions by January 1, 2010. In June 2008, OPR issued a technical advisory providing interim guidance regarding CEQA analysis of climate change and greenhouse gas emissions. (http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf)
- **SB 375** - SB 375 (Steinberg) enacted in 2008 directs CARB to establish regional targets for reductions in greenhouse gas emissions from motor vehicles. The metropolitan planning organizations (MPOs) will be required to adopt “sustainable communities strategies” and, if necessary, “alternative planning strategies” specifying what transportation investments and land use modifications are necessary in order to minimize vehicle miles traveled and thereby reach the targeted emission levels. Local governments will not be

required to adopt the land use measures identified by the MPOs, but the legislation provides a series of financial incentives, in the form of transportation investments, and CEQA streamlining provisions for those that do. It is likely that that the SB 375 process will trigger the need for LCP amendments in numerous coastal jurisdictions. (http://info.sen.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080902_enrolled.pdf)

- **Executive Order S-03-05 – Greenhouse Gas Emission:** Governor’s Executive Order S-03-05 establishes targets for reducing the State’s greenhouse gas emissions to the 2000 level by 2010, to the 1990 level by 2020, and to 80% below the 1990 level by 2050. (<http://gov.ca.gov/index.php?/executive-order/1861/>)
- **Executive Order S-20-06 – Greenhouse Gas Emission & Emission Trading:** Governor’s Executive Order S-20-06 directs the State Air Resources Board to develop a program for reducing greenhouse gas emissions through emissions trading. (<http://gov.ca.gov/index.php?/executive-order/4484/>)
- **Executive Order S-13-08 - Sea Level Rise:** Governor’s Executive Order S-13-08 requires preparation of a Sea Level Rise Assessment Report, directs state agencies carrying out construction projects to consider range of sea-level rise scenarios when planning projects, and requires the Resources Agency to prepare a Climate Adaptation Strategy. It also requires by May 30, 2009, that OPR, in cooperation with the California Resources Agency, shall provide state land-use planning guidance related to sea level rise and other climate change impacts. (This Order does specifically mention the California Coastal Commission, coastal management and coastal resources.) (<http://gov.ca.gov/executive-order/11036/>)
- **Executive Order S-14-08 - Alternative Energy:** Governor’s Executive Order S-14-08 establishes a target for retail providers of electricity to serve 33% of their load with renewable energy by 2020, directs state agencies to take appropriate actions to implement this target, to establish a “one-stop” permitting process for renewable energy generation power plants, and to identify top priority renewable energy zones. (This Order does not expressly refer to the Coastal Commission or Coastal Act permitting procedures.) (<http://gov.ca.gov/index.php?/executive-order/11072/>)
- **Net-Zero Targets:** The California Energy Commission and the Public Utilities Commission have both adopted targets to require new residential development to achieve “net zero” energy use by 2020 and new commercial development to achieve “net zero” energy use by 2030. These targets would be achieved through a combination of increased energy efficiency requirements and on-site energy generation. (California Energy Commission, 2007 Integrated Energy Policy Report http://energy.ca.gov/2007_energypolicy/index.html, California Public Utilities Commission, California Long Term Energy Efficiency Strategic Plan (2008) <http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf>)

Coastal Commission’s Legal Authority and Responsibilities under the California Coastal Act of 1976 to Address Climate Change and Global Warming

The Local Coastal Program (LCP) planning program and coastal permitting are key mechanisms to carry out measures to address climate change. Within the Commission’s jurisdiction, coastal permits must comply with Coastal Act policies. In addition, local governments, port districts, university administrations and state agencies currently administer various plans under the Coastal Act, including local coastal programs, port master plans, long range development plans and public works plans.

These plans contain policies, ordinances and standards that carry out Coastal Act policies, including policies related to climate change as identified below and are the standard of review for most coastal permits. With 72% of LCPs certified, the vast majority of coastal permits are now issued by local governments pursuant to these certified plans. Certain type of local actions can be appealed to the Commission.

While local governments are initiating many excellent programs to address climate change locally, many of the LCPs have not been comprehensively updated and may not reflect the latest science and adaptation measures and some do not explicitly address climate change issues at all. The Coastal Act contains no provisions that require local government (or other agencies) to revise and update their plans. The Commission, however, must certify any propose amendments to these plans. The Commission should encourage updates to LCPs and should consider climate change in the review of any LCP amendments, where applicable. LCPs are an excellent tool for implementing mechanisms to reduce greenhouse gas emissions, and to provide adaptation techniques.

Coastal Act Policies Concerning Land Use Patterns

The Coastal Act has a number of provisions which provide direct authority to take steps to reduce the climate change impacts of development within the coastal zone, protection of agriculture, recreation and environmentally sensitive habitat areas (ESHA).

- Requiring **concentration of development** is addressed in Section 30250(a): “New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.”

- The **establishment of urban-rural boundaries** is addressed in Section 30241: “The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas’ agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:
 - (a) By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.
 - (b) By limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development. . .”
- Section 30242 also **restricts the conversion of agricultural lands**: “All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.”
- Section 30243 **restricts the conversion of timberlands**: “The long-term productivity of soils and timberlands shall be protected, and conversions of coastal commercial timberlands in units of commercial size to other uses or their division into units of noncommercial size shall be limited to providing for necessary timber processing and related facilities.”
- Section 30240 **restricts development in and adjacent to ESHA and parks**: “(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.”
- Section 30254 requires **new public works facilities be designed to serve development that is consistent with the Coastal Act**: “New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. . . .”

- Section 30222 addresses the hierarchy of uses within the coastal zone and the need to **preserve opportunities of visitor-serving recreational uses**: “The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.”
- Section 30007.5 addresses when Coastal Act policies conflict and includes legislative finding regarding the **concentration of development**: “The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.”

Coastal Act Policies Concerning Energy Consumption and Transportation

The Coastal Act has specific policies encouraging reduction of energy use and vehicle miles traveled.

- **Reducing energy consumption and vehicle miles traveled** are addressed in section 30253: “New development shall: ...(4) Minimize energy consumption and vehicle miles traveled.”
- **Encouraging public transit and pedestrian-oriented development** are addressed in section 30252: “Maintenance and enhancement of public access. The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing non-automobile circulation within the development, (4) ... or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings....”

Coastal Act Policies Concerning Hazards

The Coastal Act has provisions which are directly relevant to climate change hazards and sea level rise.

- **Avoiding creation of hazards** is addressed in section 30253: “Minimization of adverse impacts. New development shall: (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.”
- Section 30235 authorizes **construction of shoreline protective** structures to protect existing development, demand for which may increase with climate change: “Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.”
- Section 30236 authorizes **alteration of streams for water supply and flood control purposes, demand for which may increase with climate change**: “Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, [and] (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development”

Coastal Act Policies Concerning Marine and Terrestrial Coastal Resources

Both marine and terrestrial coastal resources are adversely affected by global warming. The Coastal Act has a variety of policies that protect coastal resources and require the Commission to develop technical expertise and take planning and regulatory steps aimed at slowing global warming, such as:

- **Protection of Recreation Uses**--section 30220: “Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.”
- **Protection of Public Access**--section 30211: “Development shall not interfere with the public’s right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.”
- **Protection of Marine Resources**--section 30230: “Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be

given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.”

- **Protection of Biological Productivity**--section 30231: “The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.”
- **Protection of ESHA**--section 30240: “(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.”
- **Protection of scenic and visual qualities**--section 30251: “The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance.”
- **Technical Advice and Recommendations**--section 30006.5: “The Legislature further finds and declares that sound and timely scientific recommendations are necessary for many coastal planning, conservation, and development decisions and that the commission should, in addition to developing its own expertise in significant applicable fields of science, interact with members of the scientific and academic communities in the social, physical, and natural sciences so that the commission may receive technical advice and recommendations with regard to its decision making, especially with regard to issues such as coastal erosion and geology, marine biodiversity, wetland restoration, the question of sea level rise, desalination plants, and the cumulative impact of coastal zone developments.”

Focus of the Coastal Commission Work on Climate Change Has Been on Permit and LCP Reviews and Actions

Climate Change Issues Addressed in Permits

Many of the conditions that are typically included in Commission permits indirectly help reduce energy consumption and water consumption (which reduces energy consumption), as well as other means to lessen climate change, such as:

- Use of native vegetation
- Clustering development
- Limiting size of development pads (which both reduce area of vegetation removal and area of paving, which create heat sinks)

The Coastal Commission is now developing and beginning to use more project-specific conditions directly aimed at reducing greenhouse gases and other measures designed to slow the increase of climate change.

Thus far, the major permits in which climate change has been addressed have been energy and transportation projects, and so the conditions used thus far have been tailored to issues relevant to those projects. Obviously, other Coastal Act policies will apply to other types of development projects. Major energy, water and transportation infrastructure projects are being proposed for development on the shoreline and in the coastal waters off California. These include offshore oil and gas projects, desalination plants, power plant modifications, road expansions, liquefied natural gas projects, and alternative energy projects.

The construction and operation of these major water, energy and transportation projects can significantly increase greenhouse gases and global warming, which in turn can cause significant adverse impacts on the coastal resources of California,

In accordance with Section 30253(4), all major energy, water and transportation projects, are required to submit extensive greenhouse gas analyses to demonstrate that all feasible measures have been taken to minimize energy consumption and prevent or reduce greenhouse gases consistent with the state law. For those projects that cannot meet the state law standards, the Commission has begun to require mitigation.

Partial Listing of Major Energy, Water, and Transportation Infrastructure Projects

Mitigation for GHG Emissions

The Commission staff has required applicants to submit as part of its coastal development permit application or federal consistency submittal an analysis of the proposed project's greenhouse gas emissions and a greenhouse gas minimization plan. The Commission may require emissions offsets and implementation of additional energy minimization measures. To date, the Commission has considered greenhouse gas emissions in three project proposals: The Poseidon Carlsbad Desalination project (E-06-13), the BHP Billiton Cabrillo Port LNG project (CC-079-06), and Transportation Corridor Agencies (TCA) Toll Road project (CC-018-07). In the latter two cases, the Commission objected to the project in part due to insufficient reduction or mitigation of

greenhouse gas emissions. For the Poseidon Carlsbad Desalination project, the Commission required implementation of a Greenhouse Gas Minimization Plan.

A partial listing of the major energy and infrastructure projects that are currently being reviewed by the Commission staff prior to Commission consideration and action is provided below.

Desalination Projects

- Poseidon Huntington Beach Desalination

Power Plants

- Edison Peaker Plant (Appeal A-4-OXN-07-096)

Offshore Oil and Gas Projects

- PXP Platform Irene Directional Drilling (CC-028-08/E-08-14)
- Venoco Full Field development
- Venoco PRC 421-422 Recommissioning/Redrilling Project
- Venoco Paredon Directional Drilling Project

Liquefied Natural Gas (LNG)

- Woodside LNG
- Clearview LNG

Communications/Cable

- ATT Cable offshore Morro Bay

In addition, a number of significant transportation infrastructure projects are at some stage of environmental review. We have encouraged our agency partners to incorporate climate change analysis in these documents. Some projects that have not reached permit application stage yet may require additional climate change review as a future filing requirement, to be determined on a case-by-case basis.

