



# BEEN Best Practice Project (BPP) Tallinn ESTONIA

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# Estonia BPP - Target

- Energy saving up to 50%
- Good example of complex refurbishment
- Energy consumption monitoring (5 years)
- Obligation to follow the requirements and standards of the long-term maintenance (10 years)
- the dwelling should have the economic records for the previous 3 years
- availability of technical documentation about the building
- structural survey or/and energy-audit

# Selecting the building for the project - result

- 3 applications from Tallinn
- Contract for support signed 01.09.2006 with
- Paldiski mnt 171 KÜ
  - built in 1977
  - typical block of flats
  - 5 storey
  - 60 apartments
  - 3.144 m<sup>2</sup>
  - economic records for the previous 3 years
  - energy-audit
  - Cable walls renovated







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# Problems during the renovation

- From the beginning higher involvement of residents would of been helpful (more meetings) – we had problems with some apartment owners
- Project design took much longer as planned and interfered planned timetable
- The board did not involve residents in decision process and got sometimes high resistance for example with changing windows, glazing balconies
- Planned finances were not enough – additional decision and loan was needed – burden of residents raised unplanned

# Estonia BPP - Paldiski 171 KÜ

- Project manager and supervisory 7.669 €
- Projection / design 5.958 €
- Reconstruction works 389.408 €:
  - roof – 52.325 €
  - windows – 46.664.€
  - facade – 119.566 €
  - balconies – 107.929 €
  - heating system – 51.643 €
  - Heating meter system – 11.279 €
- Total costs for square meter 128 €





# Finance



- Self-financing  
~620 €/ap.  
i.e. 11,8 €/m<sup>2</sup>
- Credit payment  
2.530 €/Month i.e.  
0,81 €/m<sup>2</sup>/Month

- Self-financing
  - 37.196 € (581.993 EEK)
- BEEN subsidy
  - By costs 7.669 € (120 000 EEK)
  - 57.337 € (897 135 EEK) = 14,7%
- State grant
  - 32.403€ (507 000 EEK) = 8,3%
- Credit from Hansapank
  - 268.428 € (4,2 mln EEK)
  - 15 years
  - Interests 6,937 %/year fixed
  - no collateral

