Sunnytek Solar Sweden

Biogen system to make heat + electricity from biomass

Biogen system is a pellet/ bricked boiler using Biomass to make a fire in a gasifier system. This is then converted to electricity + hot water + fertiliser.
System can be used stand alone in an island set up and can cooperate with solar and wind power and energy storage to balance demands over a longer time cycle

BENEFITS

- Cogeneration of Power and Heat
- For use with wood pellets and wood chips (saw dust & rice husk models available)
- Biochar produced is an ideal fertilizer supplement for gardering or farming
- On and Off Grid capabilities
- Autarkic living style possible in combination with Photovoltaic
- For normal and extreme situations (emergency / back up power)
- Multi voltages and output currents possible (DC/AC)
- Simple operation with very little maintenance. And no maintenance for the Stirling Power Unit

Fuel solutions.

Biomass of any kind dry enough to burn. For pellets we have an automatic feeder for unmanned operation for many days.
In Europe wood chips are normal. In other area we can see other types of pellets can be used as agricultural waste in pellet shape, grass materials and remaining from palm oil , cocoa and coffee beans.
Cost to install is not very low but life cycle cost for a 10 year period is very low. Low maintenance and no trouble helps a lot. System is produced by European technology.
Sunnytek offers integration into any other power system on demand.

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Power	On - Off grid Electrical Output Electrical power unit Stirling type	Various options available Max 1100 Watts, 50 – 60 Hz, 230 vAC Microgen Biomass Stirling Power Unit Free Piston Beta type
Heater	BioGen Gasifier Output Water temperature	Max 5.5 kW Max 65 degrees C
Fuel Biochar	Fuel Consumption Rate Biochar Production Rate	2.8 kg/hour 0.5 kg/hour
Dimensions	Width x Length x Height	1.5 m x 2.5 m x 2.5 m
Weight	Weight	Including Microgen Stirling Engine 250 Kg
Maintenance	Biochar Removal Biomass Stirling Engine	Every 10 hours Maintenence free
Other	Emissions Noise level	Following EN 303 class 3 Max 50 dB

Thermal energy in the form of heat is fed into the engine. This thermal energy makes the helium in the engine expand, subsequently driving the piston. By cooling the helium it shrinks which causes the piston to move back again. The oscillating mechanical movement is converted into electrical energy by a linear alternator in the engine.

How it works

The BioGen Pellet & Chip Gasifier System is based on the powerful synergy of wood gasification and Microgen Stilring Engine. The prevalence of small scale wood gasification spread during World War II due to its energy potential as a alternative, re-newable resource. Even cars were powered using wood gasification.
Biomass source is gasified in the BioGen Gasifier, the first continuous operation gasifier of its kind. This gas is then combusted in our specialized combustion burner which houses the head of our Microgen Biomass Stirling Engine.
This head absorbs the heat of combustion, and transfers it into mechanical motion of the free piston, thus producing 1 kW of usable electricity and 5.5 kW of heat for your home.

Right side we show a traditional wood boiler with integrated same type of Stirling generator. Here we offers an other functionality. Pls see separate product data sheet of this device.

This is specially designed for farmers houses in cold areas and it make 25 KW hot water when used.

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