Some examples of upcoming transportation projects that are anticipated to include GHG and other climate change related analysis are:

Transportation

- Santa Cruz, Highway 1 Auxiliary Lane
- Pacifica, Caleras Parkway
- Santa Barbara and Ventura Counties, Highway 101 High Occupancy Vehicle Lane
- Ventura Counties, Highway 101 High Occupancy Vehicle Lane
- Santa Barbara County Hollister Avenue Interchange
- Eureka-Arcata 101 Corridor

Climate Change Issues Addressed in Local Coastal Programs (LCPs)

The Coastal Act requires new development to minimize energy consumption and vehicle-miles-traveled, and mandates a variety of “smart growth” strategies, including concentration of development in already developed areas and promotion of non-automobile-dependent patterns of development.¹ Through the adoption of LCPs and the review of coastal development permit applications, local governments and the Commission play a vital role in implementation of these Coastal Act mandates.

Through its review of LCP Land Use Plans and amendments, the Commission has suggested modifications to existing or proposed LCP policies that address the following measures to enhance public access to the coast by concentrating new development and increasing intensity of use in existing developed areas. Such policies serve to reduce vehicle miles traveled, thereby improving traffic circulation and access on major coastal access routes. In addition, the Commission has adjusted parking requirements to acknowledge drawing more automobiles to the coast may be counterproductive to enhancing access and reducing greenhouse gas emissions. Suggested policies would allow reduction in parking standards when coupled with provisions requiring non-automobile circulation and public transit to serve new development.

Applicable LCP policies will vary according to the coastal community, existing infrastructure and public access opportunities and may include provisions such as those which:

- Require new development and intensification of use to be located in existing developed areas able to accommodate it without significant adverse effects, either individually or cumulatively, on coastal resources
- Encourage high-density and mixed use development adjacent to major employment centers and along established commuter rail, bus and other public transportation routes
- Require new development be served by public transit or facilitate the provision or extension of transit service
- Incorporate pedestrian orientation and non-automobile circulation into project design and development
- Allow reduction in parking standards only when the proposed use provides for and promotes the use of alternative modes of transportation including ridesharing, carpools, vanpools, public transit, bicycling and walking

¹ These requirements also apply in the permit context.

- Require large commercial and hotel/motel development to provide transportation demand measures such as shuttle service to transit stations, employee transit passes, shuttles to airports and tourist attractions, etc. to reduce traffic and impacts on coastal access routes
- Require new development to pay an in-lieu traffic mitigation fee to help fund expansion of existing and new public transit options, such as a coastside shuttle service that connects to major transit centers

Examples of recent Commission actions or pending LCP submittals where the Commission or staff has addressed these issues include:

- City of Laguna Beach LCP Amendment 3-01 (South Laguna Village)
- City of Laguna Beach LCP Amendment 2-07 (Downtown Specific Plan)
- City of Dana Point LCP Amendment 4-06 (Town Centre Plan)
- City of Newport Beach LCP Amendment 1-07 (LUP Update/Mixed Use)
- City of Solana Beach LCP Land Use Plan
- County of San Mateo LCP Amendment 1-07 (Midcoast Update)
- City of Half Moon Bay LCP Amendment 2-05 (Measure D Growth Control)
- UCSB Long Range Development Plan Amendments 4-02 (North & West Campus Housing)
- City of San Buenaventura LCP Amendment 1-03 (Harbor and Seaward Project)
- Santa Barbara City College Public Works Plan Amendment 1-06 (SOMA Project and Transportation Demand Management Plan)

Major Climate Change Issues

Sea Level Rise

Sea level rise is one of the most direct consequences resulting from climate change and a general warming of the atmosphere. There is a strong connection between a rise in global temperature and a rise in sea level, and a good understanding about the changes in atmospheric temperature and thermal expansion in the ocean. The sea level rise from the melting of glaciers and polar ice is understood from geologic records, but is less well understood for time periods of decades or centuries. A summary of recent sea level reports is attached to this memorandum, and it presents the range of trends and projections currently being developed for rising sea level.

Recent observations from the polar regions show rapid loss of some large ice sheets and increases in the discharge of glacial melt. However, the long-term trends for

glacial change have not been determined, and the 2007 Intergovernmental Panel on Climate Change Fourth Assessment Report concluded that dramatic change in glacier melting was so uncertain that it could not be included in the likely changes in sea level that could be connected to the various emission scenarios.

Therefore, none of the IPCC sea level projects fully include glaciers and ice melt and therefore likely underestimate the effects of climate change on sea level rise. There remains uncertainty about the amount of sea level rise that can occur with specific changes in global temperature, and the time lag between changes in global temperature and global sea level rise. Despite the uncertainty about rising sea level, coastal managers need information now on future sea level to make decisions that will affect the coast for most of the 21st Century.

Change in sea level is one of the main factors causing changes in coastal processes. Rising sea level can:

- Increase coastal wave energy
- Increase beach and bluff erosion
- Increase coastal flooding and inundation
- Increase scour around foundations
- Reduce the effectiveness of existing coastal protection efforts
- Reduce the expected effective life of development setbacks
- Reduce dry beach area and threaten beach-level access and recreational use
- Reduce access time for beaches that are only accessible now at low tide
- Shift the intertidal location inland; possibly reduce intertidal area

There are various methods to help insure that new development is safe from the geologic and flooding hazards associated with rising sea level; that is, to plan and design projects for an amount of sea level rise sufficient to insure the project will be safe for its economic life or incorporate adaptive measures into the project design to enable the project to adjust and remain safe and effective for increasing sea level conditions. Commission staff has been keeping abreast of research on sea level change for 20 years – since staff prepared the *1989 Draft Report Planning for an Accelerated Sea Level Rise along the California Coast*. Through reports, conversations, presentations and brown bag lunches, staff has been sharing information about sea level and climate change with other staff, applicants and other interested parties. More recently, staff has also been analyzing efforts for adaptation to rising sea level and preparing informational materials on adaptation techniques.

Projecting Sea Level Rise for Planning Proposes

Extensive academic and research resources have been focused recently on climate change modeling and staff has followed these research findings for information on predicted sea level change. Staff expected that the 2007 Intergovernmental Panel of Climate Change (IPCC) Report would provide good guidance for planning purposes, but as mentioned earlier, the 2007 IPCC Report failed to reach consensus on how to include fully possible future contributions to sea level from glaciers and polar ice. For the various scenarios of future energy use, the published sea level rise tables actually anticipate less rise in sea level by 2050 and 2100 than the 2001 IPCC Report. Dr. Rahmstorf of the Potsdam Institute for Climate Impact Research published a short *Science* article² in 2007 that developed a linear relationship between historic temperature and sea level change. Using the temperature changes projected for the various IPCC scenarios, he projected that by 2100 sea level could be between 20 and 55 inches (0.5 to 1.4 meters) higher than the 1990 levels.

Absent projections by the IPCC that incorporate possible accelerated contributions from glacial and polar ice, projections from the Rahmstorf study have become the basis for much of the sea level rise planning discussion. For example, the Delta Vision plan recommended in 2008 that these projections be used for planning in the Sacramento delta for long-term projects. While useful for some projects, for long-term investments that may remain in place for several hundred years, this recommendation may not be appropriate. Direction on sea level rise to coastal permit project applicants is in flux. The old process of taking historic trends is no longer sufficient, and an upper planning limit has not been established. Guidance is being done on a case-by-case basis, with hope that some written direction can be provided in 2009.

Written Reports, Presentations and Informal Discussions: Climate change and sea level rise have been discussed in academic journals, research articles and the news media. There has been a scarcity of material that summarizes the available research and identifies the implications of this research to coastal planners and managers. This was mentioned in the Commission's 2006 Global Warming Workshop by Dr. Moser. Starting in 1989, Commission staff has prepared reports and made presentations that attempt to fill the lack of information on sea level rise. In addition to these reports, the Commission's technical staff members regularly engage in discussions about rising sea level with other Commission staff, staff of other agencies including local governments, applicants, applicant's technical representatives, researchers, and interested members of the public in an attempt to explain the implications of coastal resource protection with rising sea level.

Commission staff formal publications and presentations by Commission staff include:

² Rahmstorf, S. 2007. "A Semi-Empirical Approach to Projecting Future Sea-Level Rise," *Science*, v315, 368-370, DOI:10.1126/science.1135456.

- 1989 Draft Report: Planning for an Accelerated Sea Level Rise along the California Coast
- 1991 Presentation and Paper for CZ '91 in Long Beach: Effects of Sea Level Rise on the California Coast
- 1999 Special Session CZ '99 in San Diego: Rising Seas and Vanishing Shores: What Should We Do Now?
- 2001 Paper and presentation on Sea Level Rise at the Commission hearing; Overview of Sea Level Rise and Some Implications for Coastal California
- 2006 Presentation at California and the World Oceans' Conference: Implications for California's Open Coast from Accelerated Sea Level Rise
- 2006 Brown Bag: Assessing Impacts on Adaptation to Climate Change: A Perspective from "Downunder"
- 2007 Brown Bag: Greenhouse Gases and Climate Change
- 2007 Brown Bag: Coastal Processes, Coastal Erosion and Sea Level Rise
- 2007 Presentation and Abstract at CZ '07: Sea Level Rise as a Coastal Hazard
- Material on Sea Level Rise and Hazards for the Climate Change Web Site
- Discussion of rising sea level in the Commission's book series, Experiencing the California Coast
- Draft White Paper for Caltrans: Planning and Designing Highways and Other Transportation Infrastructure for Changing Sea Level (in preparation)

Agency Coordination and Outreach: Sea level rise can have far-reaching effects and many agencies and organizations have had longstanding concerns about it. Commission staff has had informal coordination and outreach with other state agencies, in particular, the San Francisco Bay Conservation and Development Commission (BCDC), the Coastal Conservancy, NOAA, USGS and EPA. Recently, federal and state interest in climate change and rising sea level has been more formalized and a number of committees and initiatives have been formed to address common concerns. Commission staff cannot participate in all the meetings and committees that exist currently; but staff has attempted to take an active role in several committees that are working directly with rising sea level and adaptation. Staff has participated in or had on-going involvement with:

- Climate Change Task Force: Adaptation Sub-Committee
- California Climate Action Team, Scenarios Sub-Committee
- Ocean Protection Council, Adaptation Sub-Committee.
- 2008 NCSE Climate Change: Science and Solutions; Roundtable Discussion - Coastal Managers Addressing Climate Change

- Curriculum Criteria for the Climate Literacy Program
- NOAA/USGS Coastal Climate Initiative Workshop

Evolving Efforts to Include Sea Level Rise into Coastal Development Permits and Local Coastal Programs: Rising sea level has always been a design component of projects along the coast. In the 1970s through most of the 1980s, projects incorporated historic rates of sea level (about 0.75 ft/century) into project design. As research on climate change and increased sea level rise began to develop, projects were designed with an assumption of a future rise in sea level of 1 ft/century. More recently, project designs have been examined using an assumption of several feet of sea level rise to ascertain their stability. One example is the coastal permit for the Ocean View Plaza (CDP 3-08-013) that used a sea level rise of 3 feet in 100 years.

