BIOENERGY ACTION PLAN FOR CALIFORNIA

Prepared by the Bioenergy Interagency Working Group:

Air Resources Board
California Energy Commission
California Environmental Protection Agency
California Resources Agency
California Department of Food & Agriculture
Department of Forestry and Fire Protection
Department of General Services
Integrated Waste Management Board
Public Utilities Commission
Water Resources Control Board

Governor Arnold Schwarzenegger

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State of California
BioEnergy Action Plan for California

INTRODUCTION

California has large untapped biomass resources, including residues from forestry, urban, and agricultural wastes. Using these resources to produce transportation fuels, electrical energy, and biogas will benefit California. The production and use of the state's considerable biomass resources can achieve progress toward meeting the state's petroleum reduction, climate change, and renewable energy goals, while providing strategic social, economic, and environmental benefits to California. Using biomass for energy production can significantly reduce the waste stream in California's forests, landfills, and farmlands, and improve forest health while reducing the risk of catastrophic wild fires. State policy will reflect these substantial benefits.

On April 25, 2006, Governor Arnold Schwarzenegger issued Executive Order S-06-06, establishing targets for the use and production of biofuels and biopower and directing state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The agencies of the Bioenergy Interagency Working Group (Working Group)[1] are committed to seeing these goals met. This Bioenergy Action Plan (Plan) provides the specific actions and timelines that the agencies have agreed to take to implement the Executive Order.

BACKGROUND

In a letter dated August 23, 2005, Governor Schwarzenegger expressed his support for the public-private California Biomass Collaborative and reinvigorated the Working Group. The Governor directed the Working Group to develop an integrated and comprehensive state policy on the use of biomass for electricity generation, as well as natural gas and petroleum substitution. The Governor also asked the Working Group to prepare a report by March 31, 2006, with recommendations for near-term state government actions to increase the sustainable use of biomass resources.

The Energy Commission retained Navigant Consulting, Inc. (NCI) to assist the Working Group in assembling the Plan. NCI reviewed the prior work of state agencies and more than 40 public documents, including research and policy developments in biopower and biofuels, which have occurred elsewhere in the country and in the world, and conducted interviews with numerous key stakeholders. NCI assembled a draft report in early

[1] The Working Group is lead by Commissioner Jim Boyd of the California Energy Commission (Energy Commission), and includes the Air Resources Board (ARB), California Environmental Protection Agency (CalEPA), California Public Utilities Commission, California Resources Agency, Department of Food and Agriculture, Department of Forestry and Fire Protection, Department of General Services, Integrated Waste Management Board, and the State Water Resources Control Board.

March that describes the energy potential of the state's biomass resources, the benefits of and issues limiting development of these resources, and a comprehensive set of recommendations that the State should undertake.

The Working Group conducted a public workshop on March 9, 2006 to hear comments on NCI's report. The Working Group received more than 60 oral and written comments. NCI prepared a final report based on input from the workshop and subsequent discussions with members of the Working Group. That report, *Recommendations for a Bioenergy Action Plan for California*, was delivered to the Governor on March 31, 2006.

ACTION PLAN

Governor Schwarzenegger has underscored the need for a consistent and coordinated state policy on bioenergy. In response to his Executive Order, members of the Working Group commit to the following near-term actions to achieve the state's bioenergy policy objectives and biomass production and use targets. The Working Group will also work to secure necessary resources for the activities proposed in this Plan through the State Budget Process and pursue legislative initiatives needed to achieve the intent of this Plan. These actions will create the necessary institutional and regulatory changes that will substantially increase the production and use of biomass for energy in California in a manner that benefits the economy and protects the environment.

State Policy Objectives

This Bioenergy Action Plan is designed to achieve the following five broad policy objectives:

1. Maximize the contributions of bioenergy toward achieving the state's petroleum reduction, climate change, renewable energy, and environmental goals.

2. Establish California as a market leader in technology innovation, sustainable biomass development, and market development for bio-based products.

3. Coordinate research, development, demonstration, and commercialization efforts across federal and state agencies.

4. Align existing regulatory requirements to encourage production and use of California's biomass resources.

5. Facilitate market entry for new applications of bioenergy including electricity, biogas, and biofuels.

Biomass Production and Use Targets

In Executive Order S-06-06, Governor Schwarzenegger established the following targets to increase the production and use of bioenergy, including ethanol and bio-diesel fuels made from renewable resources:

1. Regarding biofuels, the state shall produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050.

2. Regarding the use of biomass for electricity, the state shall meet a 20 percent target within the established state goals for renewable generation for 2010 and 2020.

