



Renewable Energy Solutions

Biomass - wood chips and wood pellets- heating systems

1. General Information

Since people first learned to control fire, we have used wood for heating. Today, heating with wood has become even cleaner, safer and more efficient than before.



For what can my hotel use a biomass - wood chip and wood pellet- heating system for?

Biomass - wood chip and wood pellet- heating systems can provide efficient automated space heating. Wood chip and wood pellet boilers can now fill the same role as traditional fossil fuel boilers, and provide competitively priced heat for central heating or hot water needs.

What are wood chips?

Wood chips are small pieces of wood that can be made from a broad variety of raw material such as wood residues (i.e. logging residues, wood from forest thinning operations, stumps and roots, wood waste)

What are wood pellets?

Wood pellets are small cylindrical pieces produced from dried sawdust and wood shavings (and also other biomass products such as straw and biomass crops) compressed under high pressure.

What are the advantages of wood pellets over woodchips or other forms of wood as heating fuel?

Wood pellets can be produced to very uniform specifications – typically short pellets of 6mm-10mm in diameter, very similar to animal feed. These pellets can be produced to a much greater density than wood chip, and therefore take up less space. The moisture content of pellet fuel is lower and more uniform, and it produces more heat per unit of weight, making it a more efficient fuel. It also burns cleaner, and takes less space to store, about four to five times less than that of woodchips for example. Their uniformity of size and their ability to flow makes wood pellets ideally suited to automated machines.

Can I use wood chips and wood pellets for the same boiler?

Yes, but only in the case of those boilers that are manufactured to burn either pellets or wood chips.





What is the cost of heating with pellet/chip fuels?

Like determining the cost of any space heating fuel, one needs to factor in the energy efficiency of the hotel, the level of heating required and the seasonal climate where the hotel is located. With pellet fuel, the actual price will depend upon the user's distance from the manufacturer, pellet availability and the time of year pellets are purchased. Many hotels save money by buying pellets off season or signing a pre-season agreement with a supplier

How efficient are wood pellet/chip heating boilers?

Traditionally wood fuel has been used to heat hotels, either in open fires or in primitive wood burning stoves. These methods of burning fuel are usually quite inefficient, with most of the heat produced going up the chimney. This traditional image of wood heating involving smoky open fires is no longer valid. Modern wood heating, as a result of new wood-burning technology, is clean, efficient and cost effective. When used properly, today's pellet/chip boilers burn wood efficiently, producing little pollution and wasted energy. The cycle of burning and regrowth produces no net increase of carbon dioxide in the atmosphere.

Where do I storage the wood pellets/chips in my hotel?

The storage of wood fuel requires a lot more storage space than fossil fuels, and this can be a problem. Wood pellets will require 3 times, and wood chips 10 times, the storage volume of oil to provide similar amounts of heat.

How much maintenance does a biomass - wood chip and wood pellet-heating system needs?

They require a slight amount of input, typically a fortnightly emptying out of ash, but asides from this they offer all the convenience of an oil or gas boiler. Without proper use and maintenance, a wood burning system becomes a fire hazard. To prevent fires, the boiler must be properly installed and operated.

How do I know if a wood pellet heating system is a good choice for my hotel?

- Determine the current heating requirements and annual fuel costs
- Check if there is enough space in your hotel to storage the pellets
- Verify the availability and price of wood pellets/chips in the area
- Check if there is a reliable local supplier of wood pellets/chips
- Compare the cost of heating with wood pellets/chips to the existing heating costs
- Determine if any financial incentives are available for the proposed project

How can I finance a biomass - wood chip and wood pellet- heating system?

You may fund your renewable energy system in several ways. Many financial incentives which can benefit your hotel are available for example. However, these have not been used to their maximum potential. Incentives can save you in some cases more than 50% of the cost of your small wind energy system.

Check for national incentives and don't forget that your local utility company or other local organization may also provide additional support. There also banks promoting the use of small wind energy systems by granting long-term, low interest loans.

Visit www.iea.org/country/index.asp under 'related country and regional information' for more information about available incentives in your country (available for IEA member countries only).





Who can help me with the paperwork for applying to receive financial incentives?

Installation companies are more and more taking over of the application paperwork to receive an incentive. Local energy agencies may also help you.

Should my hotel receive an energy audit?

Definitively yes. Doing an energy audit before investing in a biomass - wood chip and wood pellet-heating system is in your best interest, because it will help to make your hotel as energy efficient as possible. The size of your new wood boiler and the time it takes for operation can be minimized by a well-insulated and weatherized hotel.

Who can install a biomass - wood chip and wood pellet- heating system for my hotel?

A qualified installer or an Energy Service Company (ESCO). Installers will estimate the overall cost, and will also inform your hotel about rebates and incentives for which you may qualify.

What is an ESCO?

An Energy Service Company (ESCO) reduce the hotel energy costs, by taking care of the investments involved of installing a solar hot water system and sharing the resulting future cost savings with you by letting the ESCO install the solar hot water system in your hotel.

Follow the next steps to make your biomass - wood chip and wood pellet- heating system a reality:



- Learn as much as you can about biomass - wood chip and wood pellet- heating system before you make a decision.
- Schedule an on-site energy audit
- Call an installer and obtain estimates
- Check zoning, permit and utility requirements, insurance, and other legalities
- Look for financing options
- Install and learn how to safely maintain your system
- Enjoy producing your own heat

① If you want more detailed information about biomass - wood chips and wood pellets- heating systems please click here!

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