



Facilitating market penetration of trigeneration – the ProEcoPolyNet project

Evald Kranjčevič, M.Sc.
Jozef Stefan Institute, Ljubljana, Slovenia

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Summary of PEP-Net: Aims and objectives

Overall goals of the project

- **Editing RTD results to promote and disseminate efficient and innovative building-related energy technologies**
- **Complementing dissemination carried out within similar individual FP projects**
- **Improvement of the level of information and know-how transfer throughout Europe by linking leading experts and specific organisations in a network and by implementing joint activities**
- **Contribute to the creation of a European Research Area by strengthening the co-operation between actors and institutions**



Funding, Consortium, duration, website

Funding

- **European Commission, DG TREN, 6th Framework Programme Priority 6.1**

Consortium

- **13 partners from 7 European countries**
- **Coordinator: Berliner Energieagentur GmbH**

Project duration

- **May 2006 – April 2008 (24 months)**

Project website

- **www.proecopolynet.info**



Horizontal Cluster Work package (1)

WP 1: Network and Contract Management (BEA as co-ordinator)

- **Task 1 Contract management**
 - ➔ Consortium Agreement
 - ➔ Project communication
 - ➔ Project and WP meetings (KOM, 1-2 Interim and 1 Final meeting)
 - ➔ Evaluation (to quantify impact of the activity, via Performance Indicators (PI's))
 - ➔ Reporting (short quarterly reports, interim and final report)
- **Task 2 Network management**
 - ➔ Network management (between BE, WP leaders, other partners)
 - ➔ Intranet facility (project-internal communication, networking)



Horizontal Cluster Work package (2)

WP 2: General Dissemination and Promotion (WP leader BEA)

- **Task 1 website**
 - For general promotion of PEP-Net, with content from WP 3-5, forum area and toolbox
 - With RTD project and service database (e.g. partner VDI-GET)
- **Task 2 Compiling cross-thematic information**
 - Collecting of validated RTD results from WP 3-5
 - Development of a general strategy for promot./dissem. Activities
 - Support of promotional , other events WP 3-5, filling project website
- **Task 3 General promotion – Events (participation with own material, own sessions)**
- **Task 4 Support to Organised Dialogue (Matchmaking/networking of experts; Technology Fairs)**
- **Task 5 WP 2 management**



Thematic Work package (3)

WP 3: Eco-Buildings (WP leader A.E.A.)

Overall goal: to accelerate the market introduction of results of research programmes related to eco-building technologies (focused on a) technical solutions for highly efficient office buildings, b) low-energy single family houses)

To a)

- **Task 3.1 technology profiles**
- **Task 3.2 Dialogue platform**
- **Task 3.3 Technical audits for the implementation of results into standard planning process**

To b)

- **Task 3.4 Direct marketing**
- **Task 3.5 information dissemination at national housing fairs**

Overarching tasks

- **Task 3.7 use of existing information channels**
- **Task 3.8 WP 3 management**



Thematic Work package (4)

WP 4: Polygeneration (WP leader EcNet)

*Overall objective: to facilitate market penetration of technical applications/solutions related to “polygeneration technologies” within the technological focal areas **a) Trigeneration, b) small scale applications and Micro CHP** and innovative technologies, including biomass*

For each sub-WP

- **Task 1 Condensing information on RTD results and market application**
- **Task 2 Market activities**
- **Task 3 Dissemination and promotion**
- **Task 4 Implementation potential and RTD perspectives**

Overarching task: WP 4 management



Thematic Work package (5)

WP 5: Renewable heating and cooling technologies (WP leader UoM)

Overall objective: WP 5 deals with a) Renewable heating and cooling, b) innovative storage systems and c) heat pumps and innovative technologies

For each sub-WP

- Task 1 Upgrading information on RTD results and market application
- Task 2 Dissemination and promotion
- Task 3 Trend analysis and cost effectiveness

To a)

- Task 1.1 – 1.3 expert Workshops, dissemination material, brochures

To b), c)

- Task 2.1, 3.1 technology survey, *promotion (Workshop, brochure,...)*

Overarching task: WP 5 management



Main results WP 4

Main results related to Trigeneration and Micro CHP:

- List of 34 screened RTD projects on the website
- Several papers for two large international conferences (Clima2007, PRES'07 Ischia), one common paper together with project partner University of Manchester is basis of the presentations
- PEP-Net sessions during CLIMA2007, PRES'07 with focus Micro CHP
- fact sheets/best practice sheets on the website, some of these sheets selected for category „technology of the months“
- Data base (information on RTD actors and manufacturers), dissemination brochures and reports on the PEP-Net website
- Common events during European COGENeration days, PEP-Net expert workshops in several countries, Micro-CHP seminars, articles in professional magazines, leaflets etc.
- Papers on CHP themes for special issue of journal „Applied Thermal Engineering“ – shall be published in spring 2008



Some best practice examples

“Sewage Plant Hallstättersee“

- operated by the „Reinholdungsverband (RHV) Hallstättersee“.
- a photovoltaic system (collector surface 143,4 m²) and two micro gas turbines (30kWel/60kWth each) from Capstone were installed (to cover electrical and thermal energy demand of the sewage plant)
- micro CHP system runs in an electric driven operation mode to reach its maximum electrical energy output.

Installed micro gas turbines (30kWel/60kWth each) from Capstone company (Source: www.rhv.at, March 2007)





Some best practice examples (2)

“SOLO Stirling 161 field test in Fürth/Germany“

- cooperation with the energy agency EAM and a local DH provider
- Installation in a heat station, supplying heating power for a residential area (79 buildings)
- Because of the combination of the district heating station (max. 4.5MWh) and the Stirling CHP unit, various modes can be measured, without having an impact on the supply of the client
- Because of the high feed temperature from the district heating station the pre-conditions can be considered as suboptimal

View of the heating station with the Solo Stirling 161 (source: website of energy agency Mittelfranken EAM www.energieagentur-mittelfranken.de)





Some best practice examples (3)

“Trigeneration and Solar Cooling“

- modern office building service center in Haid of OÖ Ferngas in Upper Austria (among others showing innovative natural gas systems and energy saving applications)
- To cover the heating and cooling demand (i) a solar thermal system (collector surface 70 m²), (ii) a micro gas turbine (30 kWel/60 kWth), (iii) an absorption chiller (cooling output 70 kW) and a natural gas boiler (150 kW) have been installed

Left side: Installed Capstone micro gas turbine (30kWel/60kWth) Right side: Installed Yazaki absorption chiller (cooling capacity 70 kW)
(Source: OÖ. Ferngas AG)





Some best practice examples (4)

“Trigeneration in the building Königstadt-Terrassen, Berlin“

- The Berlin Energy Agency is supplying the commercial building complex „Königstadt-Terrassen“ in Berlin (heat, electric/emergency power and cooling energy)
- 25 retail units with 42.000 m² are supplied via two natural gas fired condensing gas boiler (total power 1,9 MW_{th}), two CHP units (each with 128 kW_{el}, 227 kW_{th}) and a absorption chiller with 350 kW cooling power.
- contract duration 15 years, annual savings in comparison with conventional supply solutions amount 2.500 MWh primary energy with a CO₂ emission reduction of 700 t/a.

Left side: Installed gas-absorption refrigerator (Carrier, LiBr, single-lift), cooling output of 350 kW Right side: Installed CHP unit (128 kW_{el} /227 kW_{th}) from MENAG company (Source: Berliner Energieagentur GmbH)





Many thanks for your attention!

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