



Promoting the penetration of agrobiomass heating in European rural areas

Webinar

## Bringing VALUE to AGROBIOMASS

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2<sup>nd</sup> edition

Local authorities and citizens in energy transition by using agrobiomass for heating in the city of Križevci, Croatia



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- Established in 2013 by the UNDP
- 20 members from the field of energy, economy and environmental protection (currently 18 employees)
- Mission: to help citizens, the private and public sectors to invest and use RES
- [www.zez.coop](http://www.zez.coop)

*“Citizens should benefit from locally available resources (such as biomass and solar energy) through their own investments or the actions of local energy communities and cooperatives.”*

- Located in northern part of Croatia, city of Križevci is very well connected with Zagreb and Varaždin
- Križevci population of 21,000 is mostly rural or semi-rural and lives in houses with gardens and orchards
- RES oriented, promotion of locally available energy resources
- Energy transition = citizen engagement





- Excessive potential of the agrobiomass due to large amount of residues (agriculture)
- The main part of project started in 2014 by purchasing agrobiomass shredder
- 100 tones of pruning residues per year is being collected and processed
- The utility company collects pruning residues from local residents and uses it to heat two municipal buildings





- Residents started to sort recyclable waste in 2008
- In 2014 the utility company purchased a biomass shredder GreenMech Arborist 19-28 that attaches to a truck
- The truck circulates through the streets in a schedule provided to the residents
- The shredder operates on the road side and the shredded prunings are collected in a truck
- All year around people can bring residues in the recycling yard
- The material is transported at the recycling yard and arranged on a plateau in 50 cm thick layer, and then air-dried for approximately 2 weeks
- The dried prunings are stored in warehouse until use



- A screw conveyor transports the shredded prunings to the boiler room
- 150 kW WVTerm boiler (Slovenia) is used to heat the sorting room, offices and administrative building of the utility company
- 100 tones of agrobiomass residues are collected in a year in a form of fruit tree pruning residues



- Most common cultivated fruit trees: apple, pear, plum and cherry
- In case of short or warm winters, the excess biomass is given for free to other municipal companies, such as Univerzal d.o.o. from Varaždin
- At the moment, there are no plans for expansion of the facility → the current capacity meets their needs





- The issue of managing volumes of pruning residues encouraged utility company to initiate the project of heating using collected pruning residues
- Initiative started in 2014 and is still active
- Total investment – approx. 130 000 €
- Initiative is funded by the national Environmental Protection and Energy Efficiency Fund (40%) and city of Križevci (60%)



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ENERGETSKU UČINKOVITOST



Križevci is ideal location for implementing such project for 3 main reasons:

1. Population structure of Križevci
2. Systematic education starting at young age → sustainable development, environmental protection and adequate waste management is taught in kindergartens, primary schools and high schools
3. Reducing utility bills by using locally available agrobiomass



- Other than already mentioned factors, the initiative is considered successful because of:
  1. Acceptance of the local community and their willingness to cooperate (since the initiative solved residents' problems)
  2. Support of the local government and national Environmental Protection and Energy Efficiency Fund
  3. Potential of pruning residues for solid biofuel use
  4. Good media coverage in Croatian media
  5. RES aware – installation of the PV system







Promoting the penetration of agrobiomass heating in European rural areas

# Thank you for your attention!

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