

CALIFORNIA COASTAL COMMISSION

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December 12, 2006

Discussion Draft Global Warming and the California Coastal Commission

I. Introduction

Global warming has the potential to dramatically alter marine and terrestrial resources within the coastal zone. Staff is examining the topic of global warming. There is Coastal Act authority for the Commission to address global warming and there are compelling reasons for the Commission to address this concern in its land use planning, federal consistency and coastal permit decisions.

A. Commission Staff Will Present a Series of Three Workshops

This Workshop is the first of three workshops intended to inform the Commission and public about the effects of global warming on coastal resources and how the Commission might address global warming. These workshops will also:

1. Initiate informed discussion by the Commission about what is at risk in the coastal zone from global warming and what effects Commission actions can or could have on climate change.
2. Inform the Commission and the public about global warming, and the relationship between the Coastal Act and global warming issues.
3. Provide opportunities for the Commission to work cooperatively with other state agencies to take a proactive approach to global warming.

This first workshop will inform the Commission about the effects of greenhouse gas emissions on the marine environment. The second workshop will focus on the effects of global warming on terrestrial resources. The third workshop will identify specific actions the Commission could take to both minimize greenhouse gas emissions and adapt to ongoing effects of global warming.

The scientific community is continuing to study global warming and its effects. Therefore, from time to time after these workshops, staff will return to the Commission with additional workshops and white papers to keep the Commission and other interested parties informed of new information concerning the effects of global warming on coastal resources.

B. The First Workshop Addresses Marine Resources

Speakers at the first workshop, on December 14, 2006 will be:

1. Former Assembly Member Fran Pavley, Principal Author of AB 1493, which regulates greenhouse gas emissions from vehicles and a Principal Author of AB 32, which regulates greenhouse gas emissions from other sources.
2. Dr. Jim Barry, who has been a scientist at the Monterey Bay Aquarium Research Institute for 15 years, working on intertidal biology and ecology, Antarctic ecology, and deep-sea ecology. He has a PhD from Scripps Institute of Oceanography in Biological Oceanography. His research is currently focusing on the effects of ocean warming and ocean acidification on marine ecosystems, in particular, the response of ocean ecosystems to the rapid rise in atmospheric and oceanic carbon dioxide levels caused by fossil fuel emissions.
3. Dr. Susanne Moser, who is a Research Scientist at the National Center for Atmospheric Research's (NCAR) Institute for the Study of Society and Environment in Boulder, Colorado. A geographer by training (Ph.D. from Clark University, 1997), her work over the past 15 years has focused on interdisciplinary challenges such as the impacts of climate change and sea-level rise on coastal areas, community and state responses to such global change hazards, the interaction between science and policy/practice, and the communication of climate change risks in support of societal responses to climate change. Susanne was a post-doctoral fellow at Harvard's John F. Kennedy School of Government, and prior to coming to NCAR, she worked for the Heinz Center in Washington, DC and as staff scientist for climate change for the Union of Concerned Scientists in Cambridge, Massachusetts.

II. The Commission Should Address Global Warming in its Decision Making

A. Coastal Resources are at Risk

Commission staff recommends that the Commission address global warming because the Coastal Act protects resources that are threatened by global warming.

1. Scientific research indicates that global warming will have long-term, irreversible, adverse consequences on coastal resources, including habitat, marine life and public access, as well as impacts on all development along the coast.
2. To protect coastal resources for current and future generations, the Commission must consider the consequences of increased greenhouse gas emissions, such as sea level rise.
3. All development will incrementally increase greenhouse gas emissions, and the Coastal Act provides some tools to address these.

B. The State Legislature and Governor Are Taking Action

Legislation to address global warming has been recently signed into law, and demonstrates the State's interest in acting to reduce greenhouse gas emissions. If the Commission acts now to address global warming, it will be acting consistently with the goals of the State Legislature and Governor.

1. The California Global Warming Solutions Act of 2006 (AB 32, Introduced by Assembly Members Nunez and Pavley, signed by the Governor on 9/27/06) requires the California Air Resources Board to achieve reductions of greenhouse gas emissions to the 1990 level by 2020. The law states:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems. Health and Safety Code Section 38501.

2. 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.
3. SB 1 ("Million Solar Roof Plan," Introduced by Senator Murray, signed on 8/21/06) requires the Energy Commission and Public Utilities Commission to take actions to achieve increased use of solar energy.

4. AB 1925 (Introduced by Assembly Member Blakeslee, signed by the Governor on 9/26/06) requires the California Energy Commission to study and make recommendations for capturing and storing industrial carbon dioxide.
5. SB 1686 (Introduced by Senator Kuehl, signed by the Governor on 9/26/06) authorizes the Wildlife Conservation Board to take into account the potential of forestlands to beneficially reduce or sequester greenhouse gas emissions when it prioritizes funds available for proposed acquisitions.
6. California Renewables Portfolio Standard Program (SB 1078, Introduced by Senator Sher, signed by the Governor on 9/12/02) directs the Public Utilities Commission and the Energy Commission to insure that electricity providers use a certain percentage of renewable sources and for electrical corporations to achieve a goal of 20% of electricity derived from renewable energy sources.

III. The Coastal Act Authorizes the Commission to Address Global Warming

The Coastal Commission is charged with providing long-term protection of California's 1,100-mile long coastline for the benefit of current and future generations. There are numerous Coastal Act policies that support taking action to reduce greenhouse gases and to adapt to the effects of global warming, including the policies noted below.

