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

EER – Improvement of buildings and energy supply infrastructure

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Riga City Council

15 June 2009 – Kick-Off-Conference, Potsdam

City of Riga

- **City of Riga:**
  - **area 307km²;**
  - **population 715 978;**
  - **population density 2 367 residents/km².**

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Public areas of Riga City

- **Urban public are problems in Riga like in most cities in Latvia are:**
  - **lack of auto parking places;**
  - **lack of recreational grounds and playgrounds for kids;**
  - **lack of or poor condition of parks and green areas;**
  - **kindergarten and daycare centre distribution and availability.**

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Riga City housing stock

- **Data by Central Statistical Bureau of Latvia (at the end of 2007):**
  - **323 054 households or 17 296 500 m^2 ;**
  - **growth index is 2% per year of the housing stock total area and 1.7% of the number of households;**
  - **6% of the housing stock are 1 and 2 apartment residential buildings;**
  - **94% of the housing stock are houses with 3 or more flats;**
  - **most of multi-apartment buildings are built 1950 to 1990.**

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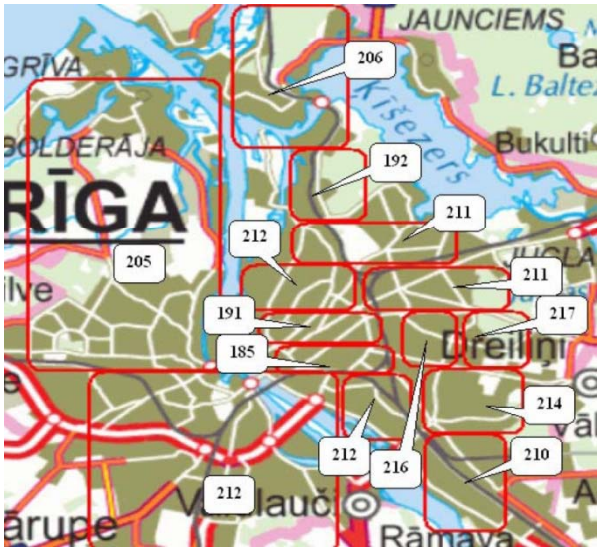
Riga City housing stock

- Total energy consumption of houshold buildings in Riga:
  - 10% electricity power;
  - 4% natural gas for kitchens;
  - 86% space heating and hot water.
- The average heating consumption of district heating consumers (over 5-year period):
  - 212 kWh/m^2.
- The average heating consumption in Jugla:
  - 211 kWh/m^2.



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Riga City housing stock

- **Number of buildings in need of renovation:**
  - **6000 or 12mil.m^2.**
- **Costs of complex renovation of all buildings in Riga:**
  - **615 mil.LVL (evaluation by Riga Energy Agency).**
- **At the beginning of 2009:**
  - **1300 apartment owner associations established;**
  - **12 buildings renovated.**

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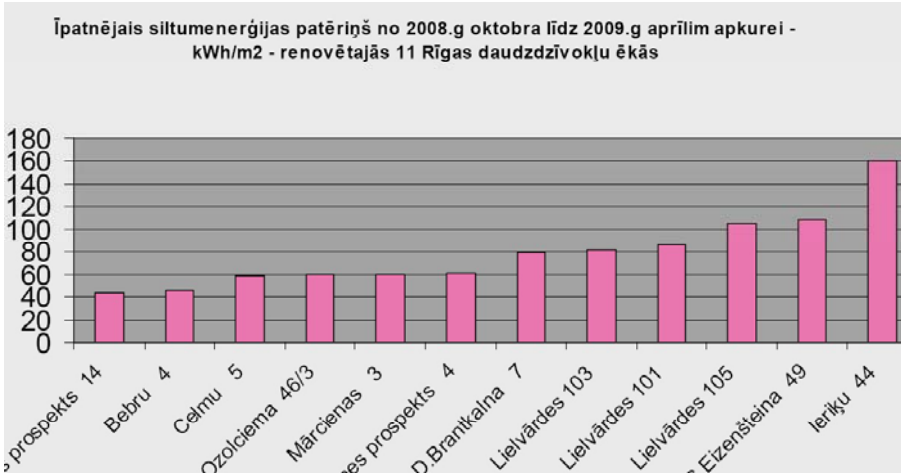
Renovation projects of Riga City

- **Renovated buildings in Riga**



- The renovation measures were financed by apartment owners with some local government support or using bank loans.
- 2 buildings with complex renovation had financial support from Germany.

