

Specific influence on the target city

Target city in Croatia is City of Ozalj, while the project partner responsible for project implementation in Croatia is University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture. There are many activities concerning the City of Ozalj. UNIZAG FSB will gather data on energy usage among citizens and the result will be a map of heat demands which supports the decision making and enables integration with Sustainable Energy Action Plan of Ozalj. Some other parts of SEAP that can be integrated with this project are development of district heating systems based on renewable energy and support for CO₂ reduction measures.

While the actions of UNIZAG FSB in this project are completely scientific, it will support projects that include renewable energy production facilities with excess heat production which can be modularly connected to a district heating grid.

Some of the specific influences of the CoolHeating project on the City of Ozalj

- Development of plans, analysis and strategies for Ozalj heating sector
- Knowledge and experience transfer
- Cooperation with other EU cities
- Integration of industry with heating/cooling grids
- Use of local resources
- Sustainable development of the community
- Increased possibility for receiving EU funding

Project description

The focus of the CoolHeating project is giving support to implementation of small modular renewable district heating and cooling grids for communities (municipalities and smaller cities) in South-Eastern Europe, specifically for Croatia, Slovenia, Macedonia, Serbia and Bosnia and Herzegovina. Project partners from Austria, Denmark and Germany (countries, which implemented a large number of innovative district heating systems) will contribute with their knowledge on implementation of these systems. The outcome of the project will be the initiation on new renewable heating and cooling grids in the above mentioned five South-East European countries up to the investment stage.

Target communities of the project:

- City of **Ozalj** (Croatia)
- Municipality of **Ljutomer** (Slovenia)
- Municipality of **Visoko** (Bosnia and Herzegovina)
- Municipality of **Karposh** (Macedonia)
- City of **Sabac** (Serbia)

Since the target countries have little or no experience with renewable heating and cooling grids, better frameworks need to be developed. Thus, for each target country the project will result in policy recommendations; improved regulatory frameworks; and application of business models and innovative financing that way preparing the market for the uptake of such systems.



CoolHeating.eu

Small modular renewable district heating and cooling systems



This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 691679

Contact - Project Coordinator:
WIP Renewable Energies, Germany
Dominik Rutz
Dominik.Rutz@wip-munich.de
www.wip-munich.de

Small modular renewable energy district heating and cooling systems

Renewable district heating systems include distribution of heat from a central source to individual customers by means of hot pressurised water flowing through distribution pipes. This heat is then used for space heating and domestic hot water preparation but can also be used for low temperature industry needs.

Renewable district cooling systems work on similar principles. Those systems use heat gained from renewable sources to generate cold by the means of the absorption chiller. Chilled water is again provided to the customer by distribution pipes.

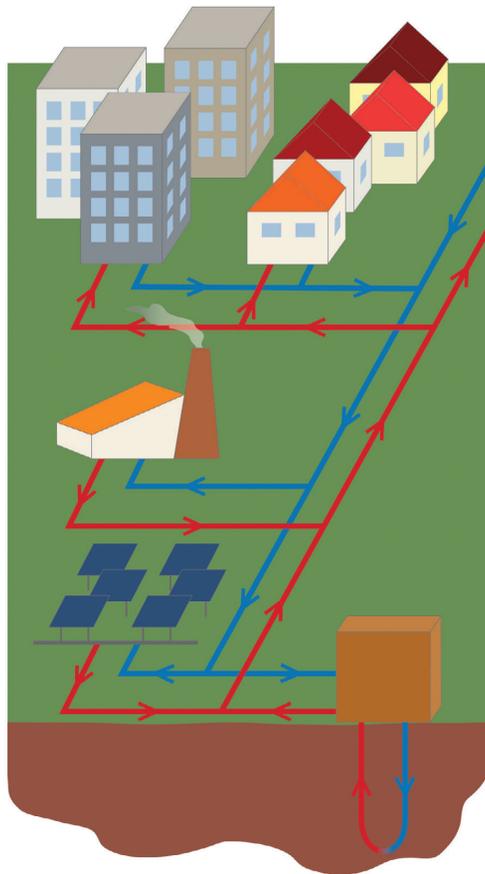
Renewable sources that can be used for these systems include:

- Biomass
- Solar energy
- Geothermal energy
- Excess heat from various sources

Since the share of fluctuating renewable electricity production constantly increases, another way of producing heat could be by utilising renewable electricity by the means of heat pumps and electric boilers. These systems, with further help from heat storage, can also help balancing the power grid.

Modularity of these systems enables that only a part of the system can be realised at the beginning with additional heat sources and consumers being added later. Therefore, the initial demand for investment can be reduced and the project can grow steadily.

Using renewable energy for district heating systems goes in line with the Heating and Cooling Strategy from EU. It helps tackling environmental issues of the current EU heating sector which accounts for half of the EU's annual overall energy consumption with 75% of the fuel it uses coming from fossil fuels.



Benefits

Main advantages of modular renewable energy district heating and cooling systems are:

- Local economy is increased due to local value chains of local biomass supply
- Local employment and security of supply are enhanced
- Comfort of the connected households is increased
- Security risk due to fuel combustion in households is eliminated and usable space in buildings is increased
- Environmental pollution is reduced and air quality is improved
- Energy is used more efficiently which helps conserving scarce natural resources
- If designed properly, economic feasibility for the user is much better than for individual heating systems