Coastal agencies are working to obtain high quality baseline topographic data for the lands next to the coast and all lagoons, bays and estuaries, in order to develop maps showing areas vulnerable to incremental rises in sea level. The scale and resolution of existing maps for most of coastal California are currently inadequate to distinguish between areas vulnerable to the various sea level rise scenarios currently projected from 0.3 meters to 1 or 2 meters. Additionally, vulnerability assessments must also account for a combination of factors including wave action, sea level (due to global sea level rise), tides, atmospheric forcing, El Niño-induced thermal expansion, and storm surge. These factors are well-recognized and will be included in future vulnerability analyses for coastal areas. After detailed topographic information is available, vulnerability maps will be developed for use by the Commission, local governments, and other agencies for planning and regulatory purposes.

Coastal Hazards and Erosion

Climate change has the potential to increase coastal erosion primarily in two ways. First, and most important, rising sea levels exposes bluffs and beaches to wave forces for longer periods of time during each tidal cycle. The height reached by the waves is actually less significant in terms of the amount of erosion than is the length of time during each tidal cycle that waves impact the shore face or bluff. Second, some climate models suggest an increase in storm intensity will accompany continued global warming. Indeed, there is evidence that significant wave heights have been increasing in the northern Pacific for the past several decades.

Researchers at the Scripps Institution of Oceanography, U.S. Geological Survey, and Philip Williams and Associates are developing models relating sea level rise to bluff erosion. Unfortunately, none of these models have been validated and none are ready for application in a regulatory sense. Accordingly, there is no accepted way to quantitatively relate coastal erosion rates with rising sea level. Commission staff considers the effects of sea level rise on future bluff retreat rates by taking a conservative approach to projecting historic bluff retreat rates to the future. For example, if a range of bluff retreat rates is reported for a given site, the *highest*, rather

than the average, rate will be applied in calculating development setbacks or elevations in order to at least partially capture the future effects of sea level rise.

Wave and flooding hazards to development on beaches or low-lying bluffs or dunes are evaluated by a quantitative wave uprush analysis. In such an analysis, waves of a given magnitude (generally corresponding to a one in one hundred year storm event) are propagated onshore. The base water elevation for wave propagation is a high tide and some projection of future sea level rise; the beach condition is assumed to be experiencing both seasonal and long-term erosion. The resulting wave elevations and inland inundation is used in calculating development setbacks or elevations. Inherent to this analysis is the design difficulty stemming from uncertainty about the appropriate amount of sea level rise that can be expected over the design life of the development.

Loss of Beach/Access

As sea level rises, areas of sandy beach are lost, including public beaches and public easements and accessways. Given the amount of coastal development and shoreline protective devices hardening the coastline, the beaches and access points cannot migrate landward and the result will be loss of sandy beach and recreation areas.

Coastal Habitats: Marine and Terrestrial

Coastal Habitats: Coastal habitats face increased vulnerability from changes in weather patterns, temperature, water chemistry, and sea level due to climate change. The International Panel on Climate Change has presented a number of possible scenarios including a worst case or “business as usual” scenario that predicts more frequent and more intense Atlantic cyclonic storms, an 8 to 10.4°F rise in global temperature, and a 22 to 30 inch rise in sea level by the end of the century.

Marine: There is strong scientific consensus that marine resources (marine ecosystems) are threatened by climate change. In California, shoreline and nearshore ecosystems serve critical ecological and economic functions. Shoreline ecosystems include sandy beaches, rocky intertidal zones, mudflats, salt marshes, estuaries, and lagoons. State waters extend three miles offshore and support a variety of ecosystems such as seagrass beds, kelp forests, rocky reefs, and sandy sea floor. As climate changes, many of these habitats and the organisms inhabiting them will be adversely impacted or eliminated due to shifts in ocean temperature, changes in ocean chemistry (e.g. increased sedimentation, decrease in pH or acidification), shoreline erosion, and sea level rise. Dunes and beaches will be lost as sea level rises and storm surges become more frequent. Wetland systems will also be lost, and saltwater intrusion into coastal aquifers will increase. Kelp forests are some of the most well-recognized nearshore ecosystems, popular diving destinations and most ecologically significant offshore communities for California. Kelp, which declines in temperatures above 68° F, may be threatened. And fish stocks already in decline are predicted to be further reduced as a result of climate change impacts.

Terrestrial: Vulnerable coastal habitats include shoreline ecosystems such as beaches, dunes, and salt and brackish-water wetlands, as well as fresh-water wetlands, grasslands, riparian areas, coastal sage scrub, chaparral and woodlands. Climate change will impact coastal habitats in myriad ways; a primary concern is that many coastal habitat species (permanently attached organisms (plants and some animals) as well as animals with small home ranges) may not be capable of adapting as quickly as the climate is projected to change. Other climate change concerns for coastal habitats include: 1) increased erosion of habitats due to sea level rise, 2) inundation of wetland habitat due to sea level rise, 3) increased competition from non-native species as native species become more vulnerable, 4) increased fires, 5) increased storm intensity, and 6) loss and fragmentation of migration corridors. Coastal organisms occupying habitats at the edges of their ranges and that are subject to situations such as those listed above will be particularly vulnerable to extinction.

The Commission, the Coastal Conservancy and BCDC have all encouraged and supported wetland restoration projects – often as mitigation for impacts from fill associated with port development, power plant discharge or other nearshore development. All these projects have some flexibility in the design to accommodate some rise in sea level, increased erosion, increased inundation or some shift in water chemistry or water temperature. However, there are limits as to the conditions under which these systems can function effectively and serve their main purpose for mitigation. These restoration projects, just like other terrestrial systems, may be vulnerable to future climate change.

Recognizing the large range of threats to marine and terrestrial systems from climate change, Commission staff has been researching and studying adaptation strategies such as:

- Increased habitat buffers
- Managed retreat
- Rolling easements
- Migration corridors/“highways”
- Land acquisition – partner with non-profit groups and land conservancies to facilitate more land purchases
- Adjustment of fuel modification zones
- Producing habitat and species status projections under three potential scenarios - business as usual, moderate adjustment, radical adjustment
- Strategic focus on most vulnerable habitats and species and/or biodiversity hotspots
- Scrutiny of potential climate change “canaries” – e.g. lichens, sensitive invertebrates, species hovering at range limits

- Beach and dune nourishment
- Captive breeding programs and species relocation

Background Information and Incentives for Green Building

Green Building Sub-committee (of the Commission's internal Climate Change Task Force) Efforts: On average, buildings in the US account for 30 to 40 percent of total energy usage and 70 percent of total electricity usage. Buildings nationwide also account for approximately 38% of total CO2 emissions. To address this direct connection between buildings and green house gas emissions, the green building sub-committee of the CCTF has done extensive research and worked closely with local governments and non-profit organizations to learn the latest in green building policy, technology, techniques, and materials. We plan to pass this knowledge on to other staff members as we continue to gain more experience with this ever-changing information. The following is a brief summary of the Commission staff's work:

- Met with local governments and non-profits to learn about their green building programs
- Reviewed green building programs of other cities and counties nationwide
- Met with representatives of US Green Building Council (USGBC) and Build It Green to educate ourselves in their green building auditing programs (LEED and Green Point Rated, respectively)
- Researched history of green building and educated ourselves and staff about the latest in green building design and "green" building materials and techniques
- Created an incentive program for permit applicants that provides reduced permit fees for building green, which was approved by the Commission in March 2007
- Completed a brochure promoting the green building incentive program that will be distributed to local governments and available on our website and at Commission hearings
- Published article in Builder and Developer magazine (August 2008) about the Commission's green building incentive program and the Commission's efforts to work with the building community to reduce overall green house gas emissions

Reduced Filing Fees as Incentives for Green Building: New Filing Fee Regulations Approved by Commission in 2007 and Finalized March 17, 2008

The Commission is now offering a **40% discount** on application fees for projects certified by the U.S. Green Building Council's (<http://www.usgbc.org/>) Leadership in Energy and Environmental Design (LEED) at a "Gold" level, or an equivalent third party green building certification. The new filing fee regulations were approved by the

Commission in 2007 and finalized March 17, 2008 and were created to provide incentives for building “green”.

How It Works

When an applicant files a coastal development permit application with the Commission for construction of a green building that is proposed to be certified by the U.S. Green Building Council at the level of LEED Gold or higher (or equivalent third party green building certification), the applicant will submit 60% of the fee, plus the remaining 40% in the form of a letter of credit or other acceptable cash substitute.

After construction, the applicant will submit proof that the approved project met the LEED Gold or higher certification (or its equivalent third party certification), and the Commission will release the letter of credit or acceptable cash substitute back to the applicant.

Why Leed-Certified Green Buildings?

LEED awards points in five categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, and Indoor Environmental Quality. While the proposed project will be evaluated for consistency with all policies of the Coastal Act, resource protection is encouraged through these green building categories.

There are numerous benefits to building green. Some examples include:

- Energy, water, and other cost savings
- Healthier homes for families and better working environments for businesses
- Increased durability
- Conservation of resources and benefits to the environment
- Reduced greenhouse gases

California Coastal Commission’s New Climate Change Website

The California Coastal Commission’s new climate change web site, linked from the Commission home page (www.coastal.ca.gov), is aimed at an audience of coastal development applicants, local governments, and the general public. This website can be used to communicate any new guidelines or action taken by the Commission with regard to climate change, provide general information about climate change, the coast, and the Coastal Act and to direct users to other sources of information. It currently contains 14 pages with information and links on topics including:

- The new green building incentive for coastal permit filing fees
- California Coastal Commission's legal authorities and jurisdiction with regard to climate change
- Climate change issues and impacts along the California coast, regarding storms, flooding, erosion, beach loss, coastal and marine habitats, transportation and land use planning, and shoreline access
- What is currently being done to address the problem, in California state government, local governments, and federal and international government
- Options for action, for individuals, local government, and permit applicants
- Links to other sites for more detailed information on climate change issues

Climate Change Research Considerations Submitted to Resources Agency and Energy Commission

New research and reports on climate change impacts, projections of future climate conditions, options for emission reductions, sea level rise, habitat shifts, species stressors, and options for adaptation is being published almost daily. The biennial report of the California Climate Action Team is due out soon and it will present several new research studies on climate change that focus specifically on California. Commission staff, along with staff from BCDC, the Coastal Conservancy and the Ocean Protection Council, was asked to provide white papers on research needs that will be condensed into a chapter on research as part of this forthcoming report. The Commission's paper, will be available on the Commission website included recommended research topics in the areas of:

- Shore Change, Coastal Processes, Physical Oceanography, and Meteorology
- Recreation and Beach Access
- Ecosystem and Habitat Shifts
- Water Quality
- Sequestration
- Green Building
- Smart Growth
- Alternative Energy
- Policy Research

The white paper also mentioned that effective research needs eventually to be brought into the realm of application; that just as research needs evolve, there is an evolution of research to application. To complement the identified research areas, the Commission will need resources to effectively bridge gaps between research, policy and application. This bridging effort is stated explicitly in some research needs, but as new research is developed, there will likely be a need for additional resources that will need to be identified in the future.