As the state works toward continued and steady growth in the production and use of bio-fuels produced in-state, the Working Group believes that the state should not allow the current level of use to diminish in the near term.

Multi-Agency Collaborations

1. The Governor has entrusted the Working Group with the primary responsibility for carrying out his bioenergy policy objectives and meeting the state's targets. The Working Group, chaired by the Energy Commission, will continue to meet as its member agencies carry out their individual and joint responsibilities. These meetings will provide a consistent public forum for the interested stakeholders and members of the public to keep track of the progress being made throughout state government.

2. As directed by the Governor, the Energy Commission will coordinate with the Working Group on the use of state funds and on securing federal funding that support strategic research, development, and demonstration (RD&D) projects, including efforts to:
    a. prove the commercial readiness of biofuels production and advanced biomass conversion technologies including cellulosic feed stocks derived from forestry, agriculture, and urban wastes; gasification; pyrolysis; biomass-to-liquids; and landfill gas to energy systems by 2010;
    b. develop up to four afforestation (replanting trees) and carbon sequestration pilot and demonstration projects in California of sufficient size to supply 3 to 5 megawatts of biomass-fueled electricity to an electricity gasification plant or bio-refinery during the 2009-2015 time frame;
    c. identify the highest value use and market potential for forest fuel, harvest residues, and other small wood forest products as a potential source of energy, fuel, chemicals by July 31, 2008;
    d. demonstrate new cropping systems and biomass handling, storage, and distribution, beginning by October 1, 2008; and
    e. demonstrate the most efficient biomass harvesting systems for small forest material at three sites by January 1, 2010.

3. The Working Group and its member agencies will also collaborate at the state, regional, and national levels through various interagency and coalition venues to develop strategic alliances to accelerate deployment of bioenergy production and use technologies in California. Examples include:
    a. the 25/25 coalition is a broad-based, non-partisan group of stakeholders advocating increased use of renewable energy, supporting a national goal of meeting 25 percent of our domestic energy needs with renewable resources by the year 2025; and
    b. the "Wildland Biomass for Electric Power" project that is addressing life-cycle costing for forestry projects which is currently underway through the Public Interest Energy Research in (PIER) program in collaboration with the U. S. Forest Service.

4. The Working Group will formulate and implement a communications plan to disseminate information about the benefits of bioenergy to the general public and to policy makers.

5. The Working Group will explore new avenues for financing new project development, including investigation of existing state bonding authority such as the California Consumer Power and Finance Authority, which may be applicable to bioenergy projects.

Individual Agency Responsibilities

1. The Energy Commission will:

    a. Report on progress in implementing the state policy objectives, biomass production and use targets, and actions detailed in this Plan in the biennial Integrated Energy Policy Report, as directed by the Governor.

    b. Complete a comprehensive "road map" to guide future research, development, and demonstration activities through the California Biomass Collaborative by September 30, 2006. Among other items, the Energy Commission will work with the Hydrogen Highway team to ensure that this road map evaluates the potential for biofuels to provide a clean, renewable source of hydrogen.

    c. Prepare the State Alternative Fuels Plan, as required by AB 1007, by the June 30, 2007 Legislative deadline, with a progress report by December 31, 2006, that, among other things, will identify actions and incentives to increase the production and use of biofuels and to develop an extensive and convenient E-85 network in new and retrofitted service stations in California.

2. The California Air Resources Board will:

   a. As the Governor urged in the Executive Order, enable the most flexible possible use of biofuels through its *Rulemaking to Update the Predictive Model and Specifications for Reformulated Gasoline*, while preserving the full environmental benefits of California's Reformulated Gasoline Programs, as required by Health and Safety Code section 43013.1, by January 31, 2007.

   b. Complete the *Rulemaking* for presentation to the Board by January 31, 2007. As part of the rulemaking, reflect the emissions performance of current and future vehicle fleets and incorporate available data on the emissions impact of fuel properties.

