



Energy Efficient Renewal of Housing

ŠIAULIAI- SUSTAINABLE AND ENERGY EFFICIENT CITY

Deputy Mayor of Siauliai City Daiva Matonienė

The 2nd of December, 2011 Energy Efficiency and Urban Future

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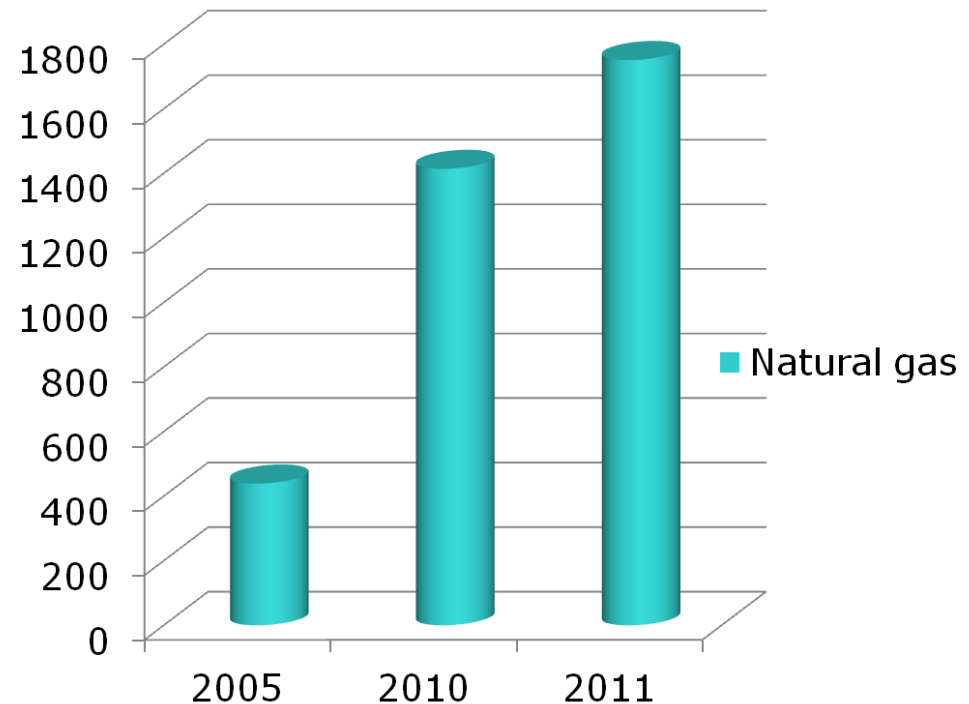
Possibilities and perspectives

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Why heating energy is so expensive?

