

*BIOMASS ENERGY,
THE CLEAN ANSWER
TO THE BURNING
QUESTION.*





POLYTECHNIK BIOMASS ENERGY

We are a world leader in sustainable and carbon neutral biomass fuelled energy solutions.

We strongly believe that using energy resources that are readily available, renewable, sustainable and economical is a long-term solution to depleting fossil fuels that gives companies a competitive advantage.

We have seen the difference our efficient and carbon neutral process makes to businesses and the local environment in over 2500 successful installations around the world. So much so, that we're committed to continuing research and development to make it even better.

Every installation is tailored to your residues, needs and requirements.

Talk to us to discuss how Polytechnik Biomass Energy can assist you to move to an economical, safe, ecologically sound and carbon neutral solution to your heating or power needs.

KEEPING THE BALANCE

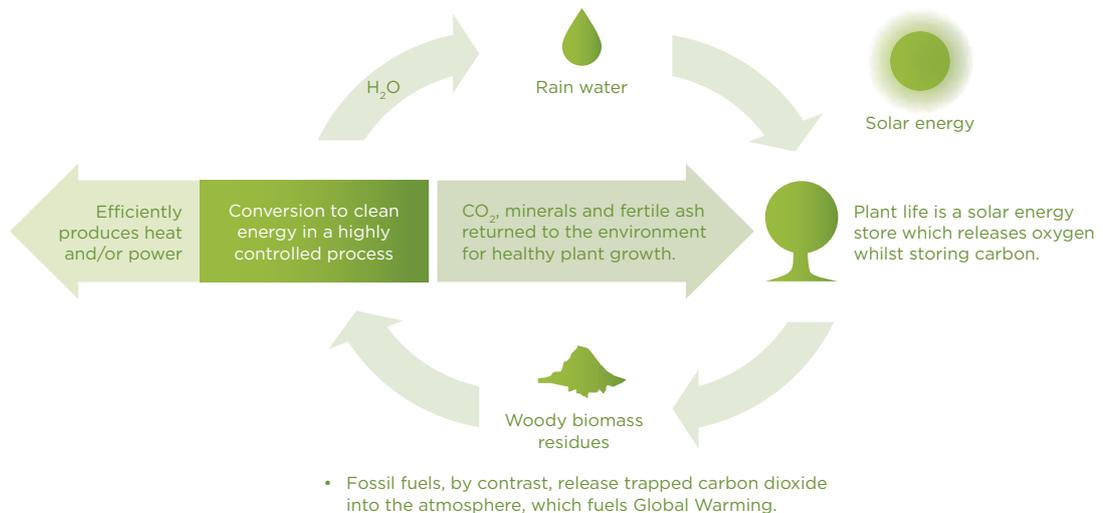


The world is moving away from fossil fuels towards clean energy because nations have decided they are no longer willing to accept the costs of pollution, the security risks of importing oil or the threat of global warming.

Biomass provides us with one of the most environmentally friendly energy sources. The carbon dioxide released during combustion is converted into carbohydrates and oxygen through photosynthesis as plants and trees grow.

Polytechnik offers you a genuine ecologically sound solution to reduce your carbon footprint, whilst also making perfect business sense.

Everything we do through our advanced combustion systems, plant designs and highly developed control systems, is geared towards efficiently and reliably producing heat and/or power using carbon neutral wood waste and forest residues with the minimum environmental impact.



HOT WATER HÄMEENKOSKI, FINLAND



2 MW heat plant with combustion air preheater

DISTRICT HEATING INSTALLED 2011

The 2 MW state-of-the-art wood energy plant fuelled with wood waste (chipped and hogged spruce and pine), forest residues (bark) and peat, replaced an old 500 kW oil-fired boiler. It supplies up to 120°C hot water via a reticulation system to the municipality of Hämeenkoski (population 1,500).

One employee supervises the unattended energy plant from the office, the plant control room (when on site) or when traveling via mobile device (smart phone or tablet).

