

The Air Resources Board of the State of California urgently needs to choose a direction in regards to residential biomass energy.

While the European Union, and the federal government (RESA), have made residential biomass heating appliances key components of their move towards carbon neutral fuels, the Air Quality Districts under the California Air Resources Board, are making rules that outlaw or discourage renewable biomass home heating appliances.

Residential Biomass heating is a sustainable and environmentally sound alternative to fossil fuels.

The technology behind pellet fueled appliances (stoves, furnaces, and boilers), has made huge steps forward in the last 10 years. Manufacturers are building appliances that can cleanly and efficiently heat using timber industry and locally generated agricultural waste. These appliances are increasingly automated, with constantly monitoring temperature controls & modulating heat outputs, similar to the most advanced gas furnace systems.

Pellet stoves, fireplace inserts and residential furnaces and boilers are clean burning. Particulate hydrocarbon emissions are generally below 1 gram per hour, 86% lower than the EPA's clean-burning standard for wood heaters. Residential biomass wood pellet combustion produces the lowest amount of acid equivalents per unit of heat of all the home space heating options.

The disconnect between the ARB and the local AQMDs

California air districts have very specific mandates and neither renewable energy nor global warming is among their priorities. In making laws to meet attainment goals for PM2.5, some air districts find it simplest to restrict all solid fuel appliances. While lumping pellet appliances in with open fireplaces and pre-EPA wood stoves, may simplify the air districts message, pellet fueled appliances do not represent a significant part of the particulate problem and should be embraced as a part of the solution.

Without some direction and focus from the ARB, local air districts may soon inadvertently eliminate one of the best and brightest solutions for California's long term energy self sufficiency.

The following is a brief overview

Biomass Overview

Residential Biomass Energy Overview

KEY INDUSTRY FACTS

- **Thousands of homes are now heated with biomass pellets** - Biomass fuel available in the Western US will heat approximately **130,000** homes in 2008. Nationwide there are over 650,000 pellet stove owners. There are over one million homes, businesses and schools using pellet heat for fuel according to the Pellet Fuels Institute. The potential for growth in biomass is enormous due to our forest and farm resources. In the future farmers will be growing dedicated energy crops which will be used for biomass heating.
- **Pellet mills are located throughout the country, more are being built each year** - There were approximately 1.5 million tons of pellets consumed in the US for the 2006-07 heating season from approximately 60 pellet mills. Pellet production is expected to grow about 50% this year. There are 23 new mills in the U.S. expected to be producing pellets in 2008.
- **Biomass industry creates jobs in a number of key industries** - Pellet production mills are a growing industry which has the potential to create many jobs especially in rural areas and boost regional economies. Pellet mills have a trickle down effect with respect to job creation. Additional mills will reduce transportation costs and therefore fuel costs, making the fuel even more cost effective for homeowners. As more homeowners convert to biomass pellets, jobs will be added in the manufacturing, transportation, retail and service sectors of the market.
- **The State of California has significant biomass resources.** Agricultural and forest waste produced in California can be used to heat homes and businesses with a carbon neutral fuel. At the same time we would be creating an economically viable, air quality friendly, solution to dispose of crop waste.
- **Good business.** In 2006 100% of the pellet fuel consumed in California was imported from other states. Encouraging local fuel production would help state and local economies and be right in line with California's commitment to reduce carbon dioxide emissions.

Biomass Overview

- **Well established network of experienced appliance dealers** - There is an established network of appliance dealers in place throughout the country that sell, install and service biomass stoves and central heating systems. Many of these dealers are industry certified through the National Fireplace Institute (NFI) as well as factory trained and certified for the products they sell. Many of these dealers belong to the Hearth Products and Barbecue Association (HPBA / www.hpba.org), or the Pellet Fuels Institute (www.pelletheat.org).
- **The efficiency of biomass fuel production is far better than making ethanol from corn or cellulose** - Biomass wood pellets use less energy to produce per BTU of useable heat than ethanol from corn or cellulose. The production efficiency and high fuel value gives biomass an advantage over other renewable fuels for home heating. It is sound energy policy to put more resources into renewable, clean burning biomass.
- **Greenhouse gas emissions are reduced** – Biomass is clean burning and is considered carbon neutral. A typical homeowner in California uses 2 tons of pellets per year offsetting 2.5 tons of CO₂ emissions. Nationwide the equivalent of 187 million gallons of gas & oil and 2 million tons of CO₂ were displaced by using biomass wood pellets (2006/2007 heating season).
- **Biomass is the only major renewable energy source that is unsubsidized** – Biomass represents a significant percentage of the renewable energy used in the United States but it is the only fuel which is unsubsidized. Tax credits for biomass conversion are essential for the growth and development of the biomass industry. The Energy Policy Act of 2005 which was signed by President Bush includes a tax credit for homeowners but the bill is in limbo at the Department of Energy and remains unfunded.
- **An average homeowner may save 25% or more in heating costs** - Pellet prices vary across North America and reflect the cost of raw materials, manufacturing costs, and transportation and handling costs. Homeowners have reported savings of 25% or more.