Public Policy Institute of California Study on California and Climate Change

In November 2008, the Public Policy Institute of California (PPIC) produced two important reports *Preparing California for a Changing Climate* and *California Coastal Management with a Changing Climate*. Commission staff provided background information to the researchers for these PPIC studies. Links to these reports are available on the Commission website. The reports provide an important independent assessment of the range of issues California is facing with climate change and the reports do an excellent job highlighting the challenges facing the Coastal Commission and the San Francisco Bay Conservation and Development Commission (BCDC).

Participation on Multi-Agency Committees and Task Forces (because of staff shortages and workload we have had minimal involvement in many key interagency endeavors)

- Resources Agency Climate Working Group
- Resources Agency sub-committee work on adaptation/Ocean Protection Council (OPC). OPC staff is working with coastal management agencies and the Resources Agency to coordinate potential future policy actions and to draft a statewide adaptation plan focused on coastal impacts. This Oceans and Coastal Resources working group, consisting of representatives from Stanford University, the University of California system, Monterey Bay Aquarium Research Institute, California Coastal Commission, California Coastal Conservancy, San Francisco Bay Conservation and Development Commission, and State Lands Commission has developed an outline for assessing climate change and sea level rise impacts. This will include adaptation strategies for coastal habitats and infrastructure along the 1,100 miles of California's outer coastline, and within San Francisco Bay.
- Climate Action Team scenarios sub-committees/Energy Commission
- Transportation Planning
- Commission staff participates on the Coastal States Organization Climate Change Work Group, as time allows. The work group, which meets via

conference calls scheduled and is facilitated by CSO staff, has tracked and commented on various federal climate change bills; compiled a report, published in September 2007, titled “*The Role of Coastal Zone Management Programs in Adaptation to Climate Change*” and conducted a survey of the state coastal management programs on adaptation. The survey results are contained in a report released in September 2008, titled “*The Second Annual Report of the Coastal States Organization’s Climate Change Work Group.*”

Working List of Goals and Objectives for Coastal Commission’s Staff Work on Climate Change

There are a number of provisions in the Coastal Act which provide authority for the California Coastal Commission to act, and a number of things which can be done by the Commission via permits or LCP provisions, to reduce/slow climate change. Some of these are directly related to development standards and techniques, as well as to reuse/disposal of building materials and other techniques and standards which can be tied to Coastal Act policies.

The following list summarizes the Commission staff working list of goals and objectives for climate change issues in the coastal zone and under Coastal Act provisions. The progress the staff is able to meet on these goals and objectives is dependent on broader budget issues and staff workload.

Coastal Development Permits

- Update permit application to assist applicants with green building/climate change issues
- Factor climate change issues into reviews of all major permits and federal consistency reviews
- Require analysis of greenhouse gas emissions and climate change impacts of the development in each application
- Develop written guidance for staff for (1) including sea level rise into planning and design aspects for projects that have the potential to be vulnerable to future sea level rise and (2) including mechanisms and conditions intended to reduce climate change effects of proposed development
- Develop and use a checklist with each permit application to require consideration of climate-change issues with each application
- Develop and recommend standard climate change conditions for certain types of development (which may differ based on geographic location)
- Recommend compliance/adoption of permit conditions which would reduce the climate change impacts, based on building and development standards

established by other state commissions and boards and local governments (e.g., re insulation standards), relying on the analysis they have done to reach conclusions on the most effective and most cost-effective techniques

- Move towards means to make development “carbon neutral” when possible, including the use of carbon calculators for development projects and including conditions to offset carbon increases due to the project
- Work with local governments and other state agencies to develop additional incentives (lower fees already in place) to promote green building and development
- Research and develop conditions to include techniques and goals which could be folded into the Coastal Act permits which reduce greenhouse gas emissions and climate change with a goal to:
 - Reduce energy use
 - Encourage use of cleaner power plants/buying cleaner power
 - Reduce vehicle miles traveled
 - Reduce water use
 - Increase use of native vegetation
 - Improve construction/development/disposal techniques and encourage material reuse where possible

Local Coastal Programs (LCP)

- Factor climate change issues into reviews of LCP updates and amendments (land use patterns, transportation, adaptation and mitigation)
- Develop and provide model LCP provisions and guidance for taking climate change issues into account, for use by local governments and Commission staff
- Work with local governments to exchange technical assistance, information and encourage application of Coastal Act and LCP provisions which can reduce climate change. Some local governments are taking innovative actions to address climate change issues and the Commission can gain knowledge from these local actions
- Prepare guidelines and conduct targeted periodic LCP reviews that are focused on climate change issues
- Compile best examples of local ordinances and programs to implement green climate construction

Coordination and Participation With Other Agencies and Initiatives

- Participate fully in the preparation of Resources Agency Adaptation Report currently underway and in other Resources Agency efforts regarding climate change
- Work with other agencies on sea level rise mapping for entire California coast
- Continue to work with other agencies and researchers to identify coastal habitats and species most vulnerable to climate change impacts (e.g. sea level rise, temperature change, and increases in fires and storm intensity) and on adaptation strategies suitable for implementation in permit conditions that will ameliorate the respective impacts
- Monitor and provide input to efforts by the Resources Agency and Office of Planning and Research to develop land use planning guidance on responding to sea level rise and other climate change impacts as required by S-13-08, with emphasis on the Coastal Act and LCPs.
- Participate in regional planning efforts to implement SB 375 and AB 32
- Support efforts to improve and expand public transit service to and within the coastal zone
- Monitor and track what other agencies are doing to avoid duplicating work or creating avoidable conflicts with other agencies. (For example, the Energy Commission has been preparing and adopting successively stricter building standards and many local governments are exercising their right to adopt even more stringent building standards.)

Research Needed

- Work with scientists in the research community towards developing a means of relating rising sea level with future bluff retreat rates
- See research recommendations submitted to the Energy Commission and the Resources Agency (discussion on page 26 - documents on Commission's website)

Training and Outreach

- Develop guidance and provide training for Commission staff, local governments, public and applicants. (Tasks to be performed in part by funding to be provided CIAP grant)
- Compile best examples of local ordinances and programs to implement green climate construction

- Provide materials for and conduct outreach to make information available regarding climate-change construction techniques, with the goal of voluntary compliance
 - Conduct workshops
 - Develop informational materials
 - Maintain website as information source

Other

- Identify ways for the Commission to reduce carbon emissions as a part of its operation

Potential Next Steps

- Prioritize goals and objectives based on budget constraints and staff resources
- Schedule a workshop during the Commission's Monterey meeting in March 2009 that would include guest speakers describing results of research currently underway
- Schedule a workshop on sea level rise and coastal hazards
- Seek additional grant funding to support Commission staff work on climate change issues

Attachments

- California Coastal Commission Green Building Brochure
- Climate Change Task Force Membership
- Summary of Recent Reports on Sea Level Rise

**SAMPLE PERMIT FEE SAVINGS
FOR GREEN BUILDING
PROJECTS:**

*40% fee reduction for
proposed Green Building*

- Single Family Residence
(1,500 – 5,000 s.f.)
Original fee: \$4,500
Discounted fee: \$2,700
Savings: \$1,800
- Subdivision (1,000 c.y. of
grading and construction of
five 1,500 – 5,000 s.f. single
family residences)
Original fee: \$35,250
Discounted fee: \$21,150
Savings: \$14,100
- Duplex
Original fee: \$7,500
Discounted fee: \$4,500
Savings: \$3,000
- Commercial Construction
(25,001 - 50,000 s.f.)
Original fee: \$20,000
Discounted fee: \$12,000
Savings: \$8,000

CCC DISTRICT OFFICES

NORTH COAST
710 E Street, Ste. 200
Eureka, CA 95501-6813
**(707) 445-7833 or
(707) 445-7834**

NORTH CENTRAL COAST
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219
**(415) 904-5260 or
(415) 904-5200**

CENTRAL COAST
725 Front Street, Suite 300
Santa Cruz, CA 95060-4508
(831) 427-4863

SOUTH CENTRAL COAST
89 South California Street, Suite 200
Ventura, CA 93001-2801
(805) 585-1800

SOUTH COAST
200 Oceangate, 10th Floor
Long Beach, CA 90802-4416
(562) 590-5071

SAN DIEGO COAST
7575 Metropolitan Drive Ste 103
San Diego, CA 92108-4402
(619) 767-2370



**BUILD GREEN –
SAVE GREEN**

**AN EXCITING NEW
PROGRAM OFFERING
REDUCED PERMIT FEES
FOR
BUILDING GREEN**



The California Coastal Commission is now offering a **40%** discount on application fees for projects certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) at a "Gold" level, or an equivalent Green Building certification.

HOW IT WORKS

When you file your application with the Commission for construction of a green building that is proposed to be certified by the U.S. Green Building Council at the level of LEED Gold or higher (or equivalent 3rd party Green Building certification), submit 60% of the normally-requested fee, plus the remaining 40% in the form of a letter of credit or acceptable cash substitute.

After construction, submit proof of your LEED Gold or higher certification (or equivalent 3rd party certification), and the Commission will release the letter of credit or acceptable cash substitute to you.

For more information on the fees for particular projects, contact your local district office listed on the back of this brochure, or see the full text of the Commission's regulation section 13055(h).

BENEFITS OF GREEN BUILDINGS

Building "green" can bring about a variety of social, environmental, and economic benefits. Some examples include:

- *Energy savings* through solar site orientation, energy efficient designs, mechanical systems, and building materials, and well insulated structure and duct systems.
- *Water savings* through native and drought tolerant landscaping, use of recycled water for irrigation, and incorporation of efficient appliances and plumbing fixtures.
- *Waste minimization* through the use of recycled and reused materials and opportunities for onsite composting.
- *Healthier homes and offices* by minimizing materials and paints that emit hazardous chemicals, enhancing ventilation for improved indoor air quality, and utilizing non-toxic pest control measures.
- *Cost savings & profits* from greater resource efficiency, lower operating costs, improved occupant productivity, enhanced asset value, and optimized life-cycle economic performance.

These are but a few of the ways green buildings can improve our lives. To learn more, visit the websites listed on the last page of this brochure.

WHY BUILD GREEN?

In the United States, buildings account for approximately:

- 32% of Total Energy Usage
- 12% of Total Water Consumption
- 68% of Total Energy Consumption
- 38% of Total CO₂ Emissions

By incorporating green building practices into project design, we can continue to enjoy the benefits of buildings, while minimizing their impact on coastal resources.

WHY LEED-CERTIFIED GREEN BUILDINGS?

LEED awards points in five categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, and Indoor Environmental Quality. While the proposed project will be evaluated for consistency with all policies of the Coastal Act, resource protection is encouraged through these green building categories.

