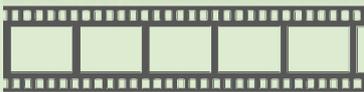


Local energy for local use: planting and using miscanthus to heat a retirement home in the North of France

120 t/year of chopped miscanthus
Operation of the boiler house since 2019
Space heating
Heat energy for retirement home



THE STORY

Chevresis Monceau is a small rural city of 364 inhabitants located in the north of France. Most villagers are farmers themselves or come from a farming families. The retirement home of Chevresis Monceau has 75 beds and is managed by the city council.

A few years ago, when faced with growing fuel oil prices, the management of the facility investigated renewable energies options for heating, which is the most important source of expenses in this cold part of France.

Given the farming background of the community, miscanthus was quickly considered. The advantages of the this type of energy are many: it is locally produced, giving an additional source of income to three local farmers; it is 100% renewable; it is easy to shred and to transport in a farmer's trailer. Moreover, miscanthus also has a positive impact on the local environment: since it is collected in spring, the fields are a shelter for the wildlife in winter, in this region where most forests have disappeared. Finally, it is planted for 15 years and helps restoring the soil for farming cereals.

The technical challenge of burning miscanthus was not simple to overcome. The boiler has to be carefully chosen (with moving grates) and the combustion produces a lot of ashes and possibly clinker, if not well controlled. Finally, the chopped miscanthus has a tendency to get hard if there is moisture in the storage tank; therefore the tank must be very waterproof.

The experience of Agronergy – an ESCO that provides renewable heating solutions based on biomass and that delivered the biomass installation at Chevresis – has provided good results after some years of usage. Combustion has been mastered, the farmers provide good quality, dry, well shredded miscanthus, and the inhabitants of the retirement home are satisfied with the level of the heating comfort provided.



Challenger

- Asking local farmers to commit their fields for a 12-year miscanthus production period
- Establishing a new facility using chopped miscanthus, an innovative source of agro-energy.
- Tuning the combustion of miscanthus in order to prevent clinker creation



Keys of success

- Local, renewable fuel
- Engaging the community for a long term goal
- Selection of a multi-fuel boiler
- Compliance with emission limits
- Financial support from regional government, providing for around 30 % of the total investment



Technology

- 400 kW automatic Heizomat boiler with moving grate technology
- Combustion control
- Remote monitoring of chopped miscanthus level in tank



Economics

- Total investment of around 338 k€
- Heating price to final consumer 115 €/MWh (all included, minus VAT)
- Savings of around 50 €/MWh (some years ago) – now much more



Community

- Very local project, engaging the local city council and 3 local farmers for miscanthus production
- Good collaboration and promotion with the miscanthus association in France
- Very good acceptability