First renovated building in Riga, Ozolciema 46-3, 2001

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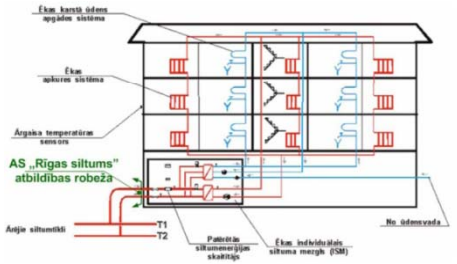
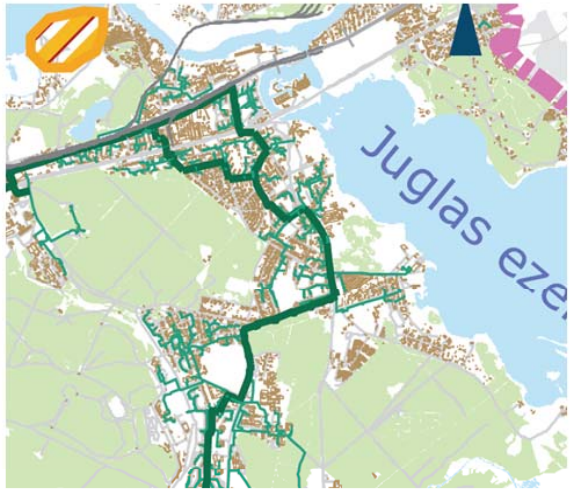
Energy supply infrastructure of Riga City

- District heating in Riga:
  - "Rigas siltums" manages heat transmisson, production and supply; ¾ of the market;
  - the other ¼ is local and individual heating.
- District heating system in Riga:
  - 2-pipe network with indirect connection for consumers via heat exchangers;
  - 8 158 individual consumer heat substations;
  - 8 022 or 98.3% of them modernized;
  - heating consumption meter based billing for all customers.
  - 13% losses.



District heating network of Jugla



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Policies of Riga City

- **The development plan of Riga 2006-2008:**
  - **a general aim to improve the living quality in Riga City;**
  - **division of Riga in 59 neighbourhoods (Urb.Energy deals with neighbourhood Jugla).**
- **No normative acts concerning the urban public are problems in particular districts:**
  - **the aim of Urb.Energy is to solve this problem for Jugla.**

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Policies of Riga City

- **Legislation on energy efficiency improvement in Repulic of Latvia:**
  - energy efficiency law on buildings (April 16, 2008);
  - law on management of residental buildings sets the owners as the responsible persons of buildings energy efficiency, (in force starting from January 1, 2010)
- **Regulations issued by Cabinet of Ministers:**
  - MK 39 “Calculation method of buildings energy efficiency” (01.03.2009);
  - MK 40 “Regulations on energy certification of buildings ” (January 30, 2009);
  - MK 26 “Regulations for energy auditors” (January 30, 2009).

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Policies of Riga City

- **At 2009 Mayor of Riga signed a Covenant of Mayors with the aim to increase energy efficiency in Riga by at least 20% and to involve at least 20% of renewable energy resources till 2020**
- **According to this pact a development of "Sustainable energy action plan for 2009-2020" for Riga is started:**
  - one of the main sections is strategy of energy efficient renovation of buildings in Riga;
  - local government of Riga is preparing regulations on financial support for EER up to 30%.

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Policies of Riga City

- **Financial support programs:**
  - a government building renovation support program for energy audits and technical projects (currently not working due to lack of funding);
  - At the beginning of 2009 EU structural fund cofinincing of 50% for building EER was made available. The selection of buildings is beeing carried out.
- **Riga Energy Agency:**
  - Established at 2007 with 50% EU financial support;
  - The main tasks include:
    - management and coordination of energy supply and energy efficiency issues in the administrative territory of Riga City,
    - providing information for resdents.