For more information about green building certification, visit:

U.S. Green Building Council
www.usgbc.org

Build It Green
www.builditgreen.org

California Coastal Commission
Climate Change Task Force Active Members
December 2008

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Summary of Recent Reports on Sea Level Rise¹

Historic Trends			
Researchers	Trends (mm/yr)	Time Period	Comments
Cabanes, Cazenave & Provost (2001)	3.2	1960 – 2001	Satellite and In-situ
Church, White & Hunter (2006)	2 +/- 1		Tropical Pacific & Indian Ocean
Domingues et al. (2008)	1.6 +/- 0.2	Multi-decadal	Estimated from thermal contribution
White, Church & Gregory (2005)	1.8 +/- 0.3	1950 – 2000	
Leuliette, Nerem & Mitchell (2004)	3.2	1993 - 2000	Satellite measurements
Projections			
Researchers	Future Rise (m)	Time Period	Comments
IPCC (1995)	0.13 – 0.94	1990 - 2100	IS92 scenarios
IPCC (2001)	0.09 – 0.88 (range) 0.48 (central value)	1990 - 2100	Based on SRES scenarios
IPCC (2007)	0.18 – 0.59 (full range) 0.2 – 0.43 (mid-range)	1990 - 2099	Based in SRES scenarios
Church & White (2006)	0.28 – 0.34	1990 – 2100	Projections from Satellite Data
Ramstorf (2007)	0.5 – 1.4 (full range) 0.7 – 1.0 (mid-range)	1990 - 2100	Based on SRES scenarios
Cayan, et al. (2006)	0.1 – 0.8		For CA CAT
Jevrejeva (2008)	0.9 – 1.5	1990 - 2100	In Production
Hansen et al. (2007)	1	By 2100	Just from Ice Sheets
Mote et al. (2008)	-0.12 – 0.55 -0.24 – 1.28	2050 2100	For Washington State regions
Pfeffer (2008)	0.785 – 2.008	2008 - 2100	Examines ice melt
NRC (1985)	0.5 – 1.5	1985 - 2100	

REFERENCES

Cabanes, C., Cazenave, A., and Le Provost, C., 2001, Sea level rise during past 40 years determined from satellite and in situ observations: *Science*, v. 294, p. 840-842.

Cayan, D., Bromirski, P., Hayhoe, K., Tyree, M., Dettinger, M., and Flick, R., 2006, Projecting future sea level, California Climate Change Center, p. 53.

¹ Please note: Information is as provided in report. Much of the information on sea level rise has followed the IPCC Convention of using 1990 as the base year for all projections of some amount of rise, such as 2 feet, as opposed to a rate, such as 0.02 ft/yr. The table attempts to summarize some key reports while balancing clear presentation of information without altering the results as reported by the researchers.

Church, J.A., and White, N.J., 2006, A 20th century acceleration in global sea-level: *Geophysical Research Letters*, v. 33, p. L01602.

Church, J.A. N.J. White, and J.R. Hunter 2006. Sea-level rise at Tropical Pacific and Indian Ocean islands. *Global and Planetary Change* 53; 155 - 168, www.elsevier.com/locate/gloplacha

Domingues, C.M., Church, J.A., White, N.J., Gleckler, P.J., Wijffels, S.E., Barker, P.M., and Dunn, J.R., 2008, Improved estimates of upper-ocean warming and multi-decadal sea-level rise: *Nature*, v. 453, p. 1090-1093.

Hansen, J et al. 2007. Dangerous human-made interference with climate: a GISS modelE study, *Atmospheric Chemistry and Physics*, V. 7, pp 2287 - 2312.

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Jevrejeva, Svetlana (in production) Proudman Oceanographic Laboratory (UK)

Leuliette, E.W. R.S. Nerem, and G.T. Mitchell 2004. Calibration of TOPEX/Poseidon and Jason altimeter data to construct a continuous record of mean sea level change. *Marine Geology*, v. 27; 79 - 94.

Mote, P. A. Peterson, S. Reeder, H. Shipman and L.W. Binder 2008. "Sea Level Rise in the Coastal Waters of Washington State" A Report by the University of Washington Climate Impacts Group and the Washington Department of Ecology.

National Research Council, Polar Research Board 1985. *Glaciers, Ice Sheets, and Sea Level*, Washington, DC. National Academy Press.

Pfeffer, W.T., J.T. Harper, and S. O'Neel 2008. Kinematic Constraints on Glacier Contributions to 21st Century Sea-Level Rise, *Science*, 5 Sept, v 321, 1340 - 1343.

Rahmstorf, S., 2007, A Semi-Empirical Approach to Projecting Future Sea-Level Rise: *Science*, v. 315, p. 368-370.

White, N.J., J.A. Church, and J.M. Gregory 2005. Coastal and global averaged sea level rise for 1950 to 2000, *Geophysical Research Letters*, 32, L01601; doi:10.1029/2004GL021391

Attachments Available for Download

Climate Change Useful Web Links

California Climate Change Portal: <http://www.climatechange.ca.gov/>

California Coastal Commission: www.coastal.ca.gov

California Coastal Commission Climate Change: <http://www.coastal.ca.gov/climate/climatechange.html>

San Francisco Bay and Conservation Commission: <http://www.bcdc.ca.gov/>

California Coastal Conservancy: <http://www.scc.ca.gov/>

California Ocean Protection Council: <http://resources.ca.gov/copc/>

California Air Resources Board: <http://www.arb.ca.gov/homepage.htm>

California Energy Commission: <http://www.energy.ca.gov/>

Natural Resources Agency: <http://www.resources.ca.gov/>

Intergovernmental Panel on Climate Change (IPCC): <http://www.ipcc.ch/>

Pew Center on Global Climate Change: <http://www.pewclimate.org/>

Union of Concerned Scientists: <http://www.ucsusa.org/>

US Green Building Council: <http://www.usgbc.org/>

Coastal States Organization: <http://www.coastalstates.org/>

California Adopted Legislation on Climate Change

[AB 32](#) (Núñez, Ch. 488, Stats. 2006)

[SB 97](#) (Dutton, Ch. 185, Stats. 2007)

[SB 375](#) (Steinberg, Ch. 728, Stats. 2008)

State of California Governor's Executive Orders

[Executive Order S-03-05](#)

[Executive Order S-20-06](#)

[Executive Order S-13-08](#)

[Executive Order S-14-08](#)

California Coastal Commission Documents and Other Useful Information

[California Coastal Commission Proposal for 2009 NOAA Coastal Management Fellowship Program](#)

California Coastal Commission Comment Letter Regarding AB 32 Scoping Plan, (08/01/08)

California Coastal Commission *Climate Change and the California Coastal Act – Rising to the Challenge - A Guide to Addressing Coastal Act Issues* - CIAP Project Proposal –(08/08)

California Coastal Commission *Climate Change and Research Considerations* - White Paper (09/29/08)

McLendon, Aaron [Building Green to Save Green- understanding the economic and environmental benefits of building green](#) - Builder and Developer Magazine Article (Aug. 08), - scroll to page 28

Coastal States Organization [September 2008 Climate Change Report – The Role of Coastal Zone Management Programs in Adaptation to Climate Change](#)

Public Policy Institute of California November 2008 Reports - [Preparing California for a Changing Climate \(Bedsworth and Hanak\)](#) and [California Coastal Management with a Changing Climate \(Hanak and Moreno\)](#)

[California Coastal Commission 2006 Climate Change Workshop Presentations](#)

[California Energy Commission, 2007 Integrated Energy Policy Report](#)

[California Public Utilities Commission, California Long Term Energy Efficiency Strategic Plan \(2008\)](#)

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August 1, 2008

Robert DuVall
Office of Climate Change
California Air Resources Board
1001 "I" Street
Sacramento, CA 95812

RE: California Coastal Commission's Comments Regarding Draft Scoping Plan

Dear Mr. DuVall:

The California Coastal Commission staff commends the Air Resources Board for its work on the draft Scoping Plan for implementation of AB 32. AB 32 sets challenging goals for reductions in the State's greenhouse gas emissions, but those reductions are essential for the State to minimize the significant threat the global warming poses to human health, the environment, public infrastructure, private property, and the economy.

The Coastal Commission's statutory mandate is to protect and enhance a wide range of coastal resources and public access. These include natural resources such as the ocean, wetlands, and environmentally sensitive habitat areas; economic resources such as farmland, ports, and other coastal-dependent uses; and the unique recreational opportunities that the coast provides. The Coastal Act also requires minimization of hazards to existing and new development. The Coastal Commission carries out these responsibilities in partnership with local governments in the coastal zone, which are required to adopt local coastal plans (LCPs) that are subject to approval by the Coastal Commission. LCPs include land use plans and zoning ordinances that specify the kinds, location, and intensity of land uses, along with resource protection and development policies. The Coastal Act itself has several policies that serve to concentrate development and promote walking, bicycling, and public transit. These existing policies can help implement goals of reducing greenhouse gases and are implemented through certified LCPs.

Coastal Commission staff strongly supports targets for reduction of greenhouse gas emissions associated with improvements to land use and transportation patterns. As the California Energy Commission explained in its 2007 Integrated Energy Policy Report, increases in vehicle miles traveled have historically outpaced increases in population and vehicle ownership. One of the most important factors driving this trend is the automobile-dependent patterns of new development that predominate in most of the State.

As the Energy Commission also found, if the State is to reach its goals for reducing greenhouse gas emissions associated with transportation, improvements in vehicle efficiency and development of low-carbon fuels will not be enough. The State must also reverse the trend of ever-increasing vehicle miles traveled. To do so, the State should establish a framework so that new development and transportation infrastructure provides Californians with realistic and attractive alternatives to the automobile for a significant portion of their transportation needs. This would involve concentrating new

development in already urbanized areas; providing higher density and a greater mixture of uses in those areas; establishing street, sidewalk, and bikeway patterns that are conducive to walking, bicycling, and transit ridership; and providing transit service that can compete successfully with the automobile.

The draft Scoping Plan does acknowledge that land use and transportation planning should play a role in reaching the State's greenhouse gas reduction goals under AB 32 and Executive Order S-3-05. Coastal Commission staff is concerned, however, that the draft Scoping Plan's goals in this area are too modest and are not sufficient to reach the State's greenhouse gas reduction targets.


Coastal Commission staff believes that the Land Use Subgroup of the Climate Act Team's (LUSCAT) recommendations are a good starting point for consideration of additional land use and transportation measures to include in the Scoping Plan. Staff especially supports setting regional greenhouse gas reduction goals that guide regional and local decisions regarding land use and transportation. Coastal Commission staff also supports establishing indirect source rules for greenhouse gases as a strategy for facilitating less energy-intensive locations and patterns of development.

Attached to this letter is the Coastal Commission staff's comment letter regarding the LUSCAT recommendations. This letter provides additional detail regarding how the Coastal Act promotes less energy-intensive and automobile-dependent patterns of development. It also includes Coastal Commission staff's comments regarding some of the details of the LUSCAT recommendations.