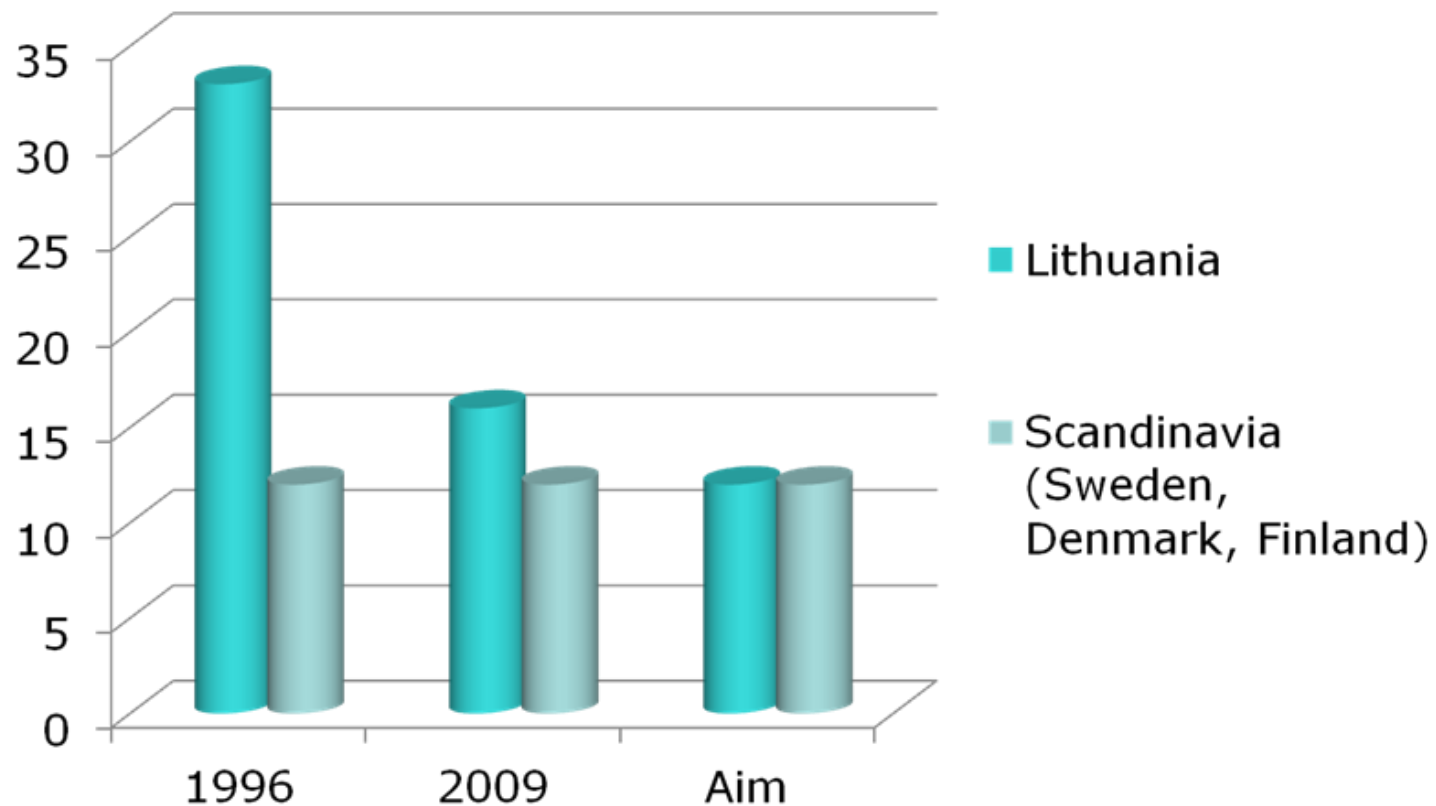
1 reason

- Constantly increasing price of natural gas effects the heating energy price
- Natural gas is the main fuel in production of heating energy



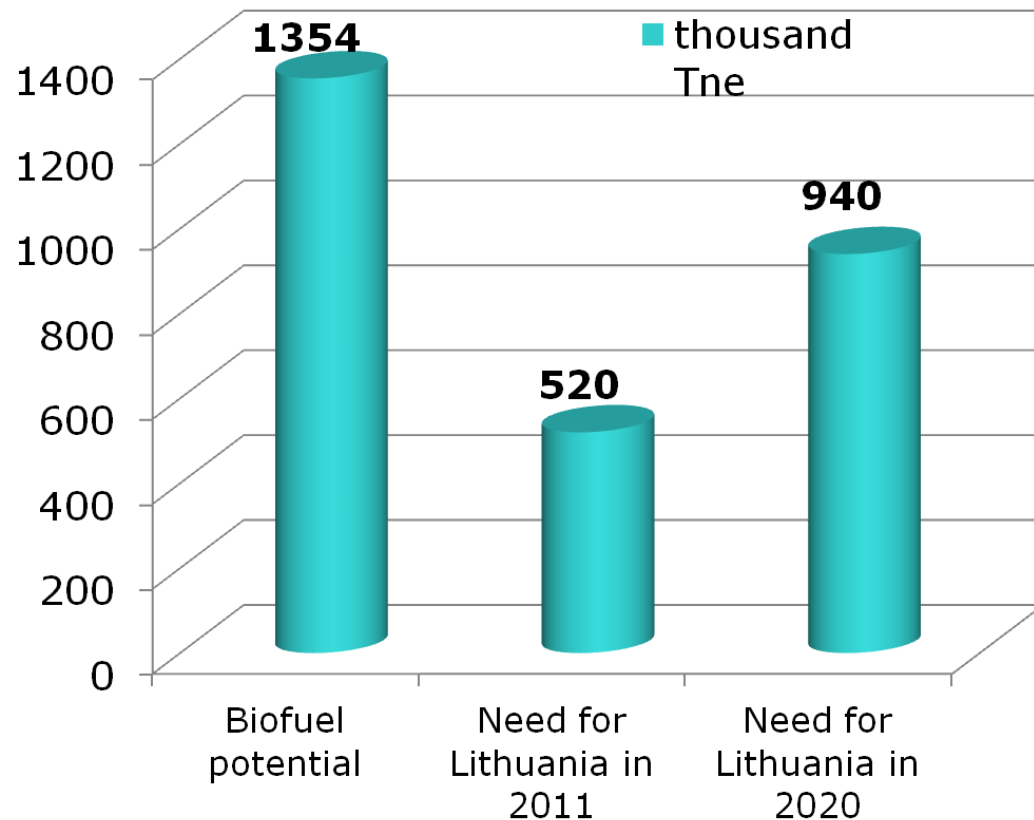
Change of gas price including transportation, Lt/t.n.e