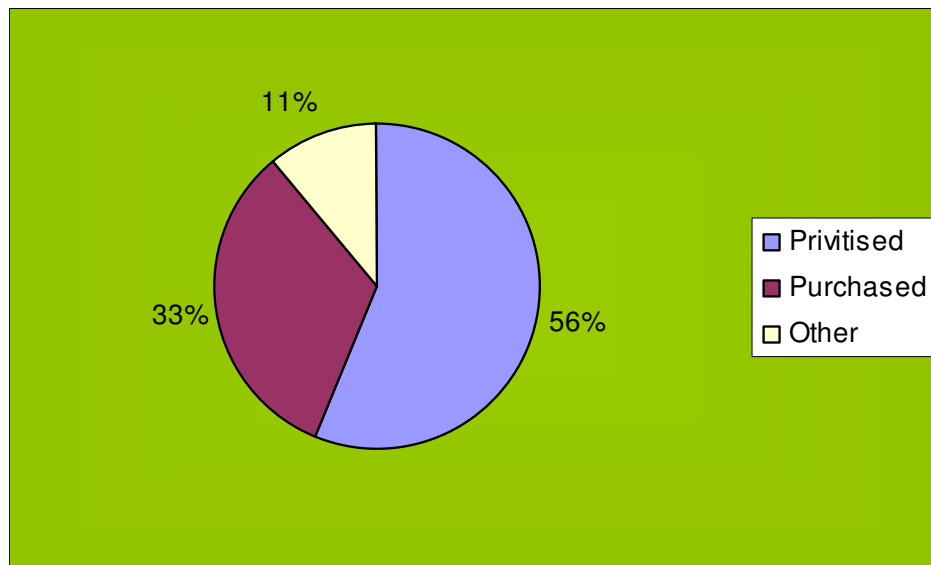


# Changing qualities: residences and behaviour

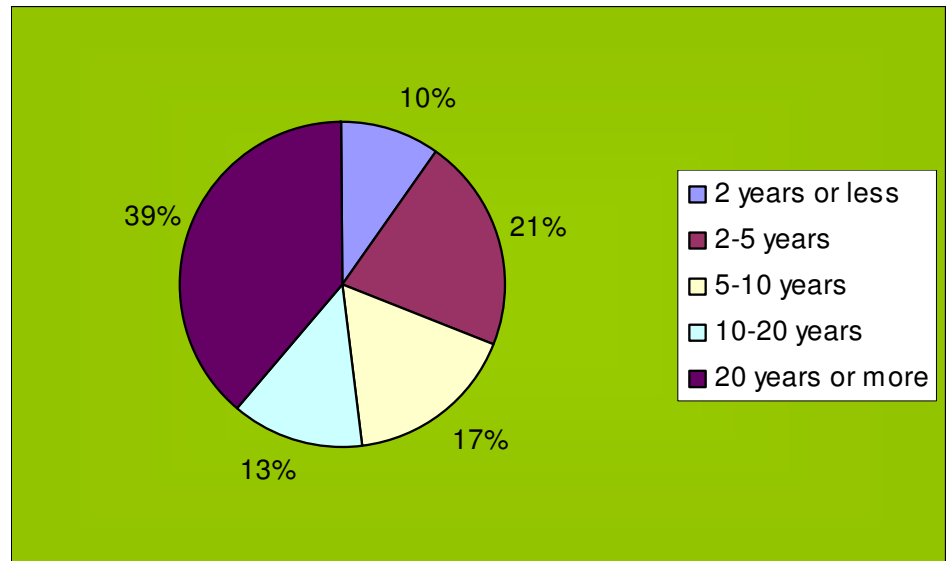
- Case study by Tallinn University of Technology
- In November 2007
- From 59 apartment owner 48 answered 81%
- Overall positive attitude
- 38% over 61 years

