



## Loški Potok, Slovenia

### Wood Cooperative Loški potok: District heating with wood biomass in Hrib center

#### DESCRIPTION OF THE ACTION

The area of the municipality of Loški potok is 134.5 km<sup>2</sup> and has less than 2.000 inhabitants, 88% of the area is covered with forest.

Objective: By the year 2025, the municipality of Loški Potok should become energetically self-sufficient, with all the energy gained from renewable sources.

Planned activities:

- District heating with wood biomass (cooperative)
- Exploitation of wind potential (cooperative)
- Public transport with electric vehicles

The reason for the establishment of a wood co-operative:

There are several reasons, but the most important one is that Wood cooperative Loški Potok should work for the benefit of the locals, carrying out activities that encourage the use of renewable energy sources and the development of the green economy.

**Time period: 2016 onwards**

**Barriers encountered:**

- **The most difficult problem in the construction was the changing karst terrain, since it was necessary to place storage for chips (approx. 150m<sup>3</sup>) under the boiler room.**



Excavation for wood chips storage

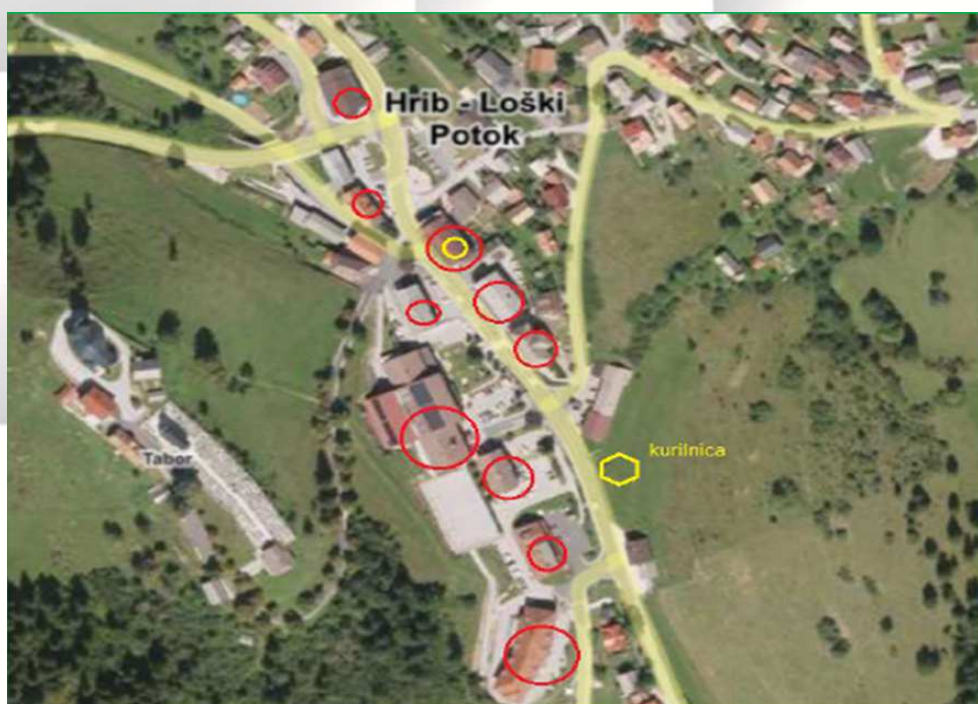


## DESCRIPTION OF THE ACTION

The settlement Hrib is in the middle of a forest area, with a lot of poor quality wood that foresters can not use. The harvest costs more than the wood, so usually this wood remains in the forest. But it can be used for wood chips and in this way energy money remains in the local environment, thus following the commitments of Slovenia to the EU on the transition to renewable sources. Since combustion causes a problem with hard particles, the Institut "Jožef Stefan" developed the particle filter for small combustion plants – also the district heating with wood biomass will be equipped with such a filter.

The Wood Cooperative Loški potok acquired in 2016 a concession for the construction of the district heating with wood biomass for the center of Hrib and then successfully applied to the public tender of the Ministry of Infrastructure for subsidies for the use of renewable resources DO OVE 2016.

At the end of November 2017, district heating on wood biomass (chips) for the center of Hrib started to function. Currently the heating is used for 11 buildings, most of them are public (an elderly home, 2 shops, a health center, a school, a municipality building, office building with post office, Cultural and tourism center, the Pri Birtku Inn, the Marin Inn and the multi-apartment building Hrib 7). The investor is the Wood Cooperative Loški Potok, which invested some 800,000 euros in this project, 70% were grants. The cooperative was given a concession for 15 years, after which the entire system will be passed to the municipality Loški potok.



