



Wood boiler building project ASSURC, France

Summary

The ASSURC- Association of Users of the Bourg-en-Bresse district heating system – initiated in 1999 a wood boiler building project which terminated in 2006, allowing heating more than 3.000 dwellings and offices of every type. The boiler has a 4 Megawatt capacity which is equivalent to a 10 % of the total capacity of the heating system, for a total heated surface of 230.000 m².

With the new plant 2,5 millions litres of fuel will be saved each year. Significant savings will show in rental expenses.

These results come within a policy of tenants’ environment improvement and a policy of energy savings and are based on a productive partnership at the level of deliveries between suppliers and also at the level of the operation mounting between the contracting authorities, the project managers, the operating company and the leader of the project.

End-user area

- New buildings
- Refurbishment of buildings
- Transport and mobility
- Financial instruments
- Industry
- Legal initiatives (regulations, directives, etc)
- Planning issues
- Sustainable communities
- User behaviour
- Education
- Other

Target Audience

- Citizens
- Households
- Property owners
- Schools and universities
- Decision makers
- Local and regional authorities
- Transport companies
- Utilities
- ESCOs
- Architects and engineers
- Financial institutions
- Other

Technical

- Energy efficiency
- Heating
- Cooling
- Appliances
- Lighting
- CHP
- District Heating
- Solar energy
- Biomass
- Wind
- Geothermal
- Hydro power
- Other

Context

Within a global study/think tank on an eco friendly approach and on housing energy expenses reduction, the ASSURC (Association of Users of the Bourg-en-Bresse district heating system) ordered a feasibility study for a wood plant.

Energy wood appeared as an innovative solution, economical for its users and eco friendly. It was a choice in accordance with the commitment of Bourg-Habitat (Public Housing Organization) a social housing body, member of the ASSURC, which committed itself since 2002 to improve the tenants’ environment and to save energy.

Objectives

Bourg Habitat, a Public housing Organization, manages 4.500 dwellings on the Community of the town of Bourg-en-Bresse and the neighbouring districts.



Since 2002, this institution committed itself to save energy, reduce expenses and pollution, improve the tenants' environment and contribute to a more attractive dwelling offer in its operations of renovation and construction each time human, logistic and economic means made it possible.

Within an operation of energy expenses reduction for dwellings, l'ASSURC commissioned Rhônalénergie-Environnement, regional agency for energy and environment in Rhône-Alpes and a specialized design office to carry out a feasibility study for a wood plant.

Results were conclusive and the ASSURC did not hesitate for long: wood energy appeared as an innovative solution, economical for its users and eco friendly.

Process

Installed in the old coal boiler building, the Bourg-en-Bresse boiler of 4 MW capacity, allows to heat 230 000 m² with a yearly consumption of 8.000 tonnes of raw wood waste coming from the Bourg basin for the main part. The wood boiler operates with central boilers allowing to use several energies: natural gas cogeneration, wood, natural gas and fuel oil. At full capacity, the boiler consumes 100 m³ of wood each day which represents a 4 day autonomy taking into account the storage capacity.

The wood energy is supplied from sawmill residues and non spoiled fuel wood (pallets, casings).

Dalkia Company, while operating the boiler uses local wood fuel.

Supplies ensured by Enerbois'Coop, is the result of a partnership between eight local suppliers: the waste management joint union of Bourg-en-Bresse (Organom) provides crushed pallets, Agri services environnement at Ambronay pruned wood and five local sawyers' barks.

This partnership is aimed at making the most of mainly local resources of wood waste.

Financial resources and partners

The global investment cost is 2.964.000 € tax included.

The MWh price in 2003 was around 60€ tax included. It consisted of a 73% in heavy oil and natural gas and of a 27% through recovery on a cogeneration system. Further to the wood boiler installation, the energy total cost dropped to 46 €/MWh, i.e. a 23% reduction in the energy global price.

This project was supported by the Région Rhône-Alpes and by the ADEME, Agency for Environment and Energy conservation.

Furthermore Rhônalénergie-Environnement contributed greatly to the mounting of the operation and also assisted Bourg-Habitat all along the project: from the feasibility study to the boiler installation.

In 2006 a call for tender for a new maintenance contract led to a 10% reduction in energy price.

Results

The heating network of Bourg-en-Bresse is submitted to green gas emission quotas defined in the national GEG emission quota allocation plan (PNAQ in French). The wood boiler, with the use of 8.000 tonnes of non treated wood waste per year, saves an amount of GEG emissions equivalent to 4.000 tonnes. Dusts rejected in the air have been divided in 5.

Lessons learned and repeatability

The project of a boiler installation was carried out along with the implementation of a High Environmental Quality process: HEQ policy. Within the building process, HEQ objectives have been fixed in the operation execution:

- eco-construction: choice of construction materials and buildings site with few nuisances
- eco-management: energy and operation waste management
- comfort-health: air sanitary quality and acoustic comfort



The wood boiler of Bourg-en-Bresse was chosen to integrate the European route of energy wood. Visits of the installations are organized to promote energy wood towards children, firms and local authorities.

What is really important too is the partnership between local suppliers which allows to increase the use of local resources of wood waste.

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