   c. As data becomes available on the impacts of fuel specifications on the current and future vehicle fleets, review and update motor vehicle fuel specifications as appropriate. In reviewing the specifications, consider the emissions performance, fuel supply consequences, potential greenhouse gas reduction benefits, and cost issues surrounding ethanol blends, particularly E6, E10, and E85, for gasoline by January 31, 2007, and for diesel by December 31, 2008.

   d. Consider adoption of fuel specifications for motor vehicle fuels, such as B2, B5, B20, and B100 by December 31, 2007.

   e. Evaluate the greenhouse gas reductions benefits of bio-fuels and biomass production and use, and report back to the Working Group on recommended options to encourage their use, in close cooperation with the other members of the Working Group, by June 30, 2007.

   f. Evaluate the suitability of using available regulatory levers to encourage the establishment of E-85 stations in California by June 30, 2007.

   g. Complete a peer-reviewed study of the emissions performance, costs, and benefits of using biofuels and biofuel blends, using a multi-media approach by July 31, 2008.

   h. Consider adoption of regulations by June 30, 2008 that require all gasoline-powered vehicles sold in the state to meet the state's emission standards using gasoline blended with up to ten percent ethanol and consider a requirement increasing the percentage of E85-compatible vehicles sold in the state.

   i. Consider adoption of regulations by June 30, 2008 requiring heavy-duty diesel engine manufacturers to warrantee heavy-duty diesel engines using California diesel and B2, B5 and B20 meeting the California specifications indicated in "d" above.

j. Examine the air pollutant emissions performance of bio-fuels and biomass in stationary sources and recommend appropriate emissions performance standards and mitigation for emissions remaining after the application of controls by July 31, 2008.

3. The California Integrated Waste Management Board will:

a. Identify and quantify the amount of material currently being landfilled and assess the potential for its conversion to bio-fuels and other bio-based products by December 31, 2006.

b. Establish goals for 2010 and beyond for the use of landfill-bound residuals to be used for BioEnergy production by December 31, 2006.

c. Identify state and private revenue sources of grant and incentive program research activities related to BioEnergy production from landfill-bound residuals by December 31, 2006.

d. Identify and quantify the potential of using landfill gas as a biofuel by December 31, 2006.

4. The State Water Board will:

a. Identify clear and consistent procedures that are used to protect water quality from the harvesting of biomass and the operation of biomass facilities (ongoing).

b. Conduct prompt reviews of planning documents, environmental documents prepared under the California Environmental Quality Act (CEQA), and monitoring proposals for biomass harvesting and biomass facilities (ongoing).

c. Work in cooperation with the Department of Forestry and Department of Food and Agriculture to ensure that adequate criteria for water protection and water quality are put in place on agricultural and forest lands in California (ongoing).

5. The Department of Forestry and Fire Protection will:

a. Identify “biomass management zones” in key forest and range areas of California, based on known resource, contribution to the maintenance of forest health, and reduction in large high-intensity wildfires by December 31, 2007.

b. Determine and update geographic areas in the Urban Interface most in need of fuel reduction by December 31, 2007.

c. Work with ARB and local air districts to evaluate the air quality impacts of wildfire emissions before and after fuel hazard reduction and provide initial findings by December 31, 2008.

d. Build upon the existing California Climate Action Registry protocols and continue development of additional protocols for the forest management and resource conservation and production and use of long-lived wood products by December 31, 2008.

e. Identify actions that can be taken by the Board of Forestry to encourage biomass production and use By December 31, 2006

f. Work with the Department of General Services to install at least three combined heat and power units, using new technologies, at Forestry Conservation Camps at sites located along the California coast, in the Sierra Nevada range, and in the southern area of California by December 31, 2010

g. Along with Board of Forestry and Fire Protection, collaborate in further development of long-term harvest contracts or agreements with the Federal Land Management Agencies with California land holdings, in close coordination with the U. S. Forest Service, Bureau of Land Management, and the Bureau of Indian Affairs. This effort would begin by July 31, 2006.

