

Automatic wood chip boiler and its heating network

NEULISE



One common heating

- The community of Neulise asked the SIEL to find an economical and environmentally friendly solution to heat the retirement home, the town hall, the public school, the school canteen, the day nursery, the library, the multimedia library, 4 households and further apartments in future.
- Because of that, the SIEL proposed an automatic wood chip boiler to the community.
- An underground heating network that is well insulated in 830 metres depth, heats the water in every building up to 80° C (176° F).
- The used wood is produced by a local forestry company.



Storeroom for the wood

The SIEL as general contractor

The SIEL secures investments and carries out orders for the municipalities.

The corresponding sum is paid back from the municipality in a kind of rent over a period of 20 years.

During this time, the SIEL takes care of the maintenance of the plants and the community provides the needed fuel.

So it is possible to install high-performance plants for all municipalities in the Loire region - regardless of resources.

In association with :



With financial support of :



Important

FACTS

Economic and environmental benefits

- The Loire department has with its area, forested up to 26%, a local and independent resource at its disposal. More than 50 % of the waste produced by the wood industry can be recycled.
- The use of wood as an energy source makes it possible to protect the native forest and create or keep up jobs.
- The CO₂ produced during the combustion, has no contribution to the greenhouse effect as it is naturally absorbed during the plant growth.
- The wood chips are a reasonable fuel which were cut into pieces by a woodchipper.
- A wood boiler, in comparison to fuel, prevents the emission of more than 447 tons CO₂ per year (1) - this is an equivalent to 194 cars driving more than 20,000 km per year (115 g CO₂/km).

⁽¹⁾ 1 kWh of fuel oil used corresponds to 271 g CO₂

General contractor : SIEL

Power of the boiler : 450 kW

Annual wood consumption : 2,200 m³ RWE⁽²⁾ (550 tons)

Energy equivalence : 165,000 liters of fuel oil

Used wood : Wood chips (25% humidity)

Volume of the storeroom : 68 m³

Length of the underground heating network : 830 meters

Surface to be heated : 4,000 m²

Total investment : € 613,567 (SIEL)

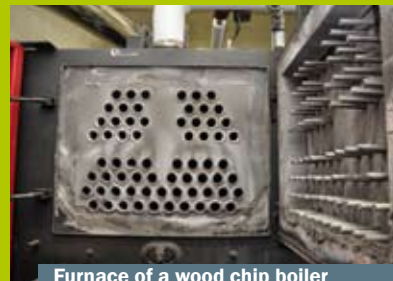
Subsidies : € 413,764 (ADEME, Rhône-Alpes region, General councils of the Loire)

Wood boiler : Compte R

Additional fuel oil boiler : propane gas 960 kW

Architect : Daher

Commissioning : 2009



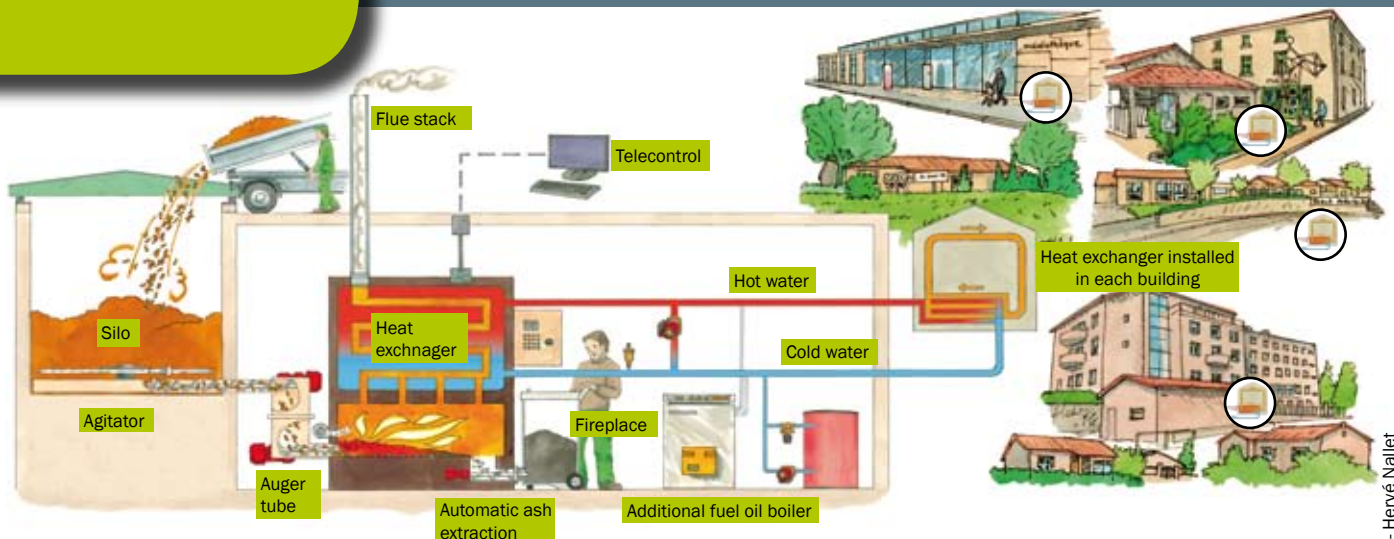
Furnace of a wood chip boiler



Automatic wood chip boiler

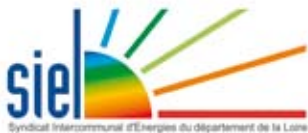
⁽²⁾ RWE = raw wood equivalent

Functioning of this heating system



The heat exchange takes place through a combustion cycle which transmits the energy to the water network. All buildings which are connected with each other are equipped with a new exchanger which is connected to the main heating system to transport the heat into the heating cycle. So the hot water of the main heating network does not flow through the different buildings (heating, underfloor heating, ...).

Should there be a leak in one of the radiators, the heating network is protected against it. The heating system of Neulise is equipped with a telecontrol system which allows the SIEL to control the manufacturing efficiency in real time. Furthermore, it is possible to receive all important data which is necessary for the faultless functioning of the equipment.



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QR Code



The SIEL is a public institution that works for all communities in the Loire region and unites therefore all 43 municipalities and the General councils of the Loire.

These communities entrust the management of the public electricity and gas distribution network to the SIEL. At the same time, the SIEL carries out the following projects for its members: laying of the electricity supply system under the earth, electrification, street lighting and energy management in public buildings. Furthermore, the SIEL is working on the development of renewable energies.

* trade union for energies that operates throughout the Loire department