# Residents assessments

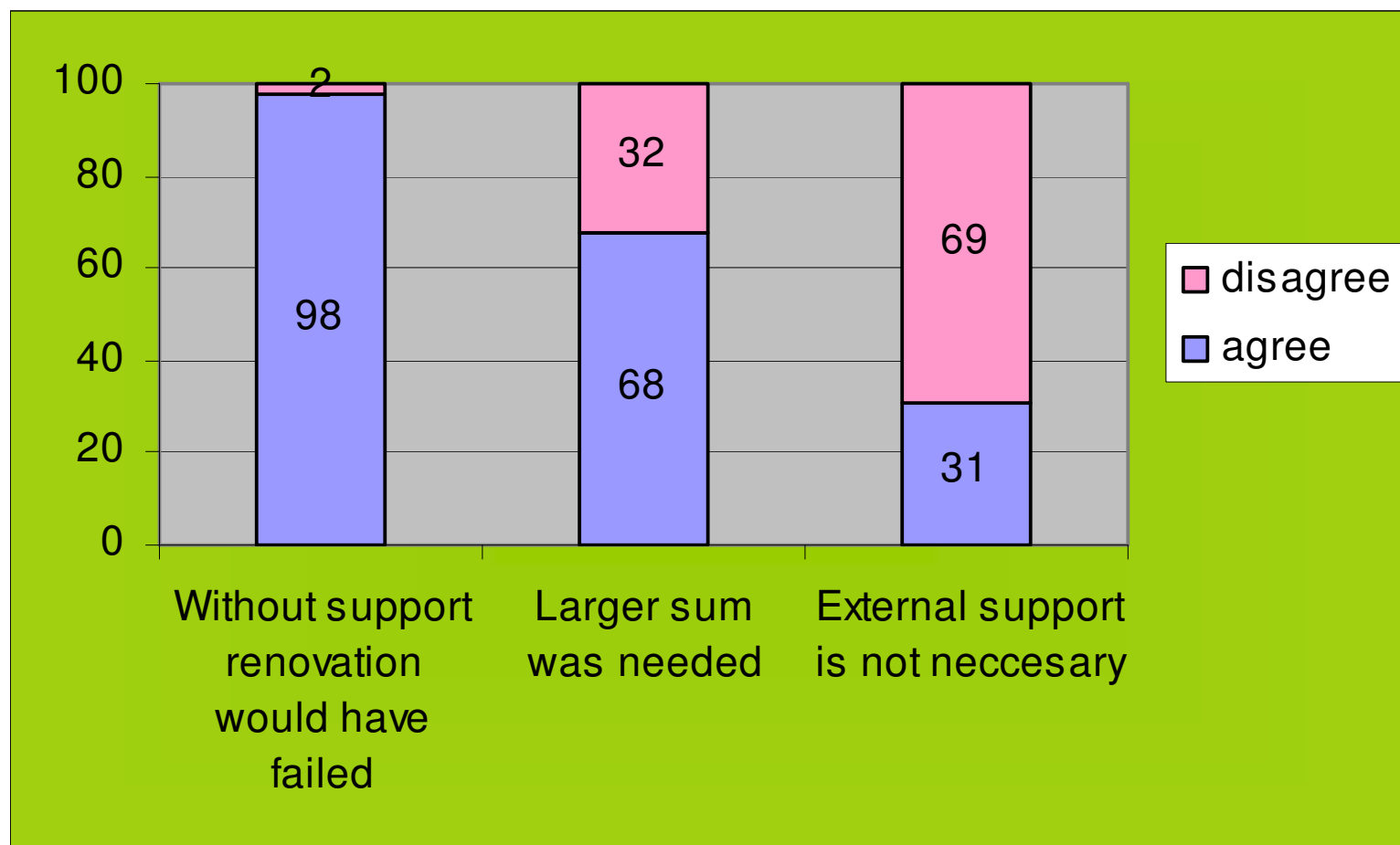
## Ways of housing property acquisition



## Duration