

## Energy concept summary

### Title of the energy concept: Reconstruction of District Heating Substation for Pump Energy Efficiency

Topic area choice and topic marking in blue:

- ( ) **Building** e.g. Insulation, change of windows, Low-energy-buildings
- (X) **Electrical energy** e.g. Light, Compressed air, Electrical drives, Cooling machines, **Circulation pump power**
- ( ) **Heat** e.g. Heating, Process heat, Heat recovery, Air conditioning, Combined heat & power
- ( ) **Renewable energy** e.g. Solar technology, Wood-fired plants, Biogas, Geothermal energy
- ( ) **Management** e.g. Energy buying, Contracting, Emission trade, Energy data management systems



Company: Distribution of Heat Balkan Energy  
 Branch and NACE-Code(s):  
 Products/Services: Distribution of heat  
 No of employees: 106  
 Name of energy concept producer: Igor Delidinkov  
 Participant in EUREM No.:

### Energy concept description:

The goal is rational and reduced power consumption of circulation pumps for hot water in the district heating substation with installed heat capacity of 2.4 [MW].

The heat transfer in the substation is direct with two mixing loops and two heating circuits. Each heating circuit has two pumps (active and spare). The pumps are from the same manufacturer, they have identical characteristics and significantly are oversized (noise has been detected in the heating installation of some tenants).

During the heating season they operate 24 hours per day, or in total 50% more time than necessary.

Effective operation and reduced power consumption will be achieved by optimization of pumps work and pumps operating time by installing regulation and measuring equipment (automatic balancing valves, temperature thermostat and by pass with ball valves).

Estimated power savings per year are 75% or 88.4 [MWh]



### Results:

Energy saving potential [kWh/a]: 88.402,00  
 Energy source: Electricity (mostly from lignite coal)  
 Cost reduction potential [Euro/year]: 12.685,00  
 CO<sub>2</sub>- saving potential [t/a]: 84  
 (please fill in conversion factor: 0.95 kg CO<sub>2</sub> per kWh)

Investment costs [Euro]: 5.322,00  
 Pay-back time [Years]: 0,42  
 Chance of implementation:  
 (X) high ( ) middle ( ) low  
 or date of implementation