

Business case ID Card

Name of the company: Fiusis

Country: Italy

Size of the business: 20 employees

Background

Since his youth, Marcello Piccinni always demonstrated a strong interest for renewable energy projects, with the intention of starting his own plant in his home region of Puglia. In 2003, his dreams came closer to reality with the entry into force of a new regulation facilitating the production of renewable energy in Italy through the establishment of a single authorisation system for the construction of new renewable energy plants (Decree 387/2003, which implements EU Directive 2001/77/EC). With the new regulation in place, entrepreneurs planning to build their own plant only have to request one authorisation from the regional administration instead of multiple permits, shortening the administrative delay to start their project to only three months. The regulation gave a real boost to the sector in Italy, and pushed Marcello to realise his original dream.

Aware of the successful and proven operation of renewable energy plants using forest residues in Central and Northern Europe, he was convinced that olive tree forests in Puglia could provide a rich source of materials for the production of sustainable energy. Nonetheless, the high summer temperatures in the region had always been considered as a risk for the efficiency of such plants in Puglia. To find a suitable technical solution to this challenge and move from concept to reality, Marcello travelled across Europe during two years, from 2004 to 2006, to study existing renewable energy plants from the Austrian Tyrol to Bavaria in Germany. Inspired by these visits, he developed his own concept for the production of renewable energy based on the use of local virgin wood prunings. Between 2007 and 2008, he obtained private financing and administrative authorisation for the construction of his plant and created the company Fiusis S.R.L, which remained the sole administrator of the plant since then. Assisted by two experienced local engineers and two Italian technology providers, Fiusis finally kicked off the construction of its plant in 2009. The plant came into operation in November 2010 and is now fully profitable.

Main activities

Fiusis operates the only micro-cogeneration plant (1 Megawatt electric) in the world producing sustainable heat and electricity from a single type of agricultural residues: olive tree prunings. In the region of Puglia, well-known for its abundance of olive tree plantations, prunings are usually disposed of through burning,



provoking polluting fumes and risking fire outbreak. To avoid these issues while exploiting the potential of this material, Fiusis collects prunings from local farmers, considered key partners in the project. The company applies the principle of 'circularity' in a clever way and with an extremely short supply chain, by transforming waste available within a radius of 20 km into a valuable source of energy that sustains the entire municipality of Calimera.

The plant lives up to strict environmental standards. Its emissions are quite low thanks to the energy source used and the further application of special filters, and they are constantly monitored. Since its creation, particular attention has been paid to enhance the process and avoid energy losses. Excess heat from the cogeneration process is now being used for the production of the first ecopellets 'Made-in-Italy', which will soon be sold in the local market. Their next challenge? Kicking off the production of biofertilisers from ashes obtained through the process.

Market

The energy produced by Fiusis is directly fed into the local electricity grid, supplying the nearby municipality of Calimera (7,000+ inhabitants). In practice, the energy is sold to the state-owned Italian energy company GSE which concluded a 15 year contract with Fiusis for the annual production of 1 MegaWatt of bioenergy. The support of GSE from the very beginning of the project has been instrumental for the construction of the Fiusis plant.

As for wood prunings providers, a major change occurred in 2013 when farmers pushed for the creation of a new company to collect and chip wood prunings from local fields: LIGNA. Since LIGNA is 51% owned by Fiusis, this change enhanced the interaction between the raw material supply and transformation process, while increasing the independence of the plant at the local level.

Challenges and solutions

The first challenge faced by Fiusis was a technical one. In that sense, the development of innovative processes and technologies has been essential to avoid heat and electricity losses and maximise the plant efficiency. The process is being continuously updated and improved. As an example, surplus thermal energy is now being used for the production of ecopellets, creating another source of revenue for the plant.

The complexity of the plant's operation process makes it critical for employees to follow a dedicated training within the company. In the first two years, mistakes made during critical steps of the process prevented the company from making any profit. Since then, continuous training carried out by an engineer within the company has helped employees improve the process to make it even more efficient than before.



Beyond the technical challenges, the company had to wait one year and a half to receive the authorisation to start the construction of the plant. Due to the innovative nature of the plant, 47 different bodies had to study the request to give their green light for the plant's construction. Compared to the bureaucratic process required for the development of fossil fuel energy plants, the procedure for the construction of the Fiusis plant has been quite laborious.

Funding

The project was financed exclusively with private credit totalling 7 million Euro. The owner was not aware of the existence of any relevant public funding schemes at that time. The credit was accepted in about a year, following the development of an adequate business plan demonstrating future cash flows. Two Italian financial institutes (Unicredit and MedioCredito Sicilia) have provided the initial funding.

What makes this case innovative?

Fiusis is the only micro-cogeneration plant in the world producing bioenergy from a single agricultural pruning. Due to the high summer temperatures reached in the region, the use of innovative technologies and processes was necessary to make the plant profitable and minimise energy losses. The plant and its operation process are both protected by industrial secrecy.

The strong local anchorage of the company, guaranteed by the use of local feedstocks and the exclusive supply of energy to a nearby municipality, also increases the independence and sustainability of business operations.

Lessons learnt

Motivation, innovation and policy support: these three elements have been crucial to the success of Fiusis. The strong interest and determination of the owner, travelling at his own cost to study similar bioenergy plants, was not only the origin of the project, but also the key for its fruitful implementation. Since then, continuous innovation and experience-based learnings have maximised the company's efficiency.

Beyond the plant, the Puglia region has always been very supportive of renewable energy production, and without the support of GSE, the Italian state-owned energy company, Fiusis would probably not exist today.