of living in the flat



# Owners estimation on the need for external financial support

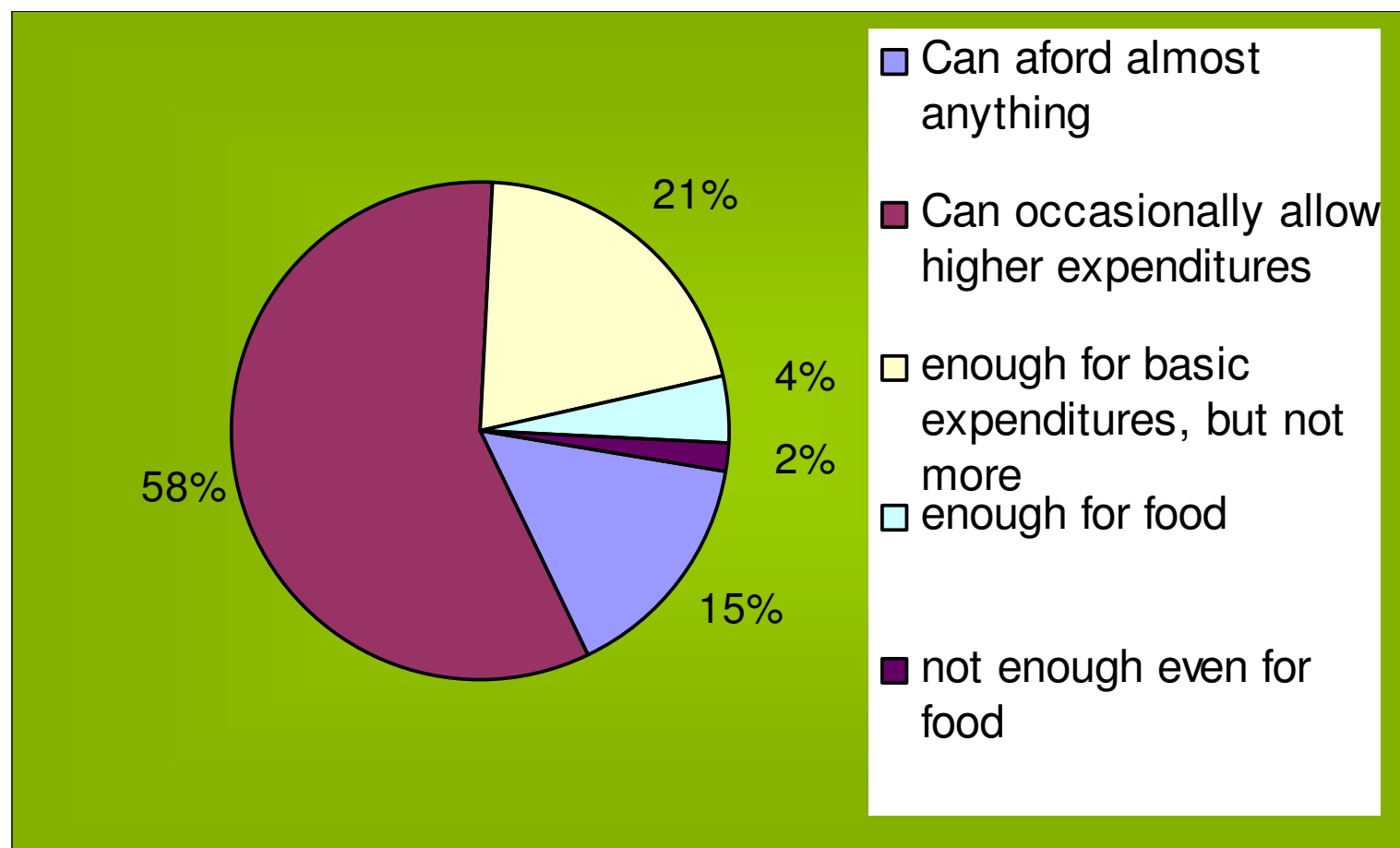