Municipal facilities connected to district heating with biomass

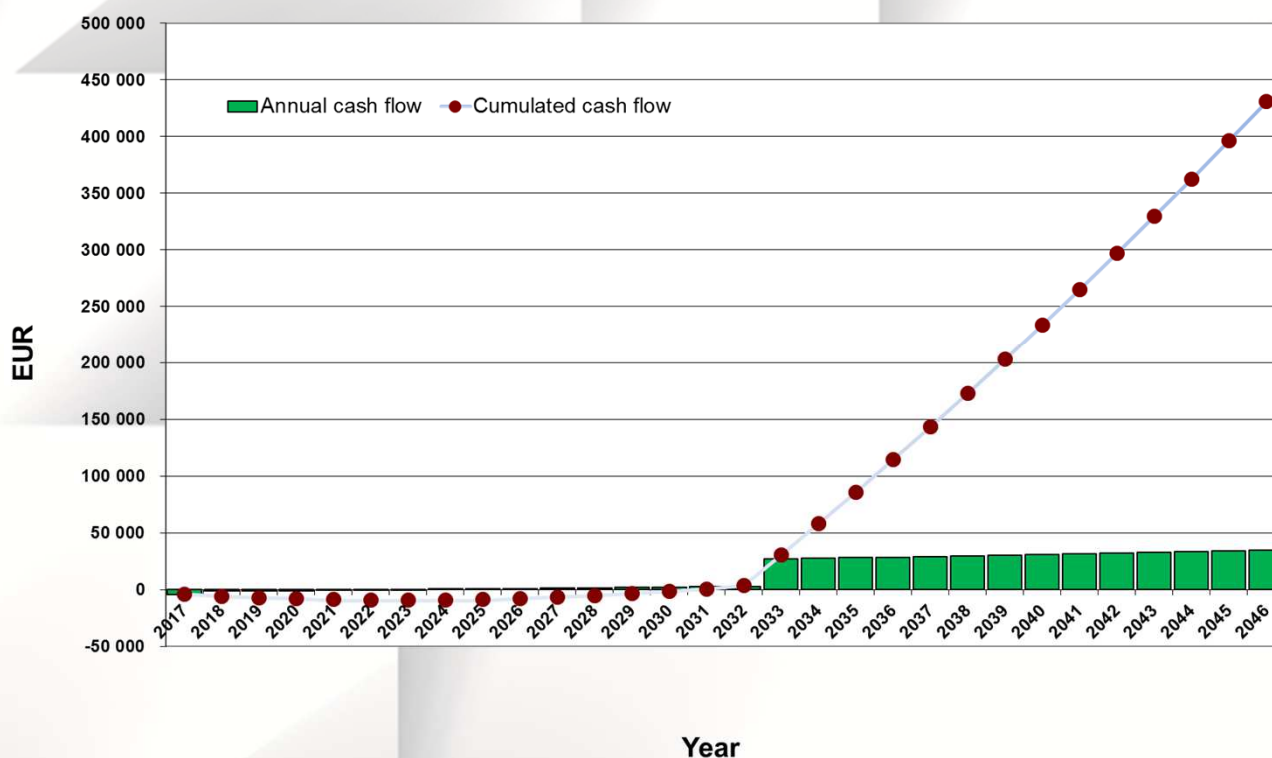


## FINANCING

<b>Investment costs</b>	<b>798.000 EUR</b>
- Own sources	10.000 EUR
- Subsidies (Ministry of Infrastructure) - 65%	518.000 EUR
Loan - payment period 15 years, interest rate 3,75% + 3 month Euribor rate	270.000 EUR
<b>Lifetime (service life)</b>	<b>30 - 50 years</b>
<b>Annual operational costs (incl. energy, maintenance and operating costs)</b>	<b>43.200 EUR</b>
<b>Annual revenues – sale of heat</b>	<b>65.000 EUR</b>

<b>Financial indicators</b>	
Net present value - NPV	219 193,72 EUR
Internal rate ratio - IRR	21,93%
Payback period - simple	14 years
Payback period - discount	16 years
Evaluation year	2017
Lifetime period	30 years
Discount	3,00 %

