WP 4 **Energy Supply**

Baltic Sea Region Programme 2007-2013

Part-financed by the European Union (European Regional Development Fund and European Neighbourhood and Partnership Instrument)

URB Energy

Energy Efficient and Integrated Urban Development Action

Energy efficient rehabilitation – improvement of buildings and energy supply infrastructure

The current status

Marit Otsing.

BUCHA, Rakvere

June 2010, Warsaw, WP4 workshop

WP4 activities, *(Rakvere)*

Activities	Status (not started yet, just started, working on, almost finished, finished)	Description
Activity 1	*Defining the target area FINISHED*	*The area and pilot buildings for the project were defined in collaboration with Rakvere city*
Activity 2	*Preparing energy audits for the target area buildings FINISHED*	*Energy audits were made*
Activity 3	*Analysis of the efficiency of energy consumption in pilot buildings in the period 2005-2010 FINISHED*	*An aim of the analysis is to find out the best solutions for insulation of the buildings following the principles of architectural value, energy efficiency, cost effectiveness and urban development*

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WP4 activities, *(Rakvere)*

Activities	Status (not started yet, just started, working on, almost finished, finished)	Description
Activity 4	*Evaluation of the options of using renewable energy in pilot buildings WORKING ON*	*A written report will br prepared*
Activity 5	*Working out solutions for reconstruction of the heating and ventilation system and WORKING ON*	*A report will be prepared*
Activity 6	*Making financial calculations for needed investments to guarantee high energy efficiency, good indoors climate and high architectural quality of the target area buildings WORKING ON*	*A report will be prepared*

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WP4 activities, *(Rakvere)*

Activities	Status (not started yet, just started, working on, almost finished, finished)	Description
Activity 7	*Seminar with the representatives of target area FINISHED*	*A seminar with 40 participants was held*
Activity 8	*Organising architectural competition for planning housing and surronding urban area WORKING ON*	*Competition will be finished next week*
Activity 8	*Making interviews with apartment owners of the TA WORKING ON*	*Interviews were implemented in May, evaluatio nof the interviews is going on*

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Residential buildings, *(Rakvere)*

Number of multi-apartment buildings	*18*
Number of apartments	**817**
Total living and heating space, m²	**34310 m2**
The average living and heating space per apartment, m²	*41,8 m2*

Share of owners / tenants	*owners*

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Residential buildings, *(Rakvere)*

- **Typical building types – constructions, materials, number of floors and apartments:**
  - *Type 1 (silicate brick building, 3 floors, 36 apartments, built in 1960s);*
  - *Type 2 (ceramid clay brick building, 30 apartments, built in 1980s);*
  - *Type 3 (light weight panel building, 45 apartments, built in 1980s)*

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Residential buildings, *(Rakvere)*

	Type 1	*Type 2*	Type 3	Total
Number of buildings	*5*	*3*	10	*18*

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Residential buildings, *(Rakvere)*

- **The average annual energy consumption of multi-apartment buildings (kWh/m²)**

Total heat consumption	*170-180 kwh/m2*
Space heating	
Hot water preparation	
Electricity	*50 kWh/m2*

- **Tariffs and costs:**

	Tariff	**Average annual costs per m²**
Heat	**55 EUR/MWh**	*9,35 EUR/ m2*
Electricity	**0.08 EUR kWh**	*4 EUR/m2*

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Residential buildings, *(Rakvere)*

- **The energy saving potential (kWh/m^2/a, %):**
  - *The aimed final energy consumption of multi-apartment buildings after refurbishement could be 55 kWh/m2*
  - *The potential reduction of final energy consumption after multi-apartment building refurbishement could be 150 MWh*
  - *The expected CO2 reduction could be 40 tons per year).*

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Public buildings, *(Rakvere)*

- **Concepts and experience of public building refurbishment:**
  - *In the framework of UrbEnergy a idea solution for designing public area in Seminari street in Rakvere will be completed.*
  - *The renewed area will give an opportunity to local people to enjoy green environment in the neighbourhood of their buildings and helps to reduce traffic in the living areas.*