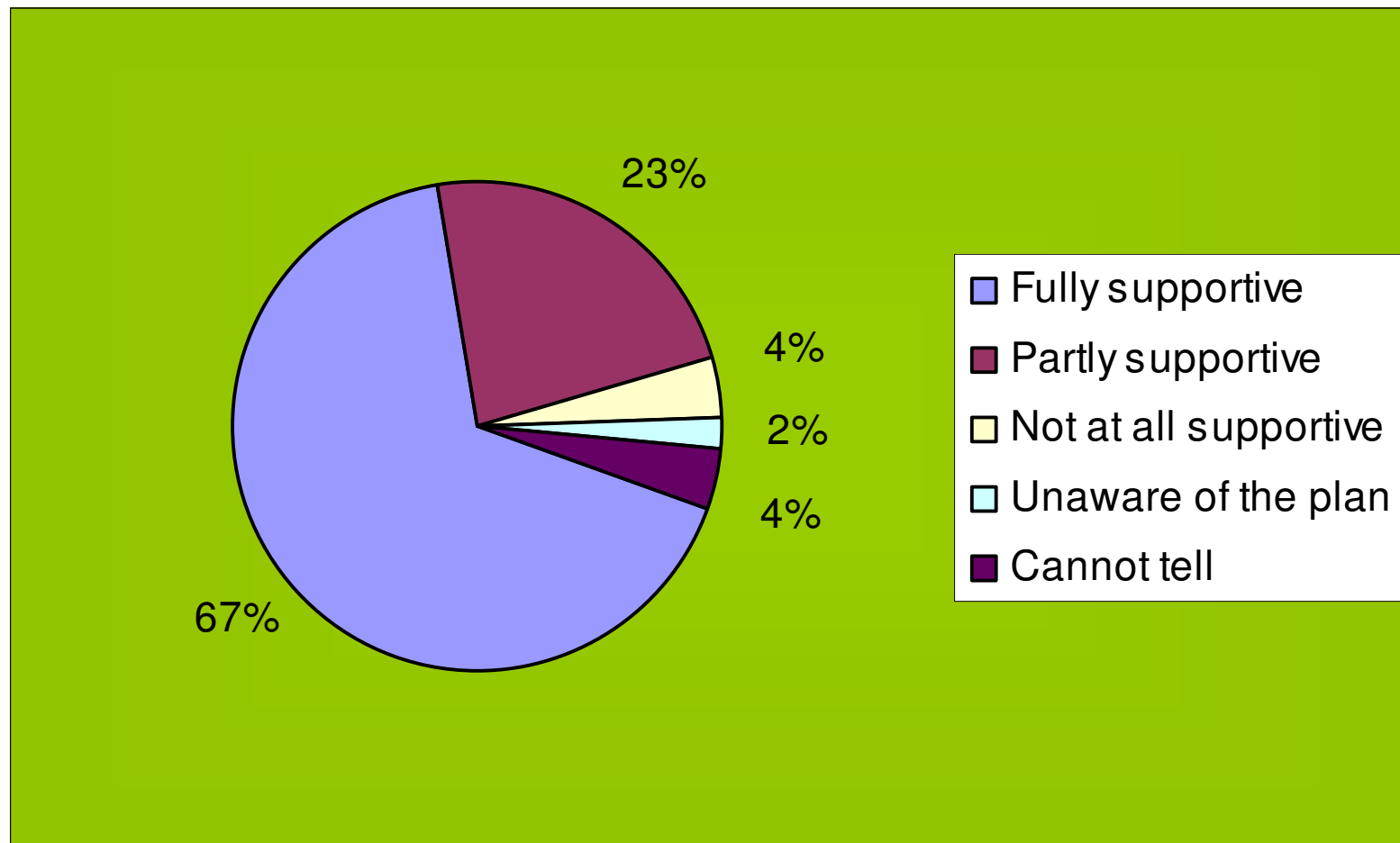
# Average monthly income, per household, EEK (1€=15,6EEK)