Loss of heat in network (%)



What are the potential solutions?

Lithuanian heat sector produces about 10 TWh of heat energy.
Use of biofuel instead of natural gas would create 10 thousand jobs



**Guess? When the photo was taken ?
In 1985 or 2011?**



Why heating energy is so expensive?

II reason

- Inefficient use of heating energy in old and non thermo-insulated apartment houses.

39 thousand energy inefficient apartment houses

200 completely renovated apartment houses

750 partly renovated apartment houses

Assumption of representatives of the EU?

The EU Commissioner of Climate Change **Connie Hedegaard** the renovation process of apartment houses in Lithuania defined:

“Strange to see and difficult to understand. It is obvious, there is some confusion over the Lithuanian regulation on house renovation. Simply, the renovation is not in process.”



Šiauliai City Municipality experience, activity, results, 2007-2011

- Established Working Group to solve the issues on modernization of apartment houses

Ordinance of Mayor No. M-62 of 2 July 2007

- Objective - to maintain close cooperation and solve the issues on modernization of apartment houses and other related problems.

Participation in Urb.Energy project was initiated by this working group.

Site specific solutions

- **Political framework – Working group established by Mayor ordinance and headed by Deputy Mayor.**
- **Local stakeholders: Šiauliai City Municipality Administration, „Šiauliai Energy“, Šiauliai University, local communities, Šiauliai region department of HUDA.**

Description of activities

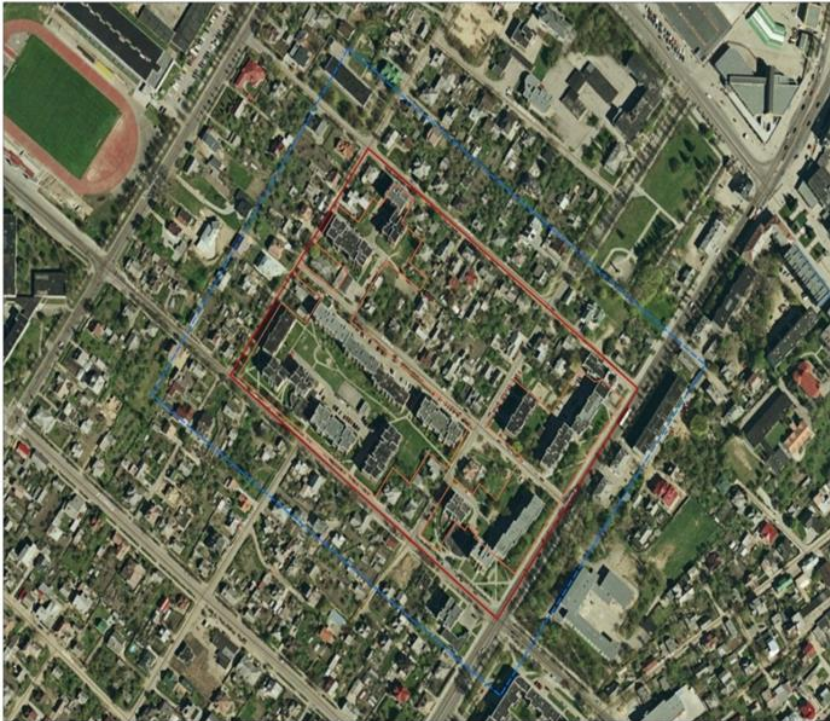


- Dauglabučiai namai
- Individualūs namai
- Mokymo įstaigos
- Komerciniai objektai
- Lieporių parkas

