



Wood chips heating system at Weber hydraulics *Weber hydraulics, Austria*

Summary



Weber Hydraulics GmbH is a leading producer of hydraulic products with currently 170 employees in Losenstein/Upper Austria. The company has been expanding over the past few years and therefore, a new production building with 3,400 m2 was constructed. Instead of just enlarging the existing oil heating system, a new biomass heating system was installed for the whole plant. The management decided to use the Third Party Financing scheme and to source out the planning and the operation of the new heating system to an ESCO. Based on a tendering process, "Ing. Aigner Wasser – Wärme – Umwelt GmbH" was chosen - this ESCO is not only in charge of the construction and financing, but also the operation, servicing and maintenance is undertaken by the ESCO

The total investment cost of the project was around 129,000 Euro.

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

Weber Hydraulics is a leading producer of hydraulic products. It offers hydraulic solutions, designs and produces hydraulic cylinders, pumps and valves as well as hydraulic rescue equipment. The field of activity ranges from development to production and distribution. The production centre at Losenstein was founded in 1969, since 1991 Weber hydraulics Losenstein is a 100% subsidiary company of the main company in Güglingen/Germany. In Losenstein, the company presently has 170 employees.





Objectives

With the construction of a new building, a new heating system was needed. Weber chose a solution which uses regionally available wood chips for space and process heating.

The company wanted an efficient, modern heating system. Independency of oil-imports and the strongly fluctuating oil prices, the reduction of CO₂ emissions and also the creation of regional added value were decisive arguments in favour of biomass.

The company decided to use Third Party Financing and an ESCO for the project, as they preferred to concentrate on their core activities and to source out the supply of space and process heat to a specialised company.

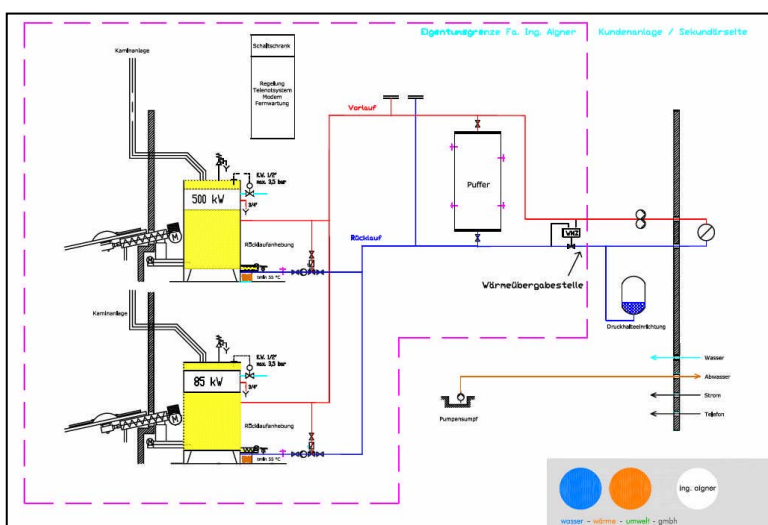


Process

Due to company expansion and business growth, Weber Hydraulics had to enlarge its production area. Therefore a new building with a size of 24 x 72 m and a surface area of 3.400 m² was constructed. With this new building, an enlargement of the existing oil heating system which provides space and process heating would have been necessary. Also with the technical support of O.Ö. Energiesparverband, this was reconsidered in favour of a biomass heating system. A detailed economic analysis confirmed the cost efficiency of a heating system with wood chips. A decision was taken to substitute the old oil heating system with two oil boilers with a capacity of 200 and 600 kW by a biomass heating system.

Why did the company choose a third party financing scheme? An industrial company such as Weber prefers to focus on its core competencies. Therefore it was an optimal solution for the management board of the Weber hydraulic GmbH to source out the energy supply and to delegate the provision of space and process heat to an expert. The ESCO was chosen in an open tender process in which in total 5 ESCOs participated.

Important factors in the selection of the tenders were the plant design as well as the ability of the ESCO to ensure the regional supply with wood chips within a maximum distance of 50 km. Also the quality and a simplicity of the design of the plant were important aspects, as it will be passed over from the ESCO to Weber Hydraulics after the contract period of 15 years. Another point was the possibility of upgrading the heating plant with one more boiler.



The 3 best ESCOs in the tender process were invited by Weber Hydraulics to present their ideas of an innovative heating system to company representatives. Based on that, a decision for an ESCO was made.

The ESCO selected for the operation of the biomass heating system at the Weber Hydraulics is the "Ing. Aigner Wasser – Wärme – Umwelt GmbH". The planning was done in September 2005 and the construction of the heating plant started in October 2005. The start-up of the plant was in January 2006. A 500 kW Fröling boiler - with a high temperature combustion chamber - for the operation in winter and a 85 kW Fröling boiler for the operation in summer, supply the company site with

space and process heat. Both boilers are operated fully automatically. The total heated area is around 8.800 m² and the annual heat demand is around 720 MWh. Wood chips were chosen as fuel as they are available regionally and can be bought from an association of local farmers. The fuel demand is around 1,000 to 1,200 srm (285 – 343 t) per year and the size of the storage room for the wood chips is around 200 m³.



Financial resources and partners

The ESCO "Ing. Aigner Wasser – Wärme – Umwelt GmbH" - chosen in an open tender process - planned, constructed and financed the project. Also the operation, servicing and maintenance will be the responsibility of the ESCO. The total investment costs of the project were around 129,000 Euro.

Weber Hydraulics did not have to cover any investment costs and they will not have operating costs either. They buy heat from the ESCO with whom they have a heat supply contract for a period of 15 years. A guaranteed price for heat fixed in the contract (with adjustments of the price depending on a price index).

The project will get European, national and regional subsidies of around 75.000 for the biomass heating system and a special subsidies from Upper Austria (6,500 Euro) and from the EU (6,500 Euro) for the use of the TPF scheme.

Results

Weber Hydraulics changed its heating system from oil to biomass. The company installed a modern biomass heating system with wood chips, financed via third party financing. Two Fröling biomass boilers were installed with a total capacity of 585 kW for the provision of space and process heat. With two separate boilers the heating system can be operated with an optimised efficiency during the whole year, for the heating of around 8.800 m² space. The annual heat demand of 720 MWh is covered to 100% with biomass.



The ESCO undertakes the whole financing, planning and construction, as well as the future operation and servicing of the heating plant.

By substituting oil with wood chips, around 12,000 Euro can be saved annually. Additionally there is a significant positive effect for the environment because of the reduction of CO₂ emissions of around 187 t/year, compared to a heat supply based on fossil fuel. O.Ö. Energiesparverband supported Weber Hydraulics in this project.

Lessons learned and repeatability

A recommendation from Weber Hydraulics is to start the planning for the heating system at least one year before the start of construction, especially to have enough time for metering the current heat demand for the dimensioning the new boilers. By installing two boilers with different capacities, the operation of the heating system during the whole year can be optimised.

By financing the project via a third party financing scheme the company did not have any investment costs and does not have any technical and financial risks. The company does not have to take care of the maintenance, the operation of the heating system, especially the fuel supply, and can calculate its energy costs because of the heat supply contract with the contractor, for a period of 15 years.

By regularly meetings with the ESCO, at least once a year, possible improvements of the heating system can be discussed and implemented. The staff of Weber Hydraulics -which is very satisfied with the whole project - sees the communication with the ESCO as one of the most important factors of a successful third party finance scheme.

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