		Frequency	Percent
Valid	192-319 €	9	19
	320-639 €	13	27
	639-958 €	7	15
	958-1.278 €	8	17
	Over 1.279 €	4	8
	Total	41	85
Missing	Not answered	7	15
Total		48	100

# Self-estimation of household's economic well-being

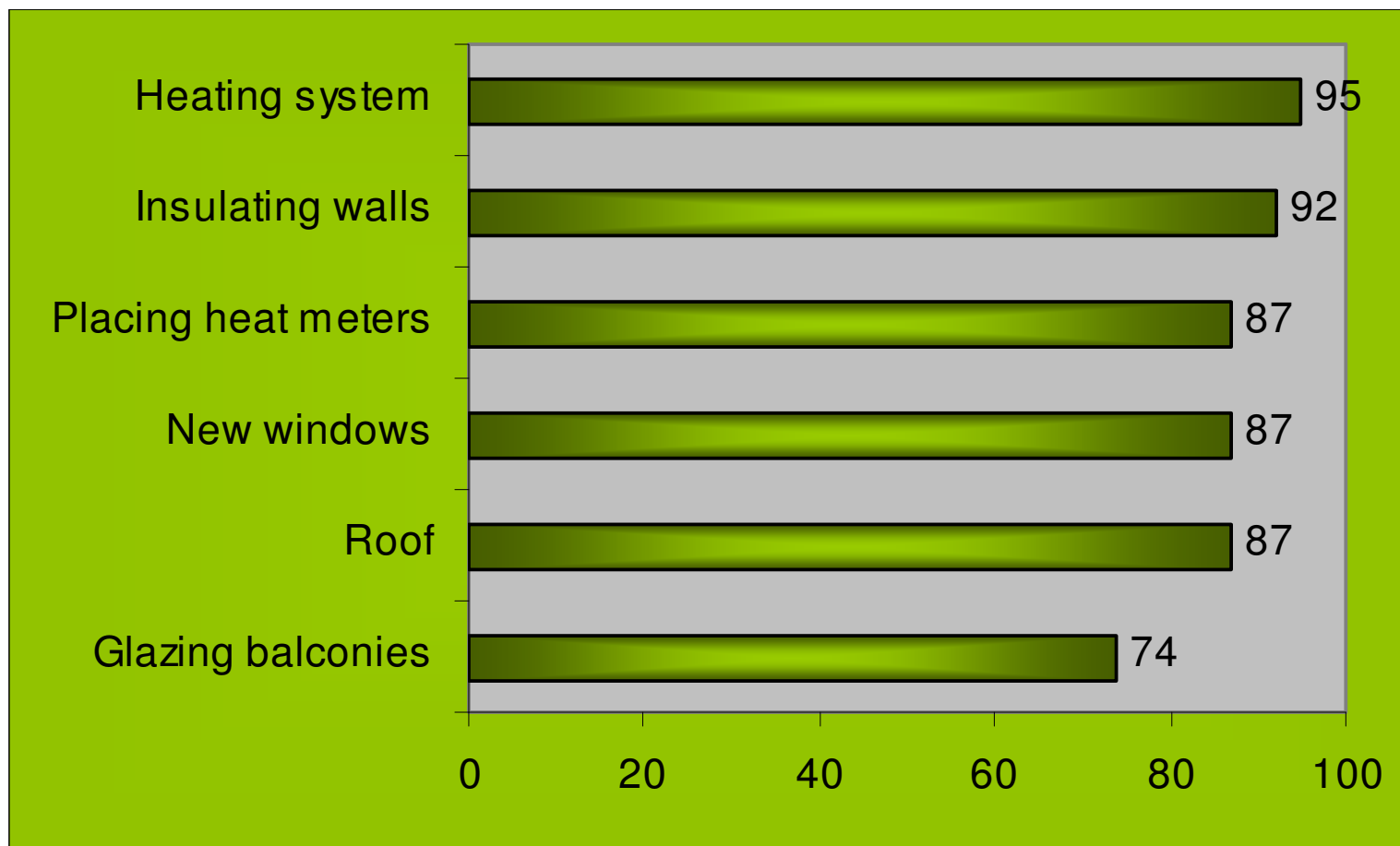


# Apartment owners' support to renovation plans





# Respondents satisfied with the results of renovation, %



# Residents assessments on the changes of residential environment

- Process has been complicated for the split of attitudes between residents and unusual management practice
- Involvement of an external institution (KredEx) has influenced coming to an agreement
- Residents attitudes were transformed with the increasing visibility of the results
- The assessment of the results of renovation is predominantly positive
- Owners value highly the transformed exterior looks of their building and considerably improved heating system

“Before”



“After”





# Results – energy savings

<b>Paldiski 171 heating consumption *</b>	<b>2005</b>	<b>2008</b>
Heating consumption MWh	392	228
Price EEK MWh	431	930
Heating costs, EEK	169 082	212 305
<b>Costs EEK/m<sup>2</sup>/month</b>	<b>4,48</b>	<b>5,63</b>
<b>Average per apartment monthly, EEK</b>	<b>234,84</b>	<b>294,87</b>

Comparison 2005-2008:

- Heating consumption has decreased ca 40%
- Heating price has risen ca 115%
- The costs for heating per month have risen ca 25%
- Heating consumption has decreased ca 53%

2005/2009 6 Months

\* Heating consumption is corrected with degree days

# Results

- The building has a modern look, it is well insulated and has a heating system with individual calculation of heating expenses
- The estimated 40% energy saving can be expected
- The housing conditions of the residents have improved considerably – it is beautiful, clean, warm and safe
- The achieved energy efficiency and the general payment burden of the residents appears after first heating period
- Using this example, it would be possible to refer in the future to a specific apartment building, also to pay the visits to the building
- HOA has the obligation to follow at least 10 years the Good Practice Guide of the Maintenance of the Immovable
- HOA is obligated to present quarterly data about the costs of consumed services for at least 5 years
- The movie-clip about renovation is available on website: [www.kredex.ee/esk](http://www.kredex.ee/esk). The clip is in Estonian, Russian and English

# Lessons learned

- Very important to inform residents from the beginning
- Always calculate with 10-20~higher costs as planned
- Be prepared that process will take much longer as planned
- Involve project manager to be sure of quality of works
- For complex renovation additional support is needed because of the high costs