- Area – 91 hectares;
- Number of buildings – 106 (built in 1968 – 1982);
- Lieporiai park with stadium;
- Social and commercial infrastructure:
- 3 Secondary schools;
- Kindergartens;
- Library;
- College;
- Shopping centers.

Item	Data
Target Area in ha	The planed area covers 91, The analyzed area covers 182
Number of inhabitants	Total number of apartments - 5650 Total number of inhabitants – 11500 2,0338 inhabitant per apartment
Classification of the area	Residential 9 commercial objects 9 educational objects
Number of housing units total	
Specification regarding building age:	
Number of buildings built before 1948	none
Number of buildings built 1948-1959	none
Number of buildings built 1960-1989	All the buildings – 106
Specification regarding refurbishment status	8
Percentage of housing units that fulfil the national standards for energy efficiency	
Specification regarding building structure:	
Number of single family-homes, semidetached or row-houses	6 single family-homes
Number of multi-family buildings / flats in mfb	82/5650
Specification regarding owner structure:	
Percentage of dwellings in individual ownership	97% private
Percentage of institutional (rental) ownership	3 %
Percentage of Cooperative ownership	
Existing consortium of individual owners	Housing communities Housing administration institutions

Target area Miglovaros in Siauliai



- Area – 6,1 hectares;
- Number of houses (built from 1969 – 1975) – approximately 35.

Item	Data
Target Area in ha	The planed area covers 3,6 ha The analized area covers 14,0 ha
Number of inhabitants	Total number of apartments - 491; Average number of inhabitants - 998 2,0338 inhabitant per apartment.
Classification of the area	Residential Commercial and public institutions in the neighbourhood
Number of housing units total	
Specification regarding building age:	
Number of buildings built before 1948	1
Number of buildings built 1948-1959	none
Number of buildings built 1960- 1989	35
Specification regarding refurbishment status	3
Percentage of housing units that fulfil the national standards for energy efficiency	
Specification regarding building structure:	
Number of single family-homes, semidetached or row-houses	18
Number of multi-family buildings / flats in mfb	18
Specification regarding owner structure:	
Percentage of dwellings in individual ownership	98
Percentage of institutional (rental) ownership	
Percentage of Cooperative ownership	
Existing consortium of individual owners	Housing communities Housing administration institutions