Finally, Coastal Commission staff acknowledges that land use and transportation planning often raise challenging issues about which consensus is difficult to achieve. Staff believes, however, that appropriate education, outreach, and planning can foster better public understanding and the necessary public support for land use and transportation patterns that promote less energy-intensive and automobile-dependent patterns of development. In this context, we note that the most recent Public Policy Institute of California public opinion survey indicates that more than 80% of Californians support encouraging local governments to change land use and transportation planning so that people could drive less. This includes large majorities from across the political spectrum.

Thank you for this opportunity to submit comments on the draft Scoping Plan. Please feel free to contact Christopher Pederson at (415) 904-5220 if you have any questions or wish to discuss this letter's recommendations.

Sincerely,



Susan M. Hansch
Chief Deputy Director

Attachment

cc: Jeff Weir, California Air Resources Board

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May 21, 2008

Panama Bartholomy
California Energy Commission
1516 Ninth Street, MS-31
Sacramento, CA 95814

Re: Draft LUSCAT Submission to CARB Scoping Plan

Dear Mr. Bartholomy:

Thank you for this opportunity to comment on the Land Use Subgroup of the Climate Action Team's (LUSCAT) draft "Submission to CARB Scoping Plan on Local Government, Land Use and Transportation" (May 5, 2008).

California Coastal Commission staff strongly supports many of the goals and strategies identified in the draft Submission. The California Coastal Act includes numerous provisions that call for strategies identified in the report, for example, concentration of development, minimization of energy use and vehicle miles traveled, encouragement of forms of transportation other than the automobile, and protection of agricultural lands and environmentally sensitive habitat areas. The Coastal Act also establishes planning and regulatory procedures that can help achieve the goals of AB 32 and Executive Order S-3-05. Coastal Commission staff accordingly requests that the Submission be revised to include discussion of the Coastal Act and of the Coastal Commission's and local governments' responsibilities and authorities with respect to land use, transportation, and planning.

This comment letter first provides an overview of the Coastal Act as it relates to land use planning and global warming. It then provides comments regarding overarching themes in the LUSCAT Submission and concludes with comments about detailed provisions of the Submission.

Overview of the Coastal Act As It Relates To Land Use Planning and Global Warming

The Coastal Act is distinctive state legislation in that it establishes substantive requirements regarding land use planning and review of new development along California's coast (excluding the San Francisco Bay). It assigns to the Coastal Commission, a state agency, the responsibility to ensure compliance with the Act's requirements. The Coastal Act establishes two primary regulatory procedures for accomplishing this: the local coastal program (LCP) process and the coastal development permitting (CDP) process.

The Coastal Act calls for all local governments with land located within the coastal zone to adopt LCPs. LCPs consist of land use plans, zoning ordinances and maps, and other implementing

actions. The Commission must certify LCPs and LCP amendments for compliance with Coastal Act requirements before they become effective. Most jurisdictions along the coast now have fully certified LCPs, although significant stretches lack fully certified LCPs, especially in southern California. The Coastal Act calls for the Commission to periodically review how local governments are implementing certified LCPs, although that has happened only infrequently due to budgetary and staffing constraints.

In addition, the Coastal Act establishes that new development within the coastal zone generally requires a CDP. Development is broadly defined to include, among other things, erecting or demolishing structures, grading, dredging, subdividing land, and other changes in the intensity of use of land. In areas that are not subject to fully certified LCPs, the Commission is generally responsible for reviewing proposed development for consistency with the “Chapter 3” policies of the Coastal Act (Public Resources Code sections 30200-30265.5).¹ In areas with certified LCPs, the local government is responsible for reviewing CDP applications for consistency with LCP requirements. Local government decisions on certain categories of development, for example development located between the first public road and the sea, can be appealed to the Coastal Commission.

The Coastal Act includes numerous substantive requirements that advance the land use and transportation strategies discussed in the draft LUSCAT report. For example, the Coastal Act generally requires new development to be located within or adjacent to already developed areas and to minimize energy consumption and vehicle miles traveled (Sections 30250(a) and 30253(4)). It also provides that the configuration and density of development should support public transit service and non-automobile circulation (Section 30242). In addition, the Coastal Act strictly limits development of agricultural lands, timberlands, wetlands, and environmentally sensitive habitat areas (Sections 30233, 30240-30243). Finally, the Coastal Act places high importance on ensuring that the shoreline and related recreational opportunities are accessible to everyone, regardless of income or where they live (Sections 30210-30224).

The Coastal Act recognizes that strategies to concentrate development in existing urbanized areas and to minimize energy use and travel demands complement and are necessary to achieve the Act’s goals regarding protection of open space, agriculture, natural habitat, and recreational resources. Coastal Commission staff believes that this principle is equally applicable to the LUSCAT Submittal.

The Commission is engaged in a number of efforts to respond to global warming. With respect to major industrial and transportation infrastructure projects proposed in the coastal zone, the Commission now evaluates the greenhouse gas emissions associated with such projects and has required the development of mitigation plans to address the emissions of those projects that it has approved. The Commission also recently revised its application fee schedule to allow for fee reductions for projects that are certified as meeting the Leadership in Energy and Environmental Design (LEED) gold standard or equivalent. Commission staff is also working on materials to provide guidance to various potential audiences, including applicants, local governments,

¹ All subsequent statutory citations are to the California Public Resources Code.

Commission staff, and the Commission itself regarding how to minimize the greenhouse gas emissions associated with new development in the coastal zone and to prepare for adaptations that will be required as a result of climate change.

The Coastal Commission has a significant workload and serious staffing constraints that has limited the Commission's ability to participate fully with other agencies to address global warming. The Commission staff has established an internal Climate Change Task Force to combine staff skills to address global warming issues as workload permits. This internal Task Force has identified the need to provide training and analytical tools for the Commission and its staff to evaluate how best to address land use and transportation in order to minimize greenhouse gas emissions and to communicate that information to applicants and local governments.

There is also an unmet need to provide staffing and resources for the Commission and local governments to work together to update LCPs in coordination with regional planning efforts so that they more effectively implement Coastal Act requirements in a manner that reduces greenhouse gas emissions.

In light of the foregoing, Coastal Commission staff submits the following comments and recommendations regarding the draft LUSCAT Submittal. We start with comments regarding some of the overarching themes of the Submittal and conclude with a list of more specific comments and recommendations.

General Comments Regarding the LUSCAT Submittal

As indicated above, Coastal Commission staff requests that the LUSCAT Submittal be revised to include a statement regarding the Coastal Act, the role of the Coastal Commission and local governments in implementing the Coastal Act, and how they can be integrated into statewide and regional strategies to address global warming through land use planning and transportation decisions. At various points, including on the opening page, the Submittal characterizes the State as lacking direct land use authority. The Submittal should be revised to acknowledge Coastal Act requirements with respect to land use and transportation planning.

Coastal Commission staff supports the provisions of the Submittal that encourage the appropriate siting and building of higher density, mixed-use, infill development in urbanized areas that is supportive of public transit, walking, and bicycling. The Coastal Act's provisions requiring concentration of development; facilitation of public transit and walkable communities; protection of agricultural lands, sensitive habitats, and water resources; and minimization of energy use and vehicle miles traveled call for the kinds of development patterns that the Submittal seeks to encourage. This higher density transit- and pedestrian-oriented development can and should be done in the coastal zone in a way that also complies with Coastal Act requirements to protect public access to the coast, to provide adequate lower-cost visitor-serving and recreational opportunities, and to protect significant scenic resources.

Coastal Commission staff recommends that LUSCAT consider establishing statewide standards regarding these principles that local governments should incorporate into their general plans and

zoning codes, including LCPs along the coast. The standards should allow flexibility for local governments to determine the most appropriate method for meeting the standards in light of local and regional characteristics.

One of the challenges in the coastal zone and statewide is how to accomplish these goals in areas with existing suburban patterns of development that lack the density, the mix of uses, and the transportation infrastructure necessary to minimize automobile use and support walking, bicycling, and transit. LUSCAT should revise the Submittal to expressly call for the development of strategies to modify existing automobile-dependent communities, including provision of mixed uses, so that residents of those communities do not need to travel as much in order to have access to a reasonable range of goods and services.

Coastal Commission staff supports incorporating evaluation of greenhouse gas emissions into land use and transportation planning by state, regional, and local agencies and supports establishing statewide and regional greenhouse gas emission targets. As a component of this, Commission staff recommends that the Submittal include a process for determining which areas of the State can most readily accommodate more development with lower energy and transportation demand and establish an implementation strategy for accomplishing those goals. We note that the Submittal already makes similar recommendations regarding planning within the State's various regions.

Coastal Commission staff generally supports the development of high-speed rail and the improvement of other existing passenger rail and public transit systems consistent with the Coastal Act. New or expanded systems should be designed to facilitate non-automobile dependent land use and transportation patterns. Communities under consideration for strategic station locations should be required to adopt land use plans and zoning for higher density, mixed-use transit- and pedestrian-oriented development around the stations. The various state programs discussed in the report, including those that set out housing infrastructure, and related requirements that affect those jurisdictions, also should correspondingly be modified to support those development patterns.

The Submittal emphasizes financial incentives and technical assistance as means to accomplish the Submittal's goals regarding land use and transportation patterns. The Submittal should also call out existing regulatory authority that can help achieve those goals. In addition, the Submittal could be strengthened by recommending that state agencies be directed to exercise their existing authority in a manner that will help accomplish the State's GHG emission reduction goals.

Coastal Commission staff strongly supports providing increased financial and technical assistance to local governments to update general plans and zoning codes. This should include assistance to revise LCPs to address not only how to minimize energy consumption and vehicle miles traveled, but also how to address the unique challenges that coastal jurisdictions will face as a result of sea level rise, increased storm surges and accelerated erosion. The State should also aggressively seek new sources of funding and technical assistance to support these efforts, including from the federal government and private foundations.

Coastal Commission staff requests clarification of statements in the Submittal that recommend strategies should have a “net zero cost” through 2020. Commission staff supports the concept of reallocating or leveraging existing resources to help accomplish the Submittal’s land use, transportation, and planning goals. Commission staff also supports taking into account the very significant benefits that can be expected from accomplishing the Submittal’s goals when evaluating the short-term implementation costs versus the likely much higher long term costs of failing to respond in a timely fashion. That said, as the Submittal itself establishes through its numerous references, including the need for increased resources for research, planning, public transit and infrastructure improvements, and affordable housing, that it is unlikely that agencies and local governments will be able to adequately fund near-term efforts simply through reallocation of existing resources. We believe that one prong of the State’s strategy to address this should include active pursuit of Federal funding and assistance to meet the coming challenges associated with climate change.

Coastal Commission staff has reservations about some of the Submittal’s statements regarding discretionary review. The Submittal indicates that discretionary review procedures can be used to delay or prevent the kinds of urban infill projects that the State must facilitate in order to address global warming. Although this can be true, public participation in governmental decisions is a well-established requirement of California law and is an important safeguard against destructive development decisions. That informed public participation has the potential to in fact engender the needed public support for adjusting land use and development decisions to better cope with GHG emission issues. In addition, the Coastal Act, while encouraging higher density urban infill development, also requires protection of public access, scenic resources, and visitor-serving uses. Striking an appropriate balance among these various concerns does not lend itself to developing set ministerial rules that do not involve public participation and the exercise of discretion and judgment.

