

California's Bioenergy Action Plan

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Strategic Value of Bioenergy

California has diverse and untapped biomass resources which can support greater use in electric power, fuels and chemicals.

California = 80 million dry tons

Biomass is an energy resource capable of achieving state petroleum reduction, climate change, renewable energy and environmental goals.

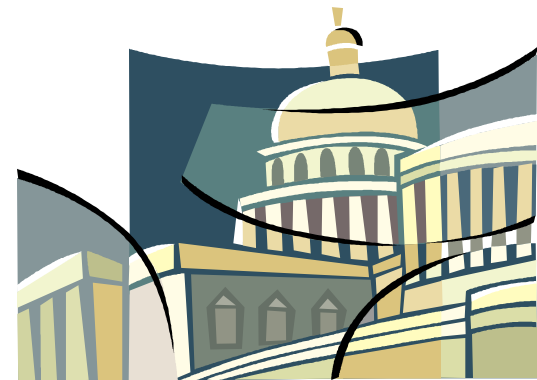
Use of biomass for energy production can address the U.S. and California's waste disposal and environmental problems, while creating local jobs.

Other public benefits include improving forest health and human and animal health, while avoiding catastrophic wildfires.



State Government Initiatives

- In April 2006, Governor Schwarzenegger signed Executive Order S-06-06, directing state agencies to promote sustainable biomass use.
- In 2006, the Governor signed Assembly Bill 32, the Global Warming Solutions Act, and later established a Low Carbon Fuel Standard.
- The 2011 Bioenergy Action Plan identifies challenges and opportunities for sustainable biomass development.
- Governor Brown's Clean Energy Jobs Plan calls for increased renewable energy by 2020, with a goal of 12,000 MW of localized distributed energy generation.



Governor's Executive Order S-06-06 on Biomass

On April 25, 2006, the Governor signed an Executive Order, establishing targets to increase in-state production and use of bioenergy, including ethanol and bio-diesel fuels made from renewable resources:

- **For 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.

- **For biomass for electricity**, the state meet a 20 percent target within the established state goals for renewable generation for 2010 and 2020.



Bioenergy Action Plan

In July 2006, the Governor publicly released the State of California's first Bioenergy Action Plan in order to:

- Coordinate research, development, and technology demonstration across federal and state agencies.
- Align existing state regulatory requirements to encourage production and use of California's biomass resources.
- Facilitate California as a market leader in technology innovation and market development
- Encourage market entry for new technologies which produce electricity, biogas, and biofuels.
- Maximize the contributions of bioenergy toward achieving multiple state policy goals of petroleum reduction, climate change, renewable energy, and environmental protection.

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



Key Challenges and Issues

1. Cost to collect and transport biomass materials from the source to the point of end use discourages project development.
2. The environmental benefits of using our state's waste streams (from farms, forests and landfills) are not captured in the price paid for the renewable energy.
3. Regulatory uncertainty, especially from air and water quality permitting requirements, can inhibit development of new projects, especially in non-attainment areas.
4. Gas pipeline quality standards and electricity interconnection requirements can be costly and time-consuming.



Key Findings and Recommendations

1. Legislative restrictions on the use of conversion technologies for post-recycled, urban wastes should be removed.
2. Greater coordination among state and local permitting agencies is needed to streamline permitting of new biomass facilities.
3. Access requirements should allow biomass projects to connect to electric transmission and natural gas pipelines.
4. Financial incentives are needed to restart idle plants and repower existing, aging power plants, using biomass.
5. Standards can ensure that biomass feedstock can be removed from California's forestlands, without harming the environment.



Air Quality Considerations

1. Biomass development in California's designated nonattainment areas can be problematic and costly.
2. Use of Best Available Control Technology (BACT) may be needed to achieve allowable emission limits.
3. Air quality emissions offsets for PM in South Coast Air Quality District is especially scarce.
4. U. S. EPA has proposed new emission control requirements which require Maximum Achievable Control Technology (MACT).
5. U. S. EPA's proposed "tayloring rule" will limit GHG emissions although biomass can be a "carbon neutral" energy source.



Progress to Date

1. Restarting idle biomass power plants through state financial and regulatory incentives can support the state's biopower goals, but a doubling of new electricity capacity is needed.
2. Achieving the state's biofuels goals will require a six fold increase. Meeting the demand for low-carbon fuels will require a shift away from corn-based ethanol to advanced biofuels and biodiesel fuels.
3. The preparation of a Programmatic Environmental Impact Report (EIR) by the Central Valley Regional Water Control Board will facilitate water quality permitting, especially for dairy digesters.
4. The San Joaquin Valley Air District has stepped up its efforts to facilitate permitting of biomass projects in the Central Valley, requiring the Use of Best Available Control Technology.



Success Stories

1. Placer County Forest Biomass Initiative: harness forest materials for biomass energy production.
2. Dixon Ridge Farms: produces renewable energy from walnut shells, cutting electricity costs on the farm by \$45,000 per year.
3. Gill's Onion: the first food processing facility in California to produce biomass power, using 100 percent of its onion wastes.
4. Fiscalini Farms: a pioneer in harnessing methane gas from dairy wastes to produce energy.
5. Waste Management, Inc. is producing Liquefied Natural Gas (LNG) as a transportation fuel from landfill wastes for use in its fleet of garbage trucks.