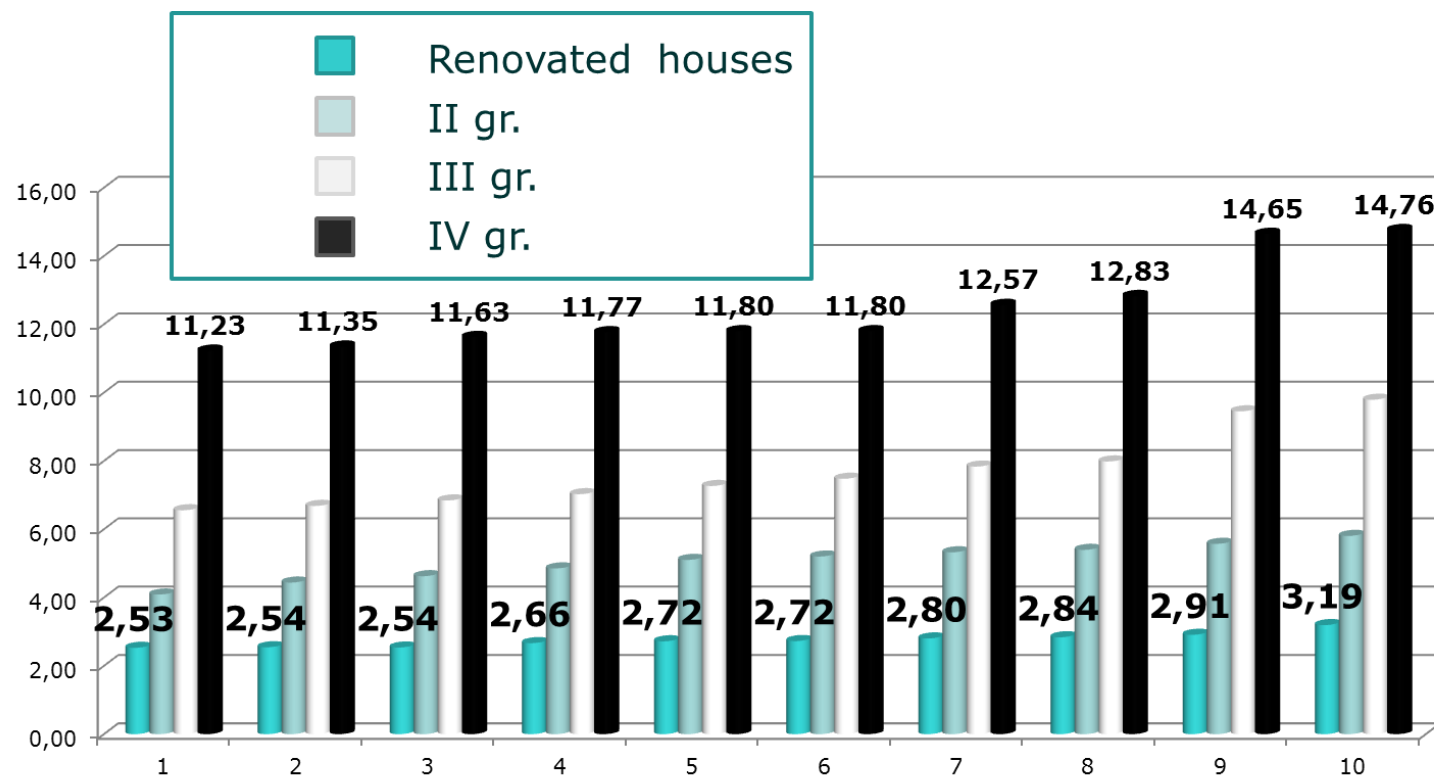
Analysis of heating energy consumption in renovated and non-renovated apartment houses

- In the research participated 872 apartment houses
- houses with established association 462 (52%)
- houses without established associations 410 (48%)
-

Apartment owners paid for the heating 26-28 % more than those who established associations.

Apartment owners of non renovated apartment houses paid for the heating 75-83 % more than in renovated houses.