Detailed Comments Regarding the LUSCAT Submittal

Pg 5: Since the intent is to address both climate change mitigation and adaptation strategies, Commission staff suggests that end of the forth paragraph be expanded to include the notion that these activities and sectors are also key ingredients to implement needed adaptation strategies and that improving land use planning is necessary for the State to successfully adapt to climate change.

Pg 8: Bullet 6 would be improved by also noting that assessing the vulnerability of all existing infrastructure, particularly to dynamics such as sea level rise and increasing storm surges, will also be key to designing adaptation strategies.

Pg 8: As stated previously, Commission staff agrees that higher density urban infill should be encouraged. Bullet point 7, however, should be clarified to acknowledge that restrictive land use practices in rural areas are an important tool to reduce vehicle miles traveled and energy consumption and complement efforts to encourage more urban infill development. Furthermore, we believe that it should be noted that infill and adequate housing supplies should be promoted

in appropriate places that would not impact, for example, wetlands or displace necessary coastal-related and coastal-dependent uses along the coast.

Pg 8: Finally, at Bullet 3, Commission staff would suggest that expansion of transit systems and transit-oriented development be added to the list of ways that GHG emission reductions can be realized from the transportation sector.

Pg 9: We would recommend at Bullet 5 that the State could also investigate options for leveraging additional GHG emissions through potential changes or incentives to its contracting and procurement procedures as they relate to these issues.

Pg 9: Commission staff believes that the following sentence in bullet point 6 is stated too broadly: “Housing development capacity of regional and local land use plans should not be limited for the purpose of reducing or limiting the growth in vehicle trips or vehicle miles traveled.” Restricting housing development in rural and exurban areas is a necessary component of any statewide or regional strategy to limit growth in vehicle trips or vehicle miles traveled.

Pg 9: At Bullet 7 it should also be noted that, in the coastal zone, such efforts, including adaptation efforts, can be directly implemented through new, or modifications to existing, LCP policies and implementing ordinances.

Pg 10: Commission staff recommends that LCPs be added to the list of plans that should be included for coordination in the development of guidance on how to address GHG emission reduction.

Pg 11: Under “Reduce Barriers to Efficient Land Use Development,” Commission staff agrees that barriers to reducing the *negative* impact of land use planning and development on climate goals should be reduced or eliminated. At the same time, these adjustments need to be made with safeguards to ensure that development will not occur in hazardous areas or in a manner that will harm important resources such as agricultural lands, wetlands, and other sensitive resources.

Pg 11: Under “Measure Progress,” we suggest that goals and objectives for both climate change mitigation and adaptation strategies should be set with an eye toward setting milestones for measuring progress. These could include a number of supporting actions, such as completion of Climate Action Plans, development of Blueprint Plans and implementing measures, and revisions of LCPs in the coastal zone.

Pg 16: The middle paragraph refers to “burdensome discretionary review.” The paragraph should also acknowledge that discretionary review processes can also help build public support for projects and can help inform project applicants and decisionmakers about how best to design projects to meet multiple, sometimes competing public policy objectives.

Pg 18: The summary regarding general plans should point out that general plan amendments linked to local coastal program require Coastal Commission approval.

Pg 22: The middle paragraph states that LUSCAT does not support mandatory local climate action plans. The Submittal, however, elsewhere calls for the adoption of greenhouse gas emission threshold levels and notes that CEQA now involves consideration of greenhouse gas emissions. Local climate action plans could serve as a framework evaluating and implementing greenhouse gas emission reduction strategies.

Pg 23: Commission staff agrees that there is a lack of funding for local and regional governments to engage in long range comprehensive planning efforts. The report should refer to LCPs as an additional category of planning documents that should be updated. In addition, relative to data provision and development, we recommend that the State continue to strive to make its GIS data more useful at the local level and to seek out partnership with federal agencies to improve the development and delivery of that information.

Pg 31: The report should acknowledge the tension between efforts to encourage use of public transit and to limit vehicle miles traveled and efforts to reduce congestion by expanding highway and roadway capacity. Commission staff believes that the State and regions should put primary emphasis on land use planning and infrastructure that change land use patterns and improve public transit, walking, and bicycling facilities so that a larger portion of Californians have realistic alternatives to automobile use. Furthermore, we suggest adding additional recommendations for Caltrans to seek out ways that it can re-enforce sound Blueprint Plans through its own programs, plans and projects, including through setting funding priorities, seeking federal grant assistance, and in the preparation of its own corridor management plans and route concept reports.

Pg 37: Commission staff agrees that mitigation measures to address Level of Service standards can be applied in ways that encourage increased automobile use and that the State should encourage development of alternative standards and mitigation measures to address traffic congestion in ways that reduce traffic rather than accommodate increased traffic, including the enhancement of alternative modes. In terms of land availability for housing, Commission staff agrees that more land must be zoned for higher density, attached single family and multifamily housing, particularly in urban environments, but, as noted previously, these zones must be applied in appropriate areas without sacrificing needed protection of agricultural lands, water resources, sensitive habitats, and other valuable public resources.

Pg 51-52: Commission staff supports efforts to encourage location of schools in manner that minimizes transportation and energy demand and discourages sprawl of land use development patterns.

Pg 59: Commission staff is concerned about having increased “mobility” as a goal. This suggests that more movement of people is a goal, which runs counter to the report’s goal of minimizing vehicle miles traveled. The goal should instead be to increase “accessibility,” which can be accomplished by locating jobs, housing, stores, etc. more closely together rather than by increasing the total amount of travel.

Pg 60: As part of these overall land use response recommendations, we believe that the Coastal Commission should be called out to encourage local governments along the coast to incorporate GHG emission mitigation and adaptation strategies into LCPs.

Pg 62: Among the items mentioned for the State to investigate, Commission staff suggests adding analysis of opportunities for integrating appropriate mixed uses in suburban patterned areas so that the access needs of residents (VMT) are reduced by bringing key community goods and services in closer proximity to housing.

Pg 63: We would recommend adding a section regarding regional housing allocations and having HCD align the distribution of their regional housing need allocations to support appropriate concentrations of housing development in areas identified for smart growth patterns through Blueprint Plans and other local land use plans.

Pg 65: Commission staff supports evaluating new strategies to address parking supply in a manner that is supportive of non-automobile modes of transportation. It is important to do this in a way that does not have the effect of excluding lower-income people from accessing the shoreline or other significant recreational opportunities.

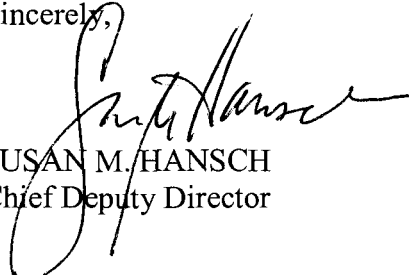
Pg 69: Commission staff supports establishing greenhouse gas emission-based threshold for new development to encourage carbon reductions for higher emitting developments.

Commission staff also recommends that the State develop incentives or requirements for those entering into contracts with the State to implement strategies for minimizing their own greenhouse gas emissions.

Coastal Commission staff are interested in participating in the ongoing efforts to address climate change through land use and transportation planning. We are especially interested in working with other State agencies, regional planning agencies, and local governments in determining how to mesh Coastal Act planning and permitting procedures with other planning processes. Feel free to contact Christopher Pederson, Supervising Staff Counsel, (415) 904-5225 or Susan Hansch, Chief Deputy Director (415) 904-5244 if you wish to discuss the comments in this letter or future Coastal Commission staff participation in discussions regarding implementation of AB 32 and Executive Order S-3-05.

Thank you for your consideration of these comments.

Sincerely,



SUSAN M. HANSCH
Chief Deputy Director

**STATE OF CALIFORNIA
COASTAL IMPACT ASSISTANCE PLAN
PROJECT PROPOSAL**

NAME OF AGENCY/DEPARTMENT: California Coastal Commission
PROJECT TITLE: *“Climate Change and the California Coastal Act – Rising to the Challenge - A Guide to Addressing Coastal Act Issues” (“Guide”)*

PROJECT CONTACT INFORMATION

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PROJECT SUMMARY

Location: Statewide
Duration: 2008-2011
Total Estimated Project Cost: \$ 520,000
Total CIAP Funds Requested \$ 420,000
Amount/Source of Match: \$ 100,000
Coastal Commission Baseline Budget
(California General Fund)
CIAP Spending Estimate Per Year: 2008 – \$100,000
2009 – \$200,000
2010 – \$100,000
2011 - \$20,000

Project Background and Description

This purpose of this project is to provide Coastal Commission staff, local governments, and other interested parties with a resource to help them better understand how the Coastal Commission – in exercising its authorities under the Coastal Act – considers the issue of global climate change in the decisions it makes regarding development within the Coastal Zone, using specific Local Coastal Plan updates and amendments and other projects as case studies.

“Climate Change and the California Coastal Act – Rising to the Challenge - A Guide to Addressing Coastal Act Issues” (“Guide”) will be compiled with a strong emphasis on a review of relevant research and collaboration with other state agencies and local governments that are also developing policies relative to climate change to ensure the information is accurate and will be of high value and user-friendly for its primary users: Coastal Commission staff and local government planners and decision makers. Commission staff will focus initially on LCPs that are or will soon be undergoing updates and amendments, using them as the real-life case studies that will help to illustrate how information on global climate change will be considered and incorporated into recommendations to local government LCPs.

The “Guide” will be an online resource modeled after “Updating the Local Coastal Program (LCP) – A Place to Start,” which will use a combination of existing information, strategies, and lessons learned from other similar projects as well as new guidance developed specifically for this project. What will make this project unique is that it will compile, incorporate, and interpret the best information available specifically as it relates to the California Coastal Act and the implementation of Coastal Act policies.

Coastal management practitioners from around the country agree that global climate change will have far-reaching and long-term adverse impacts on coastal areas and resources, including the California coastline and the coastal resources protected by the California Coastal Act. Californians are also increasingly concerned generally about the impacts of climate change – particularly more severe droughts, increased air pollution, and increased flooding, in that order.¹

The Coastal Commission, coastal cities and counties, and other state and federal agencies with authorities within the state’s coastal areas are grappling with how to best prepare for the expected impacts of global climate change. Those impacts, which are likely to include sea level rise, increased storm frequency and intensity, and coastal erosion and flooding, could pose devastating consequences to coastal and marine habitats, wetlands, and water quality; expensive disruptions or long-term damage to coastal recreation, commercial and residential developments; and the inundation of public facilities and infrastructure, including highways, bridges, airports, commercial harbors, ports, and water treatment and wastewater facilities. The economic impacts could be breathtaking, when considering that a National Ocean Economics Program study in 2005 valued California’s “ocean economy” at \$43 billion (although more recent reports put it even higher).²

Efforts to implement mitigation and adaptation strategies to address global warming and climate change are in varying stages within and among local jurisdictions within California’s coastal zone and State agencies, and the Guide will be help to provide information about, and complement and augment, those efforts as they evolve.

