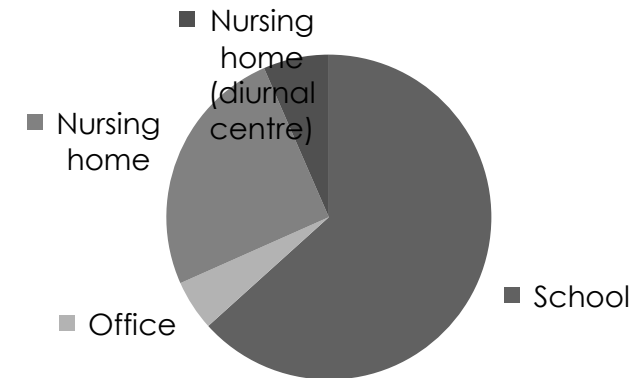
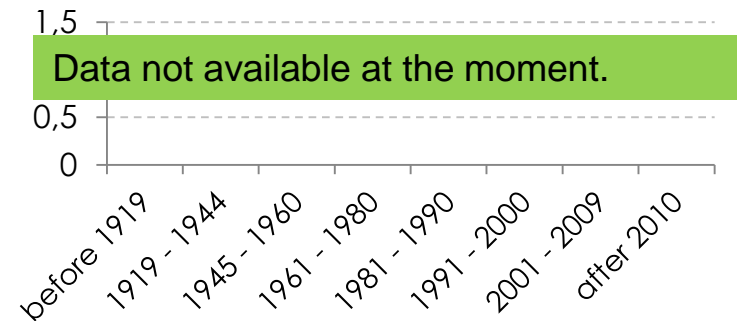


- no. of buildings: 4
- total heated floor area: 4,013 m²

– building typology:



– years of construction:



- renovation measures already carried out: **yes**
- implementation period: **2014**

Overall aim and objective

The project consists in the construction of a new Thermal Power Plant, powered by woody biomass of agro-forestry origin (wood chips), in order to produce thermal energy for the heating and domestic hot water production needs of some buildings owned by the Municipality of Valdastico, in the province of Vicenza.

Utilities are connected to the biomass power plant using a specific district heating network. The district heating network and the thermal power plant are also sized to extend the public utilities that can be connected. The new biomass district heating system has the objective of covering 100% of the thermal demand through renewable sources and guarantee a significant reduction of polluting emissions produced by common boilers.

The analysis of the local wood chips market shows an high availability of high quality chips in the immediate neighborhood as local resource, so a sustainable level of wood chips supply is allowed from an environmental, technical and economic point of view in the medium to long term.

Involved stakeholders

The main stakeholders are the Veneto Region and the Municipality of Valdastico due to benefit in terms of testing renewable technology, energy policy management, energy reduction by public buildings. Surely the great interested stakeholder is the local community in terms of wellbeing, given by an environmental impact reduction, and also for the reduction of global costs for the management and the energy supply of the heating system.

- **What kind of renovation measures were/are being carried out?**
 - renovation of the thermal envelope
 - renovation of the existing heating systems (decentralized in buildings)
 - new central district heating
 - modification of the existing district heating
- **heating demand before renovation: 496 MWh/a**
- **heating demand after renovation: 590 MWh/a**
- **cooling demand existing: no (x % of heating demand)**

- **energy supply system(s) before the renovation:**
 - heat pump
 - natural gas
 - oil
 - biomass
 - district heating
 - renewables
 - fossil
 - mix
 - other....
- **renewable energy generation before the renovation:**
 - none
 - PV
 - solar thermal
 - other....

- **energy supply system(s) after the renovation:**
 - heat pump
 - natural gas
 - oil
 - biomass
 - district heating
 - renewables
 - fossil
 - mix
 - other....
- **renewable energy generation after the renovation:**
 - none
 - PV
 - solar thermal
 - other....

Why is this intervention worth studying? / Why should it be part of the Case Studies?

The district heating network serves the 4 public utilities already mentioned previously, but it is sized for future expansion that can also guarantee the service to other public utilities near the biomass power plant. The management of the system can be carried out by remote management, in order to minimize the operating costs of the entire system and, above all, to guarantee a higher quality of service and a real-time response in case of breakdown. As a supplement to the biomass plant, a solar thermal system was installed at the nursing home, to optimize local renewable sources. 6 solar panels and an accumulation of 1,000 liters have been installed. In case of emergency it is therefore possible to use the pre-existing gas boilers, thus ensuring continuity of service to all users. The heat exchangers are equipped with a control unit, with two-way power modulation valve, which allows to regulate the temperature and power supplied to the user in order to use the actual needs.

- All winter thermal energy requirements are met by woody biomass.
- Most of the summer needs are covered by solar thermal panels.
- The use of methane gas as a fossil source is therefore limited to the case where both systems are not able to meet the energy needs.

further information:

<https://www.regione.veneto.it/web/lavori-pubblici/comune-di-valdastico>

File: VALDASTICO_2014_Energy_Days_Valdastico_2014_06_04.pdf

File: Relazione Tecnica-economica generale.pdf