

# PROJECT FICHE



<b>Project title</b>	<b>Heat Pump Systems for an Energy Community of Residential Buildings</b>
<b>Sector</b>	Renewable energy, energy efficiency, energy communities
<b>Location</b>	Jiu Valley, Hunedoara County, Romania
<b>Project purpose</b>	<i>To establish a shared, energy-efficient heating system using heat pumps for a community of residential buildings. The system will lower energy costs and reduce carbon emissions, promoting the use of renewable energy. By fostering the concept of an energy community, the project will enable collective ownership and benefit-sharing among residents, contributing to the region's just transition.</i>
<b>Beneficiaries of the project</b>	<ul style="list-style-type: none"><li>• Residents of the energy community, consisting of several residential buildings in Jiu Valley.</li><li>• Local technicians, contractors, and renewable energy companies involved in the project implementation.</li><li>• The wider community will benefit from reduced air pollution and enhanced sustainability.</li></ul>
<b>Project relevance and need</b>	<i>Jiu Valley is a former coal mining region undergoing a just transition toward renewable energy. Many residential buildings lack efficient heating systems, leading to high energy costs and significant energy poverty. This project addresses the need for affordable, clean heating solutions, while also promoting energy communities as a means of shared ownership and resource management. The installation of heat pumps will provide a sustainable heating system that significantly reduces the community's reliance on fossil fuels.</i>
<b>Implementing actor</b>	Local authority
<b>Activities</b>	<ol style="list-style-type: none"><li>1. <i>Community Formation and Engagement</i><ul style="list-style-type: none"><li>• Engage with residents to form an energy community and develop a shared understanding of the benefits of heat pump systems.</li><li>• Prepare and organise knowledge sharing workshops to introduce the concept of energy communities, the advantages of different heat pump technologies (i.e. air-air, air-water, water-water, etc.) and how shared heat pump systems operate.</li></ul></li><li>2. <i>Feasibility Study and System Design (Basic and Detail Engineering):</i></li></ol>

	<ul style="list-style-type: none"> <li>• Conduct a detailed energy audit of the residential buildings to assess heating needs and the potential for heat pump installation.</li> <li>• Develop a FS and technical design for the shared heat pump system, integrating renewable energy sources such as roof solar PV to power the system.</li> </ul> <p>3. Tender documents, Procurement and Installation:</p> <ul style="list-style-type: none"> <li>• Open tenders for local contractors to carry out construction and installation works and to: <ul style="list-style-type: none"> <li>• Procure heat pumps and related infrastructure, such as piping and energy distribution systems.</li> <li>• Install the heat pumps in the participating buildings, ensuring optimal system design for efficiency and minimal heat loss.</li> </ul> </li> </ul> <p>4. Training and Capacity Building:</p> <ul style="list-style-type: none"> <li>• Train local technicians in the maintenance and operation of heat pump systems to ensure long-term sustainability.</li> <li>• Provide residents with guidance on how to manage and benefit from the shared system.</li> </ul> <p>5. Monitoring and Optimization:</p> <ul style="list-style-type: none"> <li>• Implement a monitoring system to track the energy savings and efficiency of the heat pump system.</li> <li>• Optimize system performance and manage energy distribution within the energy community.</li> </ul>
<p><b>Expected result(s)</b></p>	<ul style="list-style-type: none"> <li>• Energy savings: Estimated reduction in heating costs by 30-40% for participating residents.</li> <li>• Renewable energy production: Estimated annual renewable energy production of 200 MWh through the integration of solar panels.</li> <li>• GHG emission savings: Estimated annual reduction of 150 tCO<sub>2</sub> eq./y.</li> <li>• Improved living standards: Enhanced thermal comfort and reduced energy poverty for residents of 4-6 residential buildings.</li> </ul>
<p><b>Expected contribution(s) and impact(s)</b></p>	<ul style="list-style-type: none"> <li>• The heat pump system will significantly reduce heating costs and improve energy efficiency in the community.</li> <li>• The energy community model will foster cooperation among residents, enabling them to collectively manage and share renewable energy resources.</li> <li>• Job creation through the engagement of local contractors, technicians, and service providers.</li> </ul>
<p><b>Institutional framework</b></p>	<ul style="list-style-type: none"> <li>• The project will be led by local authorities in Jiu Valley in partnership with regional development agencies.</li> </ul>

	<ul style="list-style-type: none"> <li>Partnerships with renewable energy companies, NGOs, local energy service providers and tenants associations will be established to ensure successful implementation and maintenance of the system.</li> </ul>
<b>Budget</b>	<p>Total budget: 800,000 EUR</p> <ul style="list-style-type: none"> <li>Feasibility study and technical design: 100,000 EUR</li> <li>Heat pump procurement and installation: 550,000 EUR</li> <li>Training and capacity building: 75,000 EUR</li> <li>Smart metering systems and community engagement: 75,000 EUR</li> </ul>
<b>Sources of funding or financing</b>	<ul style="list-style-type: none"> <li>Just Transition Fund</li> <li>EU Cohesion Policy funds</li> <li>Climate Fund</li> <li>Potential community contributions and local authority support</li> </ul>
<b>Implementation schedule</b>	<ul style="list-style-type: none"> <li>Feasibility study and system design: April 2025 - July 2025</li> <li>Procurement and installation: August 2025 - December 2025</li> <li>Training and system optimization: January 2026 - March 2026</li> <li>Project completion: March 2026</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>The energy community will collectively own and manage the heat pump system, covering maintenance costs through service fees, ensuring financial sustainability.</li> <li>Local technicians will be trained to maintain the system, ensuring long-term technical sustainability.</li> <li>By reducing dependence on fossil fuels and fostering the use of renewable energy, the project will contribute to Romania's long-term energy transition goals.</li> </ul>
<b>Replication</b>	<p>This project model can be replicated in other residential neighbourhoods in Jiu Valley and similar regions, where residents face high energy costs and energy poverty. The energy community model can also be adapted for larger groups of buildings or other shared renewable energy projects.</p>

# ABOUT

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