The dynamic nature of the information available about global climate change can be overwhelming to coastal planners and managers and other policy makers. The scientific community warns that even immediate and decisive policies to dramatically reduce the greenhouse gases contributing to global climate change may not prevent or significantly reduce the dramatic and adverse impacts in coming decades. While the information and predictions are constantly evolving as new research and analyses emerge, the Coastal Commission can neither ignore the growing body of information about how global climate change will affect coastal resources, nor wait for some final consensus before coordinating with local governments and others on ways to: 1) calculate and reduce greenhouse gas emissions from new development within the Coastal Zone; 2) identify strategies to mitigate the impacts of climate change on Coastal Act resources; and, 3) identify adaptation strategies for coastal communities.

When Dr. Susanne Moser and John Tribbia surveyed California county and city government employees who have some role in coastal management activities, they

¹Public Policy Institute of California, “Californians & the Environment,” July 2007, pg. 10.

²“A Vision for Our Ocean and Coast - Five year Strategic Plan,” The California Ocean Protection Council, 2006, pg. 8.

concluded “California is inadequately preparing for the impacts of climate change on coastal areas at this time. Local governments will need substantial support from state and federal agencies if the level of preparedness for climate change and other inundation-related risks is to be elevated in the future.” They noted that:

“... local coastal managers would benefit from regular doses of relevant and accessible information on the latest climate change science, especially that relevant to coastal areas..... Consistent with the priorities of California’s Ocean and Coastal Protection Council’s Strategic Plan, this research—through its exploration of managers’ understanding and expectations of global warming impacts and their perceptions of action hurdles—also suggests that there is a need to improve not only managers’ and the public’s awareness, but maybe, more importantly, their deeper understanding of climate change impacts on coastal communities.”³

The Coastal Commission has made it a priority to better understand and closely examine the expected impacts of climate change, specifically in relationship to the likely affects, direct and indirect, on Coastal Act resources. To that end, Commission staff presented the first in a series of global climate change workshops for the Coastal Commission at its December 2006 meeting. Additionally, the Climate Change Task Force (CCTF) - an internal working group comprising staff from a cross-section of divisions, including: planning, enforcement, public education, management, water quality, federal consistency, technical services, and legal, - was formed in May 2007. The CCTF has been meeting almost weekly and several subcommittees have been formed to more closely examine several topics, in relation to global climate change and the Coastal Act, including: adaptation, green building, local governments and LCPs, smart growth, public education and information, interagency coordination, carbon footprint scoring systems, and carbon offsets/cap and trade/sequestration.

The overarching purpose of the CCTF and its subcommittees is to gain the knowledge necessary to advise and update Commission staff, the Commission, local governments and others on global climate change science and research; the opportunities for multi-jurisdictional cooperation in responding to and preparing for its impacts; and how the Commission’s authorities under the Coastal Act may be exercised to minimize the adverse impacts over time on the resources specifically protected by the Coastal Act.

At the December 2006 Commission workshop, the Commission heard presentations by former Assembly Member Fran Pavley on AB 1493 and AB 32, by Dr. Jim Barry on marine resource impacts from climate change, and by Dr. Moser on local government awareness and responses to climate change. At this writing the CCTF is developing workshop topics and speakers for future Commission meetings.

In addition to those activities, Commission staff participates with representatives from other Resource Agency departments in conference calls facilitated by Deputy Secretary for Climate Change and Energy Tony Brunello and also on the Coastal States Organization Climate Change Work Group, which in August 2007 released its final draft report titled “The Role of Coastal Zone Management Programs in Adaptation to Climate Change.” The Commission also recently coordinated responses from the Commission, the San Francisco Bay Conservation and Development Commission, and the California

³ “Vulnerability to Inundation and Climate Change Impacts in California: Coastal Managers Attitudes and Perceptions.” Marine Technology Society Journal, Vol. 40, No. 4, Winter 2006/2007.

State Coastal Conservancy to the Coastal States Organization's "*Climate Change Adaptation Planning & Resource Needs Survey.*"

The data, rationale, and findings used for each strategy incorporated into the Guide will be clearly explained. Members of the CCTF will conduct surveys at available data to ensure the Commission is using the most up-to-date and scientifically defensible information.

Like the LCP guide, the Guide and all companion documents will be user-friendly and offer a variety of links to other resources for information on the full range of issues identified by the CCTF in the course of completing this project. One other element of this effort will be to coordinate with work other state agencies, local government planners, and others who have an interest in development within the Coastal Zone.

The Commission's proposal submitted to NOAA Coastal Services Center - *Climate Change and the California Coastal Act: Rising to the Challenge Planning and Partnering for Reduction, Mitigation and Adaptation* - was selected for the 2008 Coastal Management Fellowship Program, but unfortunately, the Fellow who was expected to start a two-year fellowship at the Commission in September 2008 has decided to pursue other opportunities. The Commission will be updated and resubmitting the proposal for next year's selection process, and we are hopeful that a NOAA Fellow will be joining the Commission in the Fall of 2009, who will be focused specifically on the issue of climate change. The revised proposal will be revised to ensure it would integrate well with and complement this project and that the Fellow's work will directly and significantly enhance the rate of progress, the results derived, and the utility of this project during that time.

Measurable Goals and Objectives

The goals of this project are for the CCTF (and other staff as needed) to evaluate and analyze relevant research and information about the impacts of climate change on coastal resources protected by the California Coastal Act; to evaluate existing techniques for calculating carbon footprints that will help determine the greenhouse gas emissions associated with development proposals before the Commission; and to develop the Guide that will be useful to Commission staff, local government planners, applicants and others (the general public and ratepayers; energy entrepreneurs, investors and analysts; and decision makers and policy makers at all levels of government).

Objective 1: Complete an assessment of research, literature, experts and other sources for relevant information to be used in compiling the "*Climate Change and the California Coastal Act – A Guide to Addressing Coastal Act Issues.*"

Objective 2: Select specific LCPs that are scheduled for amendments and updates to be used as case studies in the Guide and identify staff who will work on tracking the processes to ensure relevant information is available for inclusion in the Guide.

Objective 3: The CCTF will assist in the development of the NOAA Fellow's workplan, including providing an orientation to the Commission, the CCTF and this

project to ensure the timing and specific tasks support the successful completion of this CIAP project.

Objective 4: Form a CCTF ad hoc subcommittee that will develop an initial outline for the Guide, work with the NOAA Fellow on developing and compiling the Guide, review feedback on the Guide and make recommendations for a process for periodically updating the Guide

Objective 5: Information about the Guide is provided to staff at the Commission district offices, who will help to inform local government and other interested parties in each district about the Guide.

Timetable and Deliverables

COMPLETED BY	DELIVERABLES
December 2008	Information about literature, experts and other sources of relevant information is compiled by the CCTF. Specific LCPS to be included as case studies are identified
June 2009	Internal draft <i>outline</i> for the Guide is completed and ready to circulate to staff for comments.
October 2009	The CCTF has provided an orientation on this project for the NOAA Fellow and a strategy for integrating this project with the Fellow's workplan has been developed and approved by the Fellow's supervising mentor. A subcommittee has been identified to work with the NOAA Fellow on developing the first draft of the Guide.
December 2009	Comments on the draft outline have been received and analyzed by the CCTF and NOAA Fellow. Preparation of the draft Guide begins.
April 2010	Draft of the Guide is completed by the NOAA Fellow and the CCTF subcommittee and circulated for review to the CCTF, a sampling of Commission staff from the district offices, and other end users selected as reviewers.
June 2010	Comments are received and incorporated into the final version of the Guide, as appropriate.
August 2010	Final version of the Guide is completed and available on the Commission website, with some feedback loop available to solicit comments from end users of the Guide.
December 2010	CCTF and the NOAA Fellow complete a review of feedback on the Guide, evaluate how the Guide has been used by Commission staff and other end users and develop a process for updated the Guide with new information as it becomes available (new research, policies, strategies, LCP decisions, etc.)
Ongoing/ TBD	Revisions to the Guide are provided on the Commission website

COORDINATION WITH OTHER FEDERAL RESOURCES AND PROGRAMS

As a federally-approved Coastal Management Program, the California Coastal Commission receives funding each year through NOAA's Office of Ocean and Coastal Resource Management (OCRM), as authorized through the Coastal Zone Management Act (CZMA). Funding is appropriated each year by Congress, and the Coastal Commission (in coordination with the San Francisco Bay Conservation and Development Commission and the California State Coastal Conservancy) submits a grant application for its share of the appropriation. The table below indicates total amounts allocated to the Commission in the last several years.

YEAR	CZMA Section 306*	CZMA Section 309	CZMA Section 310	TOTAL
2008	\$1,770,300	\$411,000	\$58,000	\$2,239,300
2007	\$1,770,300	\$411,000	\$0	\$2,181,300
2006	\$1,872,000	\$411,000	\$154,000	\$2,437,000
2005	\$1,764,000	\$415,000	\$163,000	\$2,342,000
2004	\$1,764,000	\$415,000	\$163,000	\$2,342,000
2003	\$1,836,000	\$415,000	\$470,000	\$2,721,000

* requires a state match

While the Commission is diligent about seeking additional funding opportunities from NOAA and other federal agencies, no other sources for funding this project have been identified or applied for.

CALIFORNIA OCEAN PROTECTION COUNCIL

This project will support several of the goals and objectives of the California Ocean protection Council's Strategic Plan, including:

Governance Goal

Objective 2 - Interagency Collaboration - The project will encourage greater communication and sharing of information among Commission staff, other state agencies, local governments and others.

Objective 6 – Regional Coordination - Commission staff will contact other state's coastal management programs -including Oregon and Washington –about any innovative climate change policies they may already have in place. Commission staff will coordinate with OPC staff to maximize effective regional coordination.

Physical Processes and Habitat Structure Goal

Objective 3 – Understand Impacts of Climate Change - The project will facilitate greater interest in, understanding of, and communication about the impacts of climate change and sea level rise, among Commission staff, other state agency and local government staff, and others.

Ocean and Coastal Ecosystems Goal

Objective 5 – Encourage Sustainable Economic Activity - The project's focus on the impacts of climate change and land use decisions will help to effectively incorporate that information to inform decision makers about whether the long-term sustainability of certain coastal development and activities.

CONSISTENCY WITH CIAP AUTHORIZED USES

The major goal of the California Coastal Management Program (CCMP) is to protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and human-made resources. California employs a comprehensive coastal management program that is implemented through a coordinated process involving all appropriate governmental agencies and public participation. The California Coastal Act is the foundation of the federally approved California Coastal Management Program for the Pacific Ocean coast segment of the California coastal zone, and the Coastal Commission carries out the policies of the Act through its planning and regulatory activities.

By providing information and raising awareness about the relationship between climate change, global warming and the protection of resources within the Coastal Zone, the guide will contribute to better-informed and more creative decisions, in the short-term, that ensure the long-term conservation and protection of coastal areas, including wetlands (**Authorized Use 1**), as well as the mitigation of damage to fish, wildlife and natural resources (**Authorized Use 2**). This project will also enhance and support the implementation of the federally-approved California Coastal Management Program (**Authorized Use 4**).