

Applicable subject number: 3. Demonstration and market implementation of bioenergy in the heat and electricity sector

Full title: District heating fuelled by wood in a mountain village in central Greece

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Purpose of the work: The aim is to install district heating in the village Chrysomilia, located in the Trikala prefecture, nearest town Kalambaka, at an elevation 800m in the Pindos mountains. The district heating will be fuelled with wood residues from harvest operations in forests in the close vicinity to the village.

Approach: Work is required to assess each of the following and their integration: appropriate wood fuel supply (including: quantity, harvest techniques, capital investments required, involvement of local forest workers cooperatives, storage, specification, price of wood fuel); optimal district heat system (including: fuel drying, boiler/reserve capacities, pumping, capital cost, network extent, maintenance, price of delivered heat); uptake of the system by local villagers (including: support from formal/informal leaders, need or desire to replace existing open wood fires/stoves/oil-fired boilers, supply to local school); finance and payment system (including: commercial investment, local/national subsidy, villagers payments); positive and negative impacts (including: economic, social, environmental).

Scientific innovation and relevance: The work is multi-disciplinary, covering all aspects of a complete 'wood fuel energy chain'. There are no similar schemes operating in Greece but, if this proposed scheme is successfully implemented and operated, the potential for future replica biomass fuelled village district heating schemes throughout extensive Greek mountain areas is considerable. The approach taken and lessons learned will be valid for Balkan and southern Europe countries.

Results: Work by the FRIA in 2002 (as part of a wider renewable energy study for Trikala prefecture) identified Chrysomilia as a promising location for a wood fuelled district heating system. Favourable aspects included: location (high elevation, position on road networks), demand for heat (substantial winter population including younger families, school and city hall, visitors to nearby winter resort) local forests and active forest worker cooperatives, and strong local political support. Work to assess wood fuel supply is ongoing. This is being led by CRES and contributes to the EC-funded 'ECHAINE' project. This includes study of existing harvest methods (for saw timber and traditional fuelwood), proposing modified methods (in which residues are collected efficiently with respect to technical, economic, safety and environment aspects) and doing trials of these new methods. CRES are using a Geographic Information System as one tool to describe and analyse potential supply of wood fuel to Chrysomilia.

Conclusions: The pre-feasibility work described above has given favourable results. With support from the local Mayor, an application for funding a complete economic and technical feasibility study with an industry partner has been made to Thessaly Regional Office and initial positive feedback has been received.