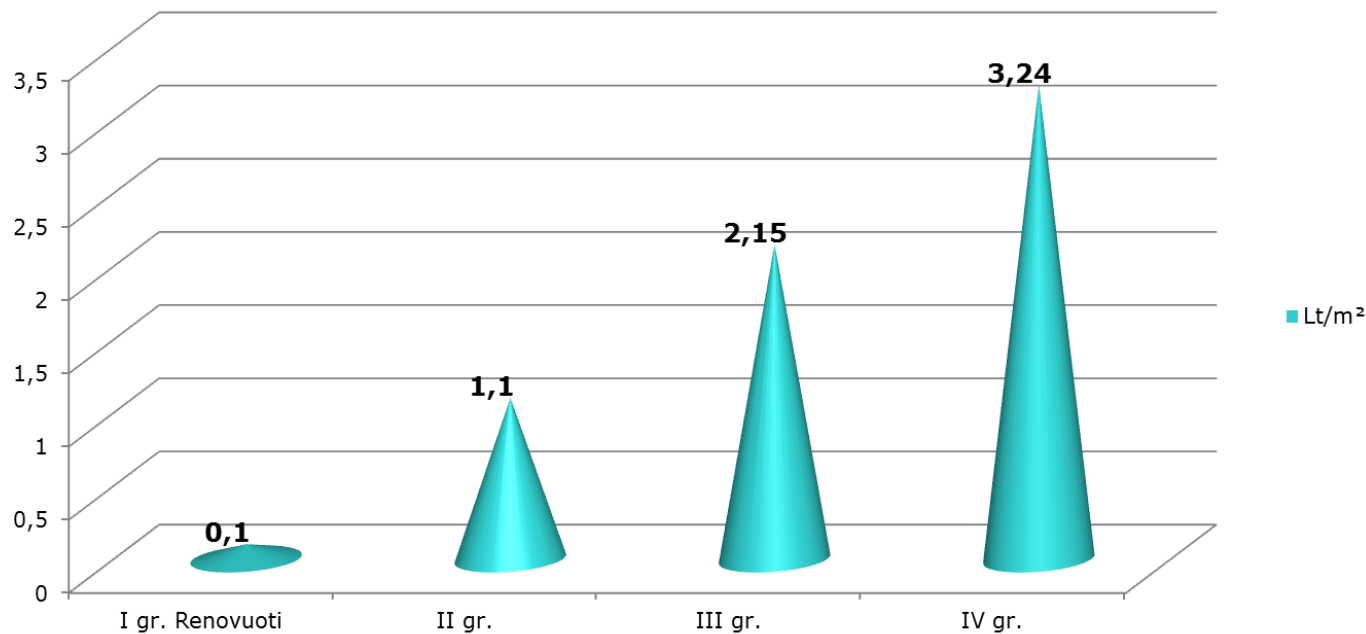
Analysis of prices for heating energy in Šiauliai, Lt/m², December 2010



Average temperature , December 2010 -7⁰ C

Price 1kWh(incl. VAT 9%) - 24,20 ct/kWh

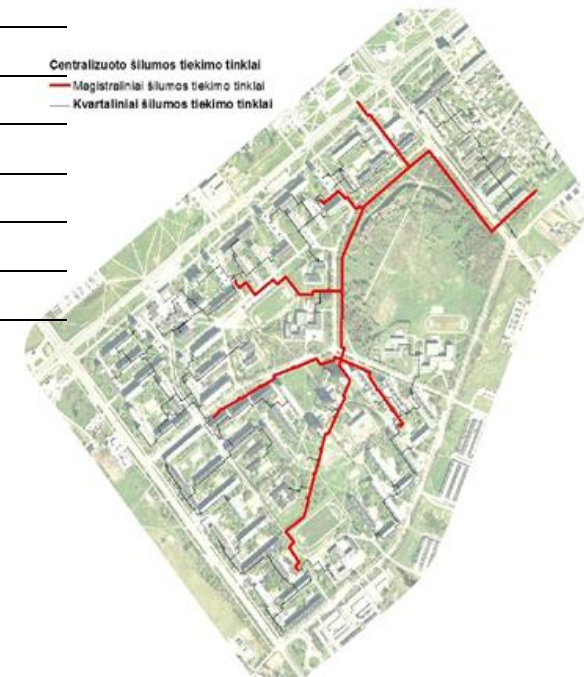
Analysis of prices for heating energy in Šiauliai, Lt/m² October 2011, temperature 6,4 0C



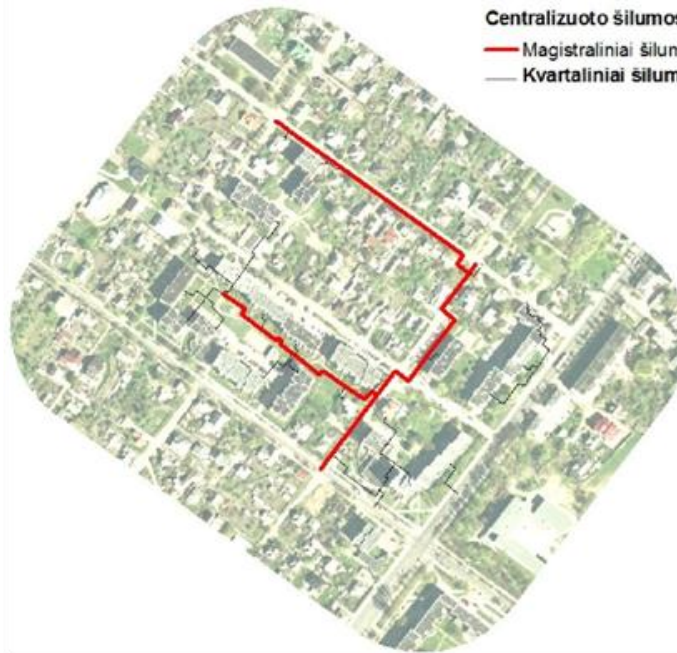
Note: part of renovated apartment houses (Vilniaus str.202, Klevų str. 13, Sevastopolio str. 5, Grinkevičiaus str. 6, Gytarių str. 16, Kviečių str. 56) did not use heating energy in October 2011.