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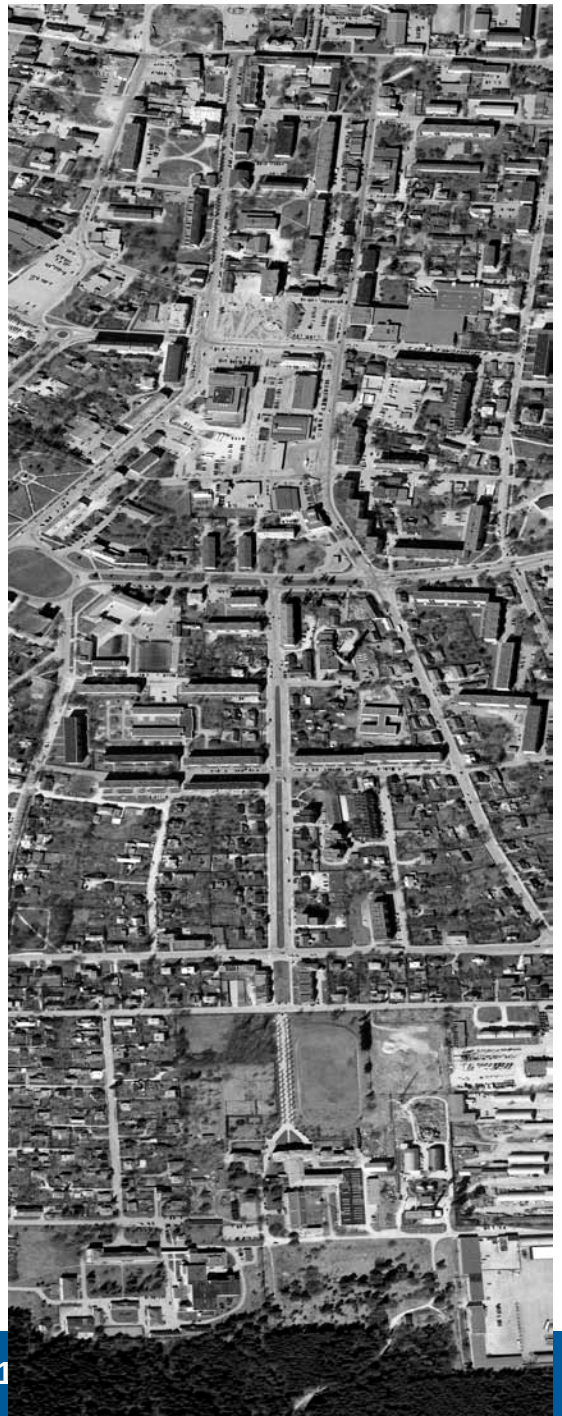

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Energy supply, *(Rakvere)*

- **The heat producers and suppliers:**
  - *Rakvere District Heating company + NSE Fram Ehitus (private company started at 01.05.2010)*

- **The energy supply infrastructure:**
  - *share of district heating - 100 %*
  - *share of individual heating - 0 %*
  - *DH system consists from 2 pipe network, total length 17, 8 km is pre-insulated renovated pipeline*
  - *from 01.05.2010 25 % of the heat is coming from biofuel (wood residues chips)*

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Energy supply, *(Rakvere)*

- **Energy sources:**
  - *100 % natural gas until May 2010*

- **Cogeneration:**
  - Cogeneration plant will be built at the end of 2011

- **Renewable Energy Sources**
  - *25 % coming from biofuel (15 MWh per year for the whole town)*
  - *After building the co-generation plant 45 MWh per year can be produced*

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Stakeholders, *(Rakvere)*

- **The stakeholders involved in Urb.Energy project:**
  - *Architects and landscape architects - arranging a public idea competition in order to achieve the best solution for reconstruction of the apartment buildings and public area (jury evaluates and announces the winner in 17-18.06.2010)*
  - *Housing managers – an information day was organised*
  - *Apartment owners – interviews with the apartment owners in target area houses were implemented.*

- **The special demand:**
  - *apartment owners were interested in keeping the living environment green*

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Current results, *(Rakvere)*

- **The first results:**
  - *idea competiton almost finished*
  - *technical evaluation of the TA buildings finished*
  - *interviews with the apartment owners implemented*
  - *seminar for housing managers organised*

- **Urgent Problems:**
  - *the need for comprehensive renovation demands more financial resources than the inhabitants can afford*
- **Other important issues:**
  - *there is a need for informing inhabitants about the importance of energy efficient renovation on large-scale basis.*

THANK YOU FOR YOUR ATTENTION!

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