

# THE OPPORTUNITY TO DEVELOP BIOMASS ENERGY IN THE WEST

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## INTRODUCTION

This paper addresses the opportunity to develop biomass energy as a renewable energy source in the 11 Western states. As this paper is being composed the West is experiencing a very serious energy shortage, one that will impact this region for years to come. Significant opportunities exist to both improve the health of our Western forests and create more electricity to help solve an energy crisis.

## ADVANTAGES OF BIOMASS ENERGY

In the early 1980's California enacted statewide initiatives targeting the development of alternate energy projects. These initiatives, coupled with federal legislation, provided motivation for the almost overnight development of numerous biomass fired power generation facilities. By the early 1990's over 60 plants with an output of 800+ megawatts of power were on line and operating. These plants consumed over 10 million tons of wood waste annually. Not only did these plants generate electricity for an energy hungry region, they also provided significant societal benefits including the disposal of un-wanted and under utilized wood waste.

Today, California has 33 biomass to electricity plants operating with an output of just over 600 megawatts. A number of factors contributed to the downsizing of this industry, but the primary reason was concern over the long-term viability of these facilities in a deregulated electricity market. Today, as the state attempts to address the deregulated power generation market, there are ongoing discussions on how to best bring more power generation on line – including more biomass power. Currently the California legislature is considering a number of bills that provide incentives for the development of additional biomass plants.

The California legislature is highly motivated to support the biomass energy sector due to the wide array of societal benefits that this state has experienced since the first plants were built and began operating in the early 1980's. These benefits include:

*Restoring Healthy Forests* – Almost a century of successful fire suppression has allowed unnatural accumulations of small trees and brush to grow into very dense thickets. These thickets fuel more intense and catastrophic forest replacing wild fires. Last season, over 7 million acres of Western forests were damaged by wild fire. By removing the overcrowded trees and brush, the forests are restored to a more natural condition, one that allows for the re-introduction of fire. Once thinned these forests support critical habitat for a wide variety of sensitive species and help assure the long-term health of entire watersheds.

*Alternative To Open Burning* – Until the advent of the biomass energy sector, large amounts of woody biomass were disposed of by open field burning. Woody material generated from the annual pruning of orchards and the small trees and brush consumed by prescribed fires in the forest, were open burned as a means of disposal. Now that an alternative market exists for this material, millions of tons of this waste is consumed in power generation facilities equipped with sophisticated emissions control devices rather than burned in the open with uncontrolled air

emissions. The net impact is cleaner air and a move towards meeting new EPA air standards addressing reduction of airborne particulate matter of 2.5 microns in size.

*Greenhouse Gas Emissions* – Healthy forests have the ability to actively store a major greenhouse gas – carbon dioxide. The long term storage of carbon is a process known as carbon sequestration. As forests are thinned and become more efficient at growing and at carbon sequestration there is a net reduction of this greenhouse gas. The biomass retrieved from forest thinning operations not only improves forest health (and therefore carbon sequestration) but also represents a power generation alternative to the burning of fossil fuels for power. Fossil fuel combustion releases CO<sub>2</sub> that was stored away in long-term geological storage, while biomass combustion actively promotes improved carbon sequestration as in the case of newly thinned, healthy forests. Wild fires are also large producers of CO<sub>2</sub> emissions. As more forests receive forest fuels reduction treatments, there should be a net decrease in wild fires, resulting in a net reduction of CO<sub>2</sub> emissions.

*Landfill Diversions* – It has been estimated that wood waste in the form of crates, pallets, yard trimmings, demolition wood, etc. comprises over 25% of the waste stream going into landfills. Diversion of this wood waste to power generation extends the useful life of landfills, reduces waste handling costs and saves municipalities the cost of new landfill development. Less space devoted to landfills means more space for other uses such as parks, open space, habitat conservation easements, etc.

*Economic Impacts* - Employment associated with biomass energy plants is significant, especially in rural areas where these plants are typically sited. Activities such as harvesting, collecting, processing and transporting wood waste to the power plants requires skilled workers who earn relatively high wages. Highly skilled technicians are required to operate and maintain the power plants. The plants also contribute to the local economy through payment of property taxes. In many rural counties the biomass energy facilities are among the largest taxpayers.

*Community Protection* – Communities located in forested regions of the United States are at significant risk due to the unnatural accumulation of forest fuels over the past century. In fact, this is such a high priority issue that currently, the US Departments of Agriculture and Interior are maintaining a list of Urban Wildland Interface communities that are at high risk from wild fire. The establishment of this document, which now includes hundreds of communities, was in direct response to last year's catastrophic wild fire season. The proactive treatment of forest fuels around communities at risk will reduce the chance of catastrophic wild fire. Unfortunately many communities that experienced wild fire last year know only too well how fire can impact the long term economic well being of primary employment sectors: forestry, recreation, agriculture, etc.

*Energy Diversification* – Biomass energy provides a renewable energy alternative to the use of non-renewable energy sources such as oil, gas and coal. Use of renewables represents a move towards energy independence, in support of national and international security. Currently, we as a nation import significant amounts of oil from highly unstable regions of the world. This dependence on finite energy resources from insecure regions places the United States at significant risk. Biomass energy, as with other renewable energy sources, represent an opportunity to diversify our energy portfolio.

## **RECOMMENDATIONS**

As the House Resources Committee reviews alternatives to address energy policy, consideration should be made to address some hard targets:

- Set a renewables portfolio standard goal that mandates the nation's total energy portfolio be comprised of at least 25 percent renewables (wind, solar, geothermal and biomass) by 2005.
- Provide energy tax credits for development of renewable energy projects.
- Provide tax incentives to forest landowners that proactively treat forest fuels through removal of biomass that is then used for power generation.
- Encourage utilities to enter into long-term power purchase agreements with renewable energy plants at rates that take into account the societal benefits (for example, biomass: improved forest health, clean sustainable energy, reduced open burning, reduced waste to landfills, etc.) which these plants have to offer, at rates that allow the plants to operate at a profit over the long term.
- Support the long term funding of the National Fire Plan. Implementation of the NFP will address the long term health of our forests, long term employment in rural communities and provide incentives for the development of biomass energy projects.
- Support pilot project funding for biomass to ethanol conversion facilities. As the demand for ethanol in the West increases there is a growing need to produce more ethanol from a wider variety of feed stocks including biomass.

## **CONCLUSION**

The clear opportunity to address the long term health of this nation's Western forests and at the same time generate power with a clean renewable energy source exists right now. The technology is proven, and the benefits from existing biomass plants demonstrates the potential for a West wide program.