



Choosing and installing new heat plant

What to consider?

- Understand your heating needs. (Replacing like with like with regard to boiler size may not be a good decision as over time the heat load will have changed and a new boiler will have different efficiency and heating characteristics.)
- Understand the benefits of wood fuel as a heating option.
- Follow the guidelines in [SNZ PAS 5311:2021 Biomass boilers for small and medium heat loads](#)
- Familiarise yourself with examples of solid biofuel heating applications through the [Bioenergy Facilities Directory](#).
- Review [case studies](#) and contact the people involved to learn from their experience.
- Find who can best assist you from the [Contact an Expert](#) page on the Bioenergy Association website
- Get a good view on the likely quantities and types of biomass fuel supply in the area for the likely economic life of the facility.
- Understand the relationship between specific [heat plant equipment](#) and the type and quality of fuel it's likely to need. (All heating equipment is different and all solid biomass fuels are not the same).
- Speak to a number of Bioenergy Association [members](#) about the sale and installation service they can offer you (ask about fuel supply, maintenance and operator training)
- Speak to others in your sector that have had similar plants installed.
- Access Bioenergy Association reference information on the [Bioenergy Knowledge Centre](#) to help your decision-making process.

Where will the fuel come from?

When considering a new heat plant the most important consideration is with regard to having confidence on the availability and [type of biomass fuel](#) that is likely to be available in the area over the economic life of the facility.

You can find equipment to handle any type of fuel but matching the fuel to specific type of equipment can be costly.

Think fuel and then equipment and not the reverse.

The different types of biomass fuel are set out in [Technical Guide 1: Solid biofuel classification guidelines](#). Guidance on purchasing biomass fuel is available [here](#).

Heat plant suppliers and installers

Australasia is well served for [wood fuelled combustion technology](#) with a wide range of leading wood fuelled heat plant available. These are supplied by a number of Bioenergy Association Members who have the knowledge and skill to help you find a model of plant suitable for your application.

Many of the [equipment suppliers](#) supply off the shelf equipment which can be specified for particular applications. These installation companies are complimented by a highly skilled and experienced [engineering consulting sector](#).

To ensure that your advisers are experience and have up-to-date knowledge of biomass energy equipment and the market you should engage only [Registered Wood Energy Advisers](#).

Understanding the trade-off

New Zealand has a number of different equipment suppliers and each sells plant that has different characteristics. There is high quality plant that can take a wide range of fuel types and there is cheaper plant that operates most efficiently on specific fuel types and grades. For the asset owner there is a trade-off between capital and operating costs that should be considered. There are also some models that are fully automatic while other cheaper plant may require operator attendance.

To identify installations similar to those under consideration search the [Bioenergy Facilities Directory](#). The listed projects will also help to identify who designed the equipment, supplied it and now operates it.

To contact possible equipment suppliers check out [Contact an Expert](#).

Heat plant operation and maintenance

When purchasing heat plant it's important to also consider the on-going operation and [maintenance](#) of it. In order for the plant to work at maximum efficiencies it needs to be properly maintained and operated. This occurs regardless of whether its use is in a residential or commercial scale application.

Residential wood fuelled heaters should be regularly maintained regardless of their type. At this scale, maintenance can be as simple as keeping the chimney clean or ensuring that the moving parts of a wood pellet heater are working properly. The same applies to commercial scale heating equipment.



Poorly maintained equipment can produce smoke which is a sign of poor combustion.

The choice of fuel is also important regardless of the size of the equipment, its application or its type. For example using wet wood in a burner will result in incomplete combustion and thus smoke and poor heating. Generally equipment is designed for specific fuel.

Guidelines for wood energy plant

The installation of wood fuel plant or equipment is a significant capital expenditure. This kind of commitment typically warrants a tendering approach and the ability to make sure that the user knows what they want/need and is able to secure good quality services. In many situations, schools, care homes etc, the whole process can be one that requires the services of a project manager.

As part of the Technical Guide series the Bioenergy Association has developed a guide for those embarking on the installation of new wood fuelled plant – [Technical Guide 04 – Tender guidelines for wood energy specification](#).

The New Zealand Government has produced [SNZ PAS 5311:2021 Biomass boilers for small and medium heat loads](#) which provides the guidelines which government entities are required to follow when investigating and tendering for heat plant. These guidelines have been written specifically for small and medium heat load facilities but are also as applicable for larger heat loads.