Status quo of energy efficiency - Lieporiai

Nominal Pipe Diameter	Present Lengths of Main Pipes (m)	Lengths of Main Pipes after Reconstruction (m)
DN150	460	
DN200	964	1424
DN250	410	
DN300	539	579
DN350		213
DN400		157
DN500	214	214
DN600	470	470



Status quo of energy efficiency - Miglovara



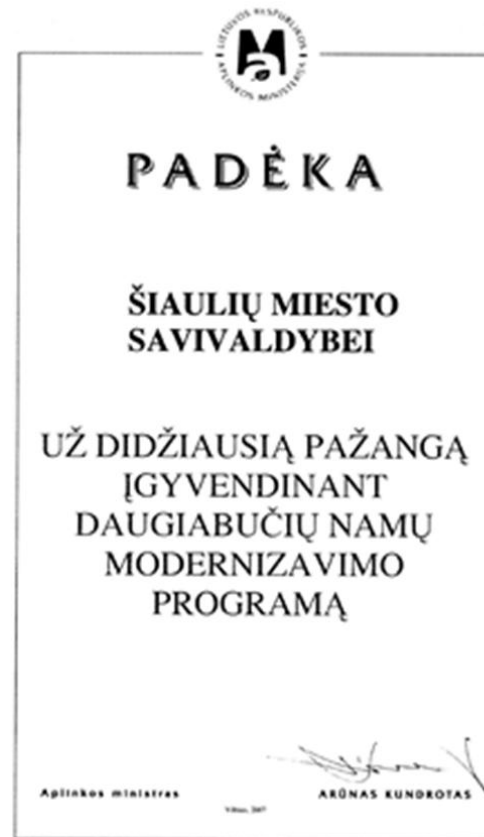
Centralizuoto šilumos tiekimo tinklai
— Magistraliniai šilumos tiekimo tinklai
— Kvartaliniai šilumos tiekimo tinklai

Nominal Pipe Diameter	Present Lengths of Main Pipes (m)	Lengths of Main Pipes after Reconstruction (m)
DN100	95.89	
DN200		191.60
DN250	230.69	230.69
DN300	9.98	9.98
DN600	250.14	250.14
DN65	51.13	
DN80	44.58	

Activities and results

- **Preparation of two integrated urban development concepts (IUDCs');**
- **Enhancement of cooperation:**
 - **Direct cooperation and solution of issues (every 2 month);**
 - **Thematic, information and education seminars;**
 - **Organization of Energy Saving Days;**
 - **Involvement of housing communities members into the decision making process;**
 - **Study visits;**
 - **Competition for apartment houses For Flowering and Clean City of the Sun;**
 - **Standard renovation projects (Energy audits, technical projects for typical houses);**
 - **Active position and proposals presentation on improvement of apartment houses modernization solutions and implementation in Šiauliai;**
 - **Active position and search for the best solutions regarding reduction of expenses and energy efficiency.**

External communication



Picket on renovation arrest (Vilnius)



Appeal to the Government of the Republic of Lithuania

2009 – appeal to the Government of the Republic of Lithuania , Ministry of Environment, Association of Local Authorities on correction of funding rules of the apartment houses modernization program.