COST EFFECTIVE



An immense advantage of our boiler plant is its ability to efficiently use high and low quality fuels and residues, which allows our costumers to reduce their energy costs.

Low quality fuel does not mean reduced reliability or higher emissions.

Because reliability is critical to you, it's hugely important to us. Our reputation is built on our proven track record for supremely dependable plant with low service and maintenance costs.

A Polytechnik plant is a fully tailored solution for the typical price of a standard plant. The combination of cheap and available fuel, outstanding reliability, and low service and maintenance costs, makes our plants the most cost effective over the life cycle of the plant.

COMMON POLYTECHNIK FUELS



WOOD PELLETS



WOOD BRIQUETS



WOOD SHAVINGS



SAWDUST



WOOD CHIPS



PEELINGS



SHREDDED TIMBER



HOG FUEL



FOREST RESIDUES



BARK



PEAT



CONSTRUCTION & DEMOLITION WOOD



MISCANTHUS



NUT SHELLS



CHICKEN LITTER

SATURATED STEAM TOULOUSE / FRANCE



Boiler house with emission control system and fuel bunkers

INDUSTRIAL HEATING INSTALLED 2013

Airbus Industries in Toulouse, installed a high-tech 22 t/h, 18 bar, Polytechnik biomass boiler, which will save about 12,000 tonnes of CO₂ emissions per year, in line with Airbus's Blue5 plan target to reduce total emissions by 50 per cent by 2020.

The boiler will use about 22,000 tonnes of wood each year, sourced from sustainable forests in France.

The steam from the plant will be used for heating of the A350 XWB Final Assembly Line and other plant.

POWERING ECONOMIES

One of the advantages of biomass is that it's in plentiful supply. Using it creates a demand for material that is often dumped in landfill, openly burned or left to rot. This in turn stimulates the economy at a local, regional and national level.



Image detailing the fuel feed and de-ashing systems of 3 MWe Steam CHP plant

STEAM POWER PLANTS

In Polytechnik's decentralised cogeneration plants, which are well known for high availability, efficiency and lowest emissions, a biomass boiler produces steam, which drives a turbine generator to produce "green power". The plant also supplies energy in the form of steam and/or hot water to industries and communities. High steam temperatures and pressures well-matched to the fuel, together with various condenser options guarantee the highest thermal and electrical efficiencies.

The standard thermal output of our boilers ranges from 300 kW to 30 MW per unit, with power plants ranging from 200 kW to 20 MW electric. Advanced emission control and heat recovery ensure highest efficiencies and minimum environmental impact.



Image detailing the thermal oil heat exchanger of an ORC CHP plant

ORC POWER PLANTS

We've installed over 40 Organic Rankine Cycles (ORC) plants, which use a thermal oil boiler. The dry steam it produces enables operation at lower temperatures and pressures, without the need for a superheater. Other advantages are:

- Low mechanical stress of the turbine and no erosion of turbine blades
- Long operational life span
- No water treatment system
- Simple start-stop and low turn down
- Condenser water at up to 115°C is used for drying, heating and/or cooling.

THERMAL OIL / ORC CHP PLANT STEIN, GERMANY



Image detailing the fuel yard, the sawdust dryer and the CHP plant

SAWMILL / TIMBER INSTALLED 2007

The Ziegler combined heat and power plant utilises forest and sawmill residues like bark and sawdust to run a 14 MW thermal oil boiler plant, which, in combination with an ORC turbine, generates over 2 MW of electricity.

To ensure high efficiencies, all the waste heat from the cogeneration plant is used to dry sawdust for Ziegler's own pellet plant with an annual capacity of 150,000 tonnes.

DRIVING CHANGE



We're so convinced about the economic and environmental benefits of biomass energy systems, that we're using our knowledge and experience to lead successful industries and policy makers towards change.