A. 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:

1. 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."
2. 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."
3. 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.”

4. 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.”
5. 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.”
6. 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.”
7. 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.”

B. Policies Concerning Energy Consumption

1. Energy consumption and vehicle miles traveled are addressed in section 30253: “New development shall: ...(4) Minimize energy consumption and vehicle miles traveled.”
2. Public transit is 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....”

C. Policies Concerning Hazards

1. 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.”

IV. On-Going Actions to Address Global Warming

A. Actions to Reduce Greenhouse Gas Emissions

Many of the conditions that the Commission has been placing on permits help reduce greenhouse gas emissions by reducing energy and water consumption, for example:

1. Use of native vegetation
2. Clustering development
3. Limiting size of development pads

B. Actions to Adapt to Consequences of Global Warming

Also, many of the conditions that the Commission has placed on permits address the on-going effect of global warming on mean sea level rise.

1. Applications for new shorefront development (buildings and shore protection) are required to consider an increase in sea level in the examination of flooding and wave hazards. Normally the anticipated rise in sea level has been similar or slightly higher than the historic trends.
2. Future increases in bluff erosion are considered in establishing bluff edge setback criteria.

3. Staff is participating in the State's Multi-Hazard Mitigation Plan that is being revised by the Governor's Office of Emergency Services (OES) and will urge OES to include global warming issues in the Hazard Mitigation Plan.

C. Actions to increase education and awareness of Global Warming Issues

Commission staff has been taking steps to understand and address global warming in the context of the coastal zone.

1. Staff presentations and written papers such as the 2001 Commission Presentation and Paper: *Overview of Sea Level Rise and Some Implications for Coastal California*.
2. Staff is expanding its knowledge regarding the effects of global warming, greenhouse gas emissions and sea level rise through a series of in-house brown bag lunch presentations.
3. Existing staff task forces and working groups (ESHA Task Force, Beach Erosion And Coastal Hazards [BEACH] Task Force, Habitat Conservation Planning Group, Oceans Task Force, Staff Educators Task Force, Water Quality Work Group, and others) are or may be discussing global warming concerns within the major focus of the group.
4. Staff has begun to analyze and consider steps which can be taken to reduce the rate of global warming in the work that the Coastal Commission does.

V. Additional Actions the Commission Could Take to Address Global Warming

Although the Commission has imposed permit conditions that help reduce greenhouse gas emissions and that anticipate the effects of global warming on mean sea level, there are many more actions the Commission could take to have a greater impact on global warming.

A. Potential Actions to Reduce Greenhouse Gas Emissions

1. Reduce vehicle miles traveled through promotion of such efforts as, for example, clustering development, mixed land use development, use of transit, recycling of existing building stock.
2. Reduce energy use during and after construction through promotion of such efforts as, for example, reuse of building materials, use of green building practices, and use of native vegetation.

3. Develop a checklist with each CDP to require consideration of greenhouse gas emissions with each application.
4. Require that all development projects calculate greenhouse gas emissions [their carbon footprint] and implement techniques to reduce emissions with the goal of carbon neutral development.
5. Require adoption of and compliance with standards established by other state commissions and boards that will reduce greenhouse gas emissions.

B. Potential Actions to Adapt to Consequences of Global Warming

1. Require applicants to consider a range of potential future changes in water level and high tides, examine whether and how the likely impacts from the proposed development would change with the different assumptions about future water level. If appropriate, staff could recommend project modifications that would eliminate or minimize potentially adverse impacts from the project for the range of possible future sea level rise conditions, including adverse impacts on public access.
2. Examine the Association of State Floodplain Managers' "Coastal No Adverse Impact Handbook", which deals with flooding management options within the coastal zone. Encourage NOAA and the Association to hold workshops on this handbook for Commission and local government staff.

C. Potential Actions to increase education and awareness of Global Warming Issues

1. Support the continued study of the relationships between land use patterns, vehicle emissions, energy consumption and global warming.
2. Provide information on climate-friendly construction techniques through public workshops, the CCC web site, and other public outreach efforts, with the goal of voluntary efforts to reduce greenhouse gas emissions.
3. Provide technical assistance, information and outreach to local and regional governments to encourage application of Coastal Act and LCP provisions that can reduce greenhouse gas emissions.

VI. Next Steps for the Commission and Staff

The Commission should take the most aggressive position allowed through the Coastal Act to address and slow global warming as well as to prepare for the continuing effects.

A. Staff Efforts

Commission staff intends to carry out the following steps in the next year to address global warming:

1. Staff will identify staffing opportunities to add in-house expertise concerning such topics as global warming, green building practices, energy conservation, transit, green planning principles and others.
2. Staff will coordinate with and seek the advice and expertise of other state agencies and boards working on global warming as well as with the Governor's task force.
3. Staff will develop and present to the Commission permit conditions, LCP modifications and other approaches for reducing greenhouse gas emissions and for adapting to global warming.
4. Staff will coordinate with global warming experts to provide two additional Commission workshops as part of this current series.
5. Staff will continue to develop educational materials for staff, local governments, applicants and other interested parties concerning options that might promote reduced greenhouse gas emissions.
6. Staff will explore all of the potential actions identified in part V of this report.