### ELENA Completed Project Factsheet
#### District Heating 2.0 Stadsverwarming Purmerend

<table>
<thead>
<tr>
<th>Location</th>
<th>Purmerend, Netherlands</th>
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<tbody>
<tr>
<td>Beneficiary</td>
<td>District heating company of Purmerend (Stadsverwarming Purmerend (SVP))</td>
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<tr>
<td>CoM signatory</td>
<td>No</td>
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<td>Sector</td>
<td>Energy efficiency, renewable energies, district heating.</td>
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<tr>
<td>Total PDS costs</td>
<td>EUR 2 364 924</td>
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<tr>
<td>ELENA contribution</td>
<td>EUR 1 791 900</td>
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#### Project development services financed by ELENA
- Preparation of tender documents and signature of work contracts for the partial energy retrofitting of the district heating network;
- Elaboration of a business plan of a geothermal and a biomass new RE heat production facilities;
- Identification of financing schemes and investment partners for the SPV, preparation and signature of long term biomass supply contract;
- Preparation of tender documents and signature of work contracts for the biomass heat production facilities (geothermal heat source was abandoned).

#### Description of ELENA operation
- Set up of a dedicated Project Implementation Unit with internal and external staff in charge of preparing and implementing the complete investment programme (network and RE plants);
- Technical external experts were hired for the preparation and the construction of the RE plants and the performance improvement of the district heating network;
- Legal and financial expertise for preparation of tender documents for the investment programme was externalised.

#### Timeframe
October 2010 – September 2013

#### Basis for investment identification
Development vision of the district heating company to reduce losses and switch (from external gas fired heat supply) to own RE supply; linked to the action plan of the City of Purmerend having signed the Dutch “Climate Agreement”.

#### Investment programme description
- Improvement of the district heating network: the replacement of substations, elimination of unnecessary loops, improve “just in time” heat production.
- Construction of a biomass heat plant (44 MWth), including all the connection work to the heat grid, grid reinforcement, the necessary logistic components and gas fired peak load and back up boiler.
- Till September 2013 all the planned works started, but only part of the works were completed (e.g. part of the improvement of the district heating network).

#### Investment in implementation phase
EUR 52 586 000

#### Expected results
- Energy savings: 40 GWh/y
- RE heat generation: 260 GWh/y
- CO₂ reduction: 39 100 t/y

#### Leverage factor
29
Lessons learnt

- A relatively small public district heating company is capable of modernising an ageing district heating network and replace to a great extent the fossil fuel based heat generation by biomass supplied by the national forest administration.
- Competent external expertise allowed implementing a highly performing solution for the district heating company and its clients, being an integral part of the city’s climate protection strategy (Klimaatkoord) and delivering a substantial part of the overall targeted greenhouse gas emission reductions.
- Time delays do occur more than expected. In certain cases these can be avoided through an early involvement of parties concerned (e.g. building permit authority).
- The abandoning of two initial choices (use of geothermal heat and setting up a dedicated special project vehicle) took more time and efforts than initially foreseen in particular the coordination with the shareholder of SVP.

Further information sources
http://www.stadsverwarmingpurmerend.nl/actueel/warmteproductie

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Biomass heat plant flow chart
Design of biomass heat plant

View of construction site