Some of the areas where we are already making a change:

- Reducing reliance on fossil fuels like coal, diesel and gas.
- Encouraging new markets and industries by generating revenue streams from wood waste and residue supply.
- Reducing the damage on the environment by supplying high efficiency and low emission energy plants.
- Minimising landfill use through the use of wood waste and forest residues as a valuable fuel.
- Assisting communities and governments in meeting emissions targets and cleaning airsheds.
- Providing high availability and low maintenance biomass energy plants.
- Setting highest health and safety standards when it comes to servicing and operating our energy plants.

Driving change requires a deep understanding of the fuel, the industry, the environment and the economic drivers.

Our credentials are a result of huge experience gleaned through 50 years, over 2,500 installations, intensive R&D, and continuous customer feedback.



Image detailing the 1 MW R&D plant

SUPERHEATED STEAM & HOT WATER MENDE, FRANCE



Image detailing the CHP plant and emission control systems

DISTRICT HEATING / CHP INSTALLED 2009

The cogeneration plant utilises forest and wood residues (woodchips and bark) to supply over 40 GWh of energy per year to the 12,000-population town of Mende, in the form of hot water

The installed boiler plant produces 40 tonnes of superheated steam and 10 MW of high temperature hot water to provide up to 36 MW of thermal heat and to generate 7.5 MW of power. With a total plant efficiency of about 90% this is one of the World's most efficient decentralised biomass power plants.

GLOBALLY LOCAL



For 50 years we have been designing, engineering, manufacturing, installing and commissioning wood and biomass fuelled heat and power plants around the world.

We're a family based business with headquarters in Austria. Around 450 highly motivated, experienced and customer orientated people provide advanced products and services to customers worldwide, either through Polytechnik or one our many joint ventures. They share the same vision to produce energy in the most clean and efficient way possible for our customers, the community and the environment.

We're a truly global company, exporting over 95% of our products to thousands of installations in both the Northern and Southern Hemisphere. With subsidiaries in almost a dozen countries and carefully selected partners in every region in which we operate, you will receive a fast and efficient local service from experts and technology leaders in their field.

You'll find our subsidiaries worldwide including Switzerland, France, Russia, Hungary, Poland, Romania, Belorussia and New Zealand.

Our global service network and its trained engineers and service personnel are available 24 hours a day throughout the year over the globe.



Image detailing a 7.8 MWth CHP plant in the Netherlands



Image detailing a 10.5 MWth CHP plant in Austria

SATURATED STEAM WÖRGL, AUSTRIA



Image detailing the covered fuel yard of the dairy plant

DAIRY INDUSTRY INSTALLED 2007

This installation with an output of 9.2 tonnes per hour of 200°C steam supplies energy to Tirol Milch's dairy plant.

Due to the dairy plant's load requirements Polytechnik's advanced control system responds extremely fast to their typical load change requirements without venting expensive steam which ensures lowest possible operating cost.

The energy plant is fuelled with forest residues (slash, wood chips and bark) which have been supplied by local farmers.

*FOR TURNKEY SOLUTIONS INCLUDING
FRONT-END ENGINEERING, DESIGN,
SALES, DETAIL ENGINEERING,
MANUFACTURING, SUPPLY,
INSTALLATION AND COMMISSIONING.*

Our world-leading energy plants offer you unprecedented control and plant data access at any time and from anywhere through secure internet access. Fuel, load, oxygen, temperature, combustion and other control systems monitor, analyse and continuously optimise all relevant parameters for the most efficient operation and lowest possible emissions.

Highly satisfied customers around the world are proof of our competence and experience as a main component supplier as well as an EPC contractor for turnkey energy plants.

HEAD OFFICE

Polytechnik Luft-und Feuerungstechnik GmbH
Hainfelderstrasse 69
A-2564 Weissenbach
AUSTRIA

T +43/2672/890-0

F +43/2672/890-13

E office@polytechnik.at

NEW ZEALAND AND AUSTRALIA

Polytechnik Biomass Energy Pty Ltd
81 St. Andrews Road
Havelock North 4130
NEW ZEALAND

T +64 6 877 4603

F +64 6 877 4607

E office@polytechnik.co.nz

WWW.POLYTECHNIK.COM