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 Investor's cash flow

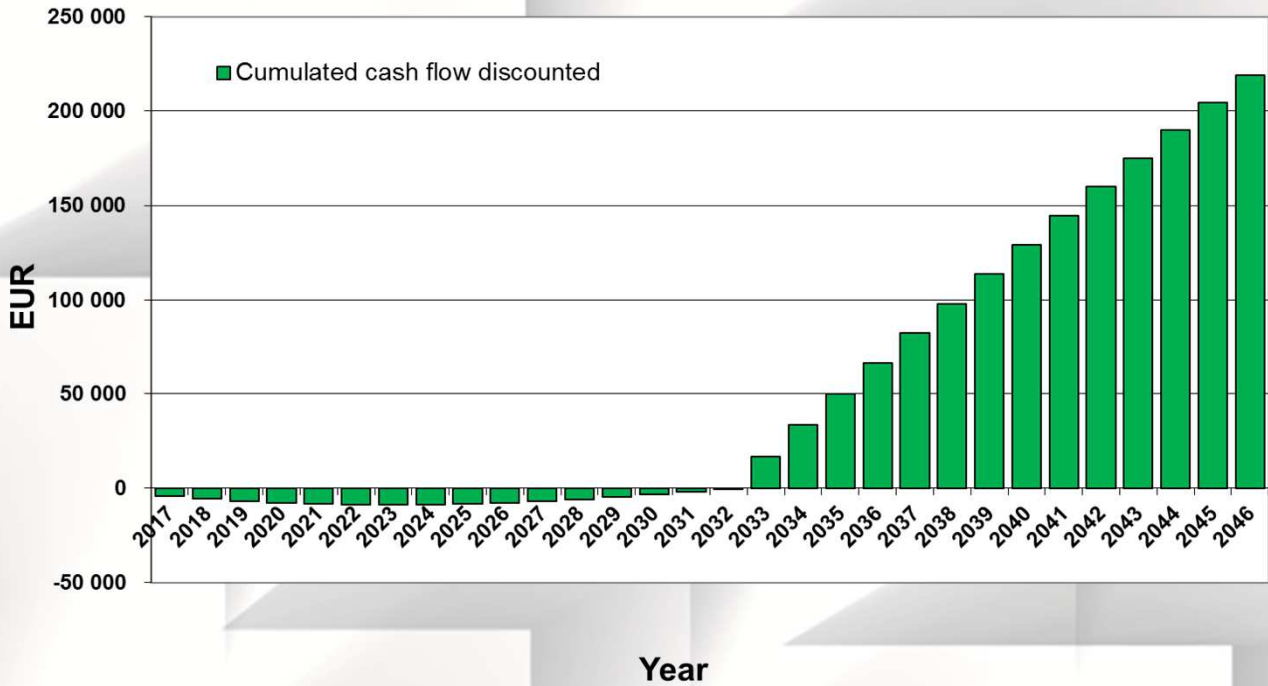






**FINANCING**

Wood Cooperative Loški potok: District heating with wood biomass in Hrib center  
Cumulated cash flow discounted



**PICTURES**

**DOLB Hrib – Loški Potok, od 1.12.2017 do 02.3.2018**  
 proizvedeno 450MWh toplote = cca 54.000l kurilnega olja

Občina Loški Potok

**DOLB LOŠKI POTOK** **BIOMASA** **GIAFLEX**  
 Biomasa d.o.o. / www.biomasa.si WWW.GIAFLEX.COM

**KOTLOVNICA + MREŽA** **KOTLOVNICA + MREŽA, Hrib 102** Web čas: 12.46  
 modul datum: 2.03 / 2018

Stanje kot.: 5 Skupna energija: 452.90 MWh  
 Način delov.:1 Skupni pretok: 22740 m<sup>3</sup>  
 Prip:PRIPRAVLJEN Trenutni moč: 0.370 MW  
 Kotel:AKTIVEN Trenutni pretok: 16.770 m<sup>3</sup>/h

83.2 °C  
 63.8 °C  
 83.0 °C  
 72.6 °C  
 120 °C  
 761 °C  
 Preost. kisika: 9.0 %

80.4 °C  
 64.6 °C  
 62.0 °C  
 61.7 °C  
 61.4 °C  
 66.0 °C

82.0 (Z) °C  
 74.4 °C

MREŽA 2.7 °C

Naprava za vzdržev. tlaka

za mb. 1





## KEY RESULTS

- 11 facilities are connected to the district heating system, the largest heat consumers are public buildings (both shops and restaurants are privately owned).
- Since October 2017, the cooperative also manages the local post office 1318 Loški Potok, which would otherwise be closed.
- The Wood Cooperative successfully applied for a public tender for cutting wood in state forests for the period until the end of 2018.

## Success factor

- The heating season lasts 300 days a year and 90 000 liters of heating oil is used for municipal facilities

## PARTNERS INVOLVED

- Municipality of Loški potok
- Ministry of infrastructure
- Members of the cooperative

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