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Policies of Riga City

- **Current problems regarding EER:**
  - **crisis in banking system and the limited availability of credits;**
  - **insufficient national financial support for building renovation.**

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Jelgava City

- **Jelgava City**
  - area - 60 km²;
  - distance to Riga - 42 km;
  - population - 65 635;
  - population density 1088 res./km² ;
  - number of multi-apartment buildings – 493;
  - dwelling space per resident - 24,3m².

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Energy consumption of Jelgava City

- **Data of heating energy supplier in Jelgava**

year	Heating produced, MWh	Heating losses, MWh	Heating losses, %
2007	245 623	53 992	21,98
2008	223 871	47 437	21,19

Consumer		% of the total consumtion	TOTAL
Residents	Heating	56.9	79.6
	Hot water	22.7	
Legal persons	Heating	18.6	20.4
	Hot water	1.8	

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Energy consumption of Jelgava City

- **Building energy consumption in Jelgava**

series	Average consumption in 2006, kWh/m²			
	lowest	average	highest	differnce between highest and lowest
464	96	102	112	16
602	111	125	140	29
114	117	126	135	18
104	111	140	173	62
316	117	142	172	55
467	130	142	160	30
318	112	144	160	48
103	98	150	213	115
Individual project	106	159	236	131
All Standart buildings	**96**	**143**	**213**	**140**

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Complex renovation project of 4.linija 1

- **Basic data of the building:**
  - series Nr.103.;
  - built in 1980;
  - 3 floors;
  - 24 apartments;
  - total living space 1488,4 m^2.
- **Renovation costs:**
  - Total 330 th. EUR;
  - per apartment 13.7 th. EUR.
- **Consumption:**
  - before 139 kWh/m^2;
  - after 77 kWh/m^2;
  - reduction by 44%.
- **German-Latvian environment project**

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Energy supply infrastructure of Jelgava City

- 76% (52,3km) of heating mains are renovated:
  - 81% of underground mains;
  - 72% of mains in building technical rooms.
- 16,3km of heating mains are not renovated:
  - the planned renovation rate is 2 km per year.

- In September 2008 a section of mains was renovated and consumtion data show that:
  - losses before renovation were 38.8%;
  - losses after renovation are 21.3% (data of October, November, December 2008).

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Energy supply infrastructure of Jelgava City

- The renovation costs of heating supply mains are:
  - 120 th. to 550 th. LVL per km (170 th. to 785 th. EUR per km);
  - awerage 335 th. LVL per km (480 th. EUR per km).
- Evaluated renovation costs of not renovated mains:
  - 5 460 500 LVL (7 800 000 EUR).
- The possible heating loss reduction:
  - 12 300 MWh per year.

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Policies of Jelgava City

- At the moment there are no legal acts in Jelgava concerning energy efficiency of buildings and energy supply systems
- Other activities:
  - energy efficiency issues as priority are included in the “Jelgava integrated development program 2007-2013”;
  - Jelgava City Council has approved construction of a biomass cogeneration station in Jelgava (EU cofinanced project, 66 milllions EUR, 2011);
  - established Zemgale Energy Agency in Jelgava (2009, Intelligent Energy Europe project);
  - different awareness campaigns of the late years.

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Urb.Energy project in Riga and Jelgava

- **Urb.Energy aims for Riga:**
  - An integrated urban development concept for Jugla which would deal with all three – public area, energy efficiency and financial issues and would include the best experience of project partner countries.
  - Increased apartment owner knowledge and activity.
- **Urb.Energy aims for Jelgava:**
  - An integrated concept to set guidlines for improvement of urban public area, energy efficiency and financing.
  - Technical projects for typical building series, energy audits for several buildings.
- **To fulfill these aims in Urb.Energy project together will work:**
  - Riga City Council: SIA “Pilsetbuvnieks”, Dempartment of City Development, Riga Energy Agency;
  - Jelgava City Council;
  - external experts.

Thank you!

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