

Furniture maker improves reputation and reduces costs by upgrading to solar thermal

Introduction

DEKOR-MEBLE is a small-scale enterprise established in 2005 and located in Wyszków, Poland. They design and manufacture custom made, high quality furniture for hundreds of private and institutional clients.

As the enterprise operates within its own manufacturing facility, it needs an individual heating system to provide hot water and space heating. Prior to the project, hot water and space heating services were provided by an old and inefficient boiler. To maintain these services, a highly qualified employee prepared fuel (coal in winter, wood in summer) and kept the boiler working year-round. The situation was especially undesirable in the summer, when the boiler only provided hot water (no space heating necessary).

In sum: the pre-project situation was time-intensive and sub-optimal. A highly qualified employee, who could have been doing something much more productive, had to devote an hour per day to boiler maintenance!

Company overview

Firm name: DEKOR MEBLE

Location: Wyszków
(Masovian Voivodeship), Poland

Sector: Furniture manufacturer

Size (turnover): 12 employees

Customers :
Private and institutional clients

Value proposition

High quality, custom made furniture



“The extensive Multiple Benefits analysis convinced us to modernize our domestic hot water system and invest in solar thermal collectors. The impact of multiple benefits – especially time savings – was a key factor. By including these benefits we reduced the simple payback by 9 times!”

Maciej Wielk – Owner, Dekor Meble



Impacts on operations

Security

- Increased installation security/safety – much higher reliability compared to the old boiler.

Quality

- Same level of hot water quality (parameters remain unchanged).

Impact on costs

- Reduced amount of fuel (wood). No need to assess/benchmark wood providers, check quality, moisture content, etc.

Impact on time

- Increased availability of hot water - no delays due to maintenance free system.



Maciej Wielk
Owner, Dekor Meble

Project summary

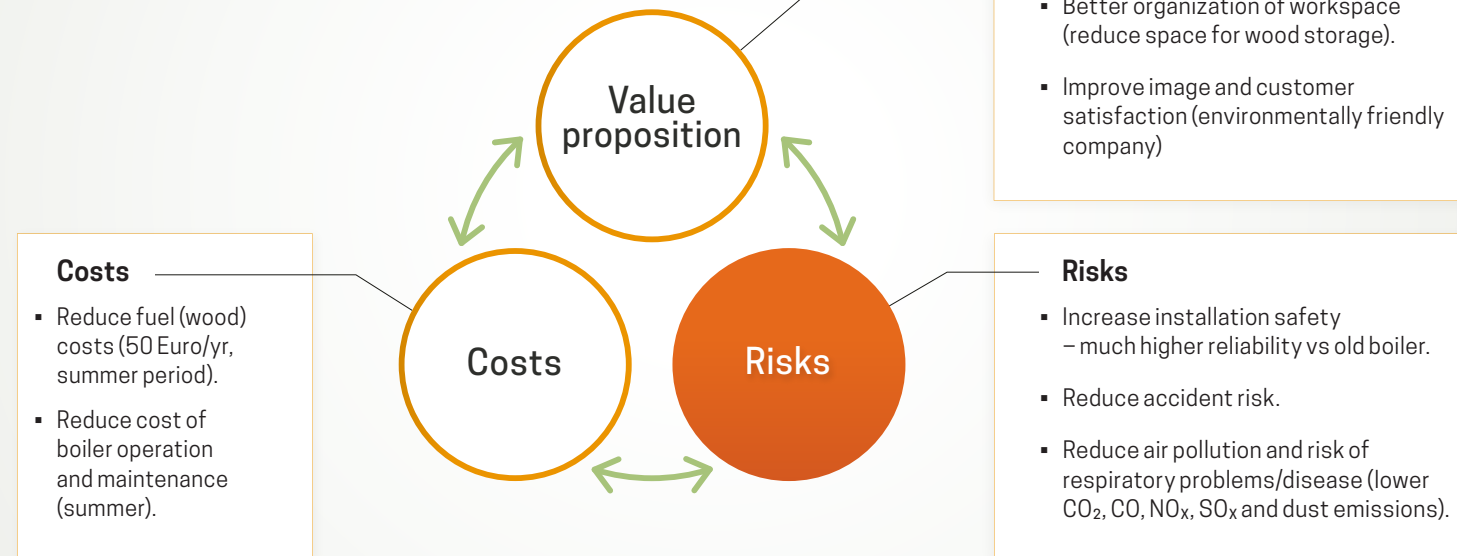
- **Sector:**
Furniture design and manufacturing
- **Energy carrier impacted:**
Wood (biomass)
- **Energy services impacted:**
Hot water delivery
- **Scope:** Deployment of solar thermal collectors for hot water preparation
- **Accepted/implemented?** Yes - solar thermal for hot water installed. Heat pump + PV under consideration

Energy insights – 58% energy cost savings (hot water)

The energy audit identified the following improvement measures:

- Solar thermal collectors for hot water preparation (summer season)
- Heat pump + PV installation to completely replace boiler (hot water and space heating year-round)

Strategic analysis



Financial analysis

CAPEX: 2 355 €. **Discount rate:** 5 %. Investment duration for NPV, IRR calculation 20 years. **Note:** The benefits quantified in the financial analysis include energy savings and time savings. Time savings calculation:

- 1 staff hour per working day devoted to boiler maintenance
- 5 hours per week x 4 summer months
- Hourly rate of a high-qualified employee.
- Total annual savings of 700 €.

	All benefits	Energy-only benefits
Net present value (NPV)	5 600 €	- 1 578 €
Internal rate of return (IRR)	26,87 %	- 5,42 %
Simple payback	4 years	38 years

Lessons learned

Key challenge?

The main challenge was overcoming stereotypes that renewable technologies are not profitable without financial support.

Strategic benefits?

Deployment of solar thermal collectors saves staff time, leads to a cleaner, healthier working environment, and decreases the probability of an accident.

Does the company plan to change its investment behaviour?

Participation in the pilot has changed the perception of energy efficiency issues. The key finding is that energy efficiency measures can positively contribute to many company functions.



Contact information

KAPE

Piotr Nowakowski
The Polish National Energy Conservation Agency,
Research and Projects Department

Tel. +48 504 899 021
pnowakowski@kape.gov.pl

“The most valuable lesson learned/result was to reduce the amount of time our qualified staff spent operating the boiler during the summer. This aspect is essential and the most impactful from the strategic and the financial point of view.”

Maciej Wielk – Owner, Dekor Meble