6. The Secretary for Food and Agriculture will:

a. Report on the existing market potential for the sustainable production and use of agricultural crops and residues as a source of electricity, fuel, chemicals, and other valuable co-products by June 30, 2007.

b. Develop a plan to determine how to gain better access to agricultural and forestry biomass resources, including regulatory and technology development needs, in cooperation with the Department of Forestry and Fire Protection by December 31, 2006.

c. Identify “biomass management zones” in key agricultural areas of California, in coordination with the Department of Forestry and the California Biomass Collaborative by June 30, 2007.

d. Evaluate the potential for regional manure management centers as potential sites for dairy bio-digesters in the San Joaquin Valley and at other suitable locations, in cooperation with the Energy Commission by June 30, 2007.

e. Evaluate the potential for biomass technologies to address animal disposal and animal health concerns associated with emerging animal diseases by June 30, 2007.

f. Work with the Public Utilities Commission to facilitate the sales and distribution of on-farm produced power.

g. Develop and implement a strategy by December 31, 2006, to support bioenergy production and use under provisions of the existing federal Farm Bill and to improve those opportunities as the Farm Bill is rewritten for 2007.

7. The State Department of General Services will:

a. Develop an annual statewide vehicle asset plan by December 31, 2006, that, through the Statewide Equipment Council that:
   a. Includes flexible fuel vehicles in the state's vehicle procurement program.
   b. Requires state vehicle contracts to be based on a Life Cycle Cost Analysis methodology.
   c. Requires state agencies (for light duty, non-public safety applications, and other applications as practical) to purchase flexible fuel vehicles capable of operating on renewable and alternative fuels, increasing to 50 percent of total new vehicles purchased by 2010.

b. Develop criteria, establish funding priorities, and identify potential revenue sources by December 31, 2006 to facilitate the incorporation of renewable energy into new state buildings and major renovations where feasible. Where feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account life-cycle costing analysis, and the environmental, social, and technological factors. Feasibility shall not be based solely on cost considerations (excerpted from Government Code 14710(c).

c. Recommend criteria by December 31, 2006 for use by the Department of Finance for the review and approval of funding for renewable and alternative energy projects. These criteria shall include a Life Cycle Cost Analysis methodology. Where projects cannot be justified solely on the basis of a Life Cycle Cost Analysis, policy justifications shall be articulated by the Governor.

d. Work with the Department of Forestry and Fire Protection to install at least three combined heat and power units, using new technologies, at Forestry Conservation Camps at sites located along the California coast, in the Sierra Nevada range, and in the southern area of California by 2010.

8. As requested by the Governor, the California Public Utilities Commission will develop policies and establish mechanisms that would encourage increased future development and sustainable use of biomass and other renewable resources by the state's investor-owned utilities. Specific actions in 2006-2007 may include:

a. Jointly investigating with the Energy Commission ways to simplify and streamline the RPS process to ensure that biomass and other renewable generation meets RPS goals

b. Reviewing and streamlining interconnection requirements to remove potential barriers to biopower development.

c. Allowing investor-owned utilities to continue offering net metering for biopower facilities and support legislation to increase net metering caps.

d. Assessing the costs and benefits of providing specific exemptions to allow biomass facilities to wheel power directly to a farm and to consolidate net metering accounts on a farm.

e. Implementing mechanisms, including establishing appropriate avoided costs and long-term contracts, to preserve existing biopower facilities.

f. Evaluating unique benefits that biopower may provide in meeting resources adequacy and RPS requirements and global climate change reduction targets.

Legislative Options

The Working Group has identified the following two topics for possible legislative action during the 2006 session:

1. Amend existing law to revise existing technology definitions and establish new ones, where needed. In particular, review the definitions of gasification, transformation, fermentation, pyrolysis, and manufacturing. Such statutory clarification would enable the utilization of biomass residues through combustion or non-combustion technology.

2. Amend existing law to provide incentives to local jurisdictions for energy production activities.

The Working Group also has identified the following that may be potential topics for legislation in the future, but for which additional evaluation is needed before determining the suitability of a legislative remedy:

1. Establish a California renewable fuels standard based on fuel content that could include a minimum average of 10 percent renewable content in gasoline and a 5 percent non-petroleum diesel fuel standard.

2. Recommend a package of tax incentives to encourage use of biomass, biofuels and other bio-based products.

3. Establish broad-based funding mechanisms that recognize the unique benefits of bioenergy, including but not limited to, use of existing state bonding authority, state investment tax credits for new and emerging technologies.

4. Evaluate alternative sources of revenue to provide stable funding for grant and incentive programs research activities for biomass-to-energy production from landfill-bound residuals.

5. Establish a system of carbon credits, consistent with broader state policy on greenhouse gas reduction.

6. Encourage coordinated permitting and mediation of environmental impacts and mitigation at the project level.