BIOMASS PELLET BURNING APPLIANCES

Biomass Overview

- **Wide selection of pellet burning appliances** - There are currently hundreds of models of pellet stoves and fireplace inserts produced by 23 manufacturers in North America. Homeowners are installing stoves in central living areas and using the stoves as supplemental heating sources and converting heat wasting fireplaces into heating systems. Due to the nature of zone heating many homeowners are heating their entire homes in this fashion. Some appliance manufacturers also produce central heating pellet furnaces and boilers for residential applications. Fuel storage and delivery systems for these central heating systems will help make the use of biomass pellets even more convenient for whole house heating. There are a number of large biomass boilers and furnaces available here, widely subsidized in Europe, for use in schools, businesses and factories.
- **Clean burning** - Pellet stoves, fireplace inserts and residential furnaces and boilers are clean burning. Particulate hydrocarbon emissions are generally below 1 gram per hour, 86% lower than the EPA's standard for wood heaters. Residential biomass wood pellet combustion produces the lowest amount of acid equivalents per unit of heat of all the home space heating options
- **Consumer friendly designs** – Manufacturers are now building appliances that are easy to use and require less maintenance than pellet stoves built 10 years ago. Refueling is only required once or twice per day and the ash created from burning pellets is so minimal that many stove models can burn 1 ton of pellets before the ash pan is emptied. Some manufacturers incorporate microprocessor controlled feed systems which provide a level of temperature control that is more accurate than many of the gas and oil heating systems on the market today.
- **No chimney required** – Pellet stoves are power vented so they can be “direct vented” through an outside wall of the home. This allows homeowners to install stoves without interfering with existing chimney systems that are currently being used for their oil or gas heating systems. *This simple and low cost method of venting is possible in millions of homes throughout the US.*
- **Large scale commercial heating opportunities** - After more than twenty years in residential heating, the pellet fuel industry has entered into large-scale commercial applications, providing heat and energy (boilers) to schools, theaters, prisons, manufacturing facilities and farms.

Biomass Overview

It is now possible to use pellet fuel in many public or commercial settings.

PELLETIZED BIOMASS HAS ADVANTAGES OVER WOOD CHIPS AND RAW BIOMASS

- **Wide range of raw materials available for making pellets** - Pellets can be made from waste products such as waste paper, shipping pallets, forest residuals, corn stalks, bark, brush, grasses and grain. Currently most premium wood pellet fuel is made from saw dust from saw mills, and or wood scraps from furniture manufacturers.
- **Pelletizing biomass increases the heating value and makes the fuel easy to transport and store** - Substantially lower moisture content (4% to 8% water – compared to 20% to 60% for raw biomass) gives the fuel a higher BTU value. Higher density (40 lbs. per cubic ft. verses 10-25 lbs. for raw biomass) increases the stability of the fuel and reduces the amount of truck space required to move the fuel. The pellets can be bagged or delivered in bulk and stored in silos and fed into heating systems using off the shelf augers typically used by farmers to feed livestock. Once compressed and dried, pellets hold their form with natural lignin which means that no glue or binders are required. Pellets are safe to transport, and do not pose environmental pollution or explosion risk from spills as non renewable fossil fuels do.
- **Pelletized biomass is standardized** throughout North America – The Pellet Fuels Institute has developed standards for pellet fuel diameter, length, ash content and dust fines. The uniform nature of the fuel provides advantages for appliance manufacturers and for consumers who demand a consistent easy to burn fuel.

RENEWABLE ENERGY SUBSIDIES & PENDING LEGISLATION

- **Only 6% of US energy comes from renewable sources** - In 2004 8% of US energy came from Nuclear power, 40% from petroleum, 23% from “clean coal”, 23% from Natural gas and only 6% came from renewable energy sources. Most of the major sources of energy are currently subsidized.
- **Energy bill was passed in 2005-** The Energy Policy Act of 2005 is the official title of the energy bill, passed by Congress in July 2005, and signed by President George Bush on August 8, 2005. The full energy bill

Biomass Overview

is over 1,200 pages of text and encompasses thousands of provisions related to energy production, distribution and cost for a variety of fuels. This is the first comprehensive federal energy policy to pass Congress since 1992.

- **Tax credits for homeowners for biomass stoves and central heating systems** - RESA, The Renewable Energy Security Provision (Title II, (A), Sec. 206) provides a discount of 25%, capped at \$3,000, for consumers choosing renewable energy appliances, including pellet stoves, with a thermal efficiency rating of 75%. The provision gives oversight and full administrative authority to the U.S. Department of Energy to operate the rebate program. Additionally, the provision authorizes funding levels for the program, but it does require additional action by Congress, in the form of an appropriations measure, in order to implement the program. *No money has been appropriated by the U.S. Congress for the implementation of this portion of the bill by DOE.*

Peter Ross
1/30/2008
916-997-9604
zflame@comcast.net