Internal cooperation

- **Working group for IUDCs' preparation - strong involvement of housing communities (9 common meetings);**
- **Project implementation working group (approximately 2 meetings per month);**
- **Working group of competition for apartment houses For Flowering and Clean City of the Sun.**

Ways of getting in contact with Šiauliai City residents

- *Energy Saving Days;*
- Thematic, information and education seminars in cooperation with HUDA;
- Study visits in project partners' cities and other ones;
- Preparation and distribution of printed material;
- Preparation of thermovizual pictures in cooperation with *Šiauliai Energy;*
- Competition *For Flowering and Clean City of the Sun* - 224 participants.

















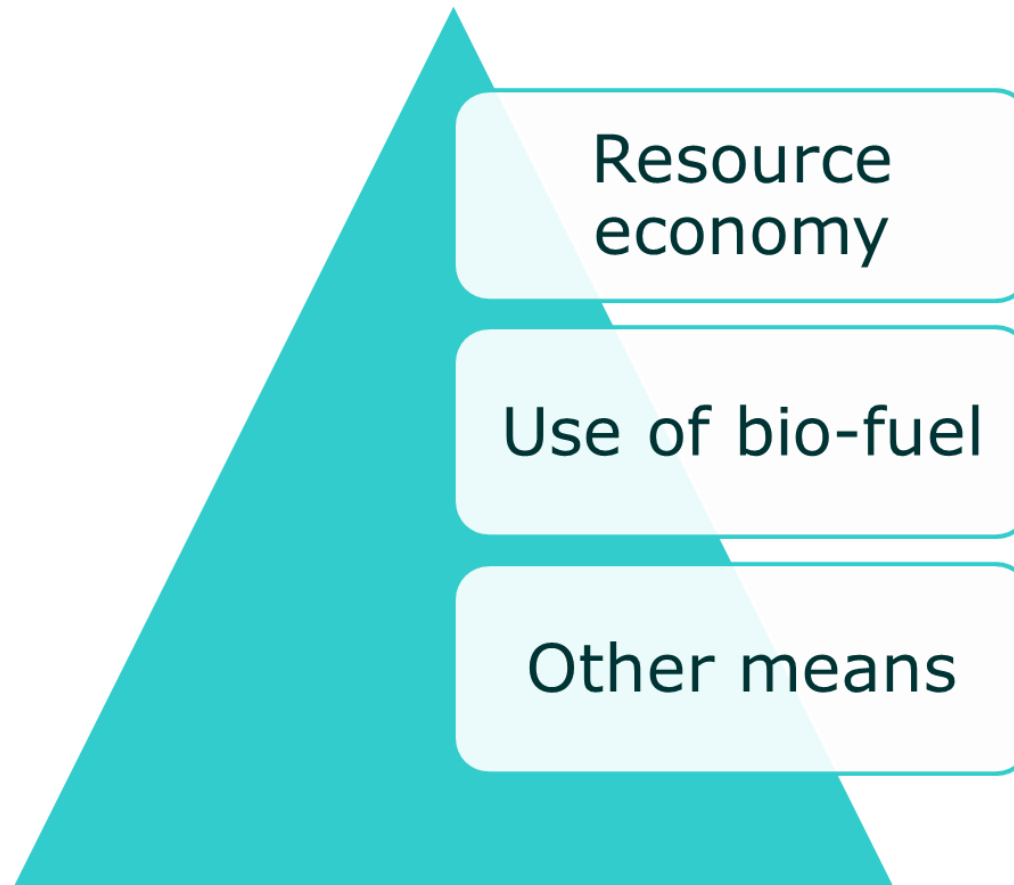








FUTURE PERSPECTIVES: ŠIAULIAI- SUSTAINABLE AND ENERGY EFFICIENT CITY



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Covenant of Mayors commits the EU member states to meet the EU 20% CO₂ reduction by 2020.

3069 Mayors have signed the Covenant.

Cooperation and communication - Foundation-stone

Michael Fullan, the famous lecturer, defines the essence of successful cooperation:

- **If we want to achieve we need to act;**
- **For the action we need to train capacity and skills;**
- **Having capacity and skills its evident what and why we act;**
- **Evidence makes you a participant of changes.**

If we cooperate in act we will become the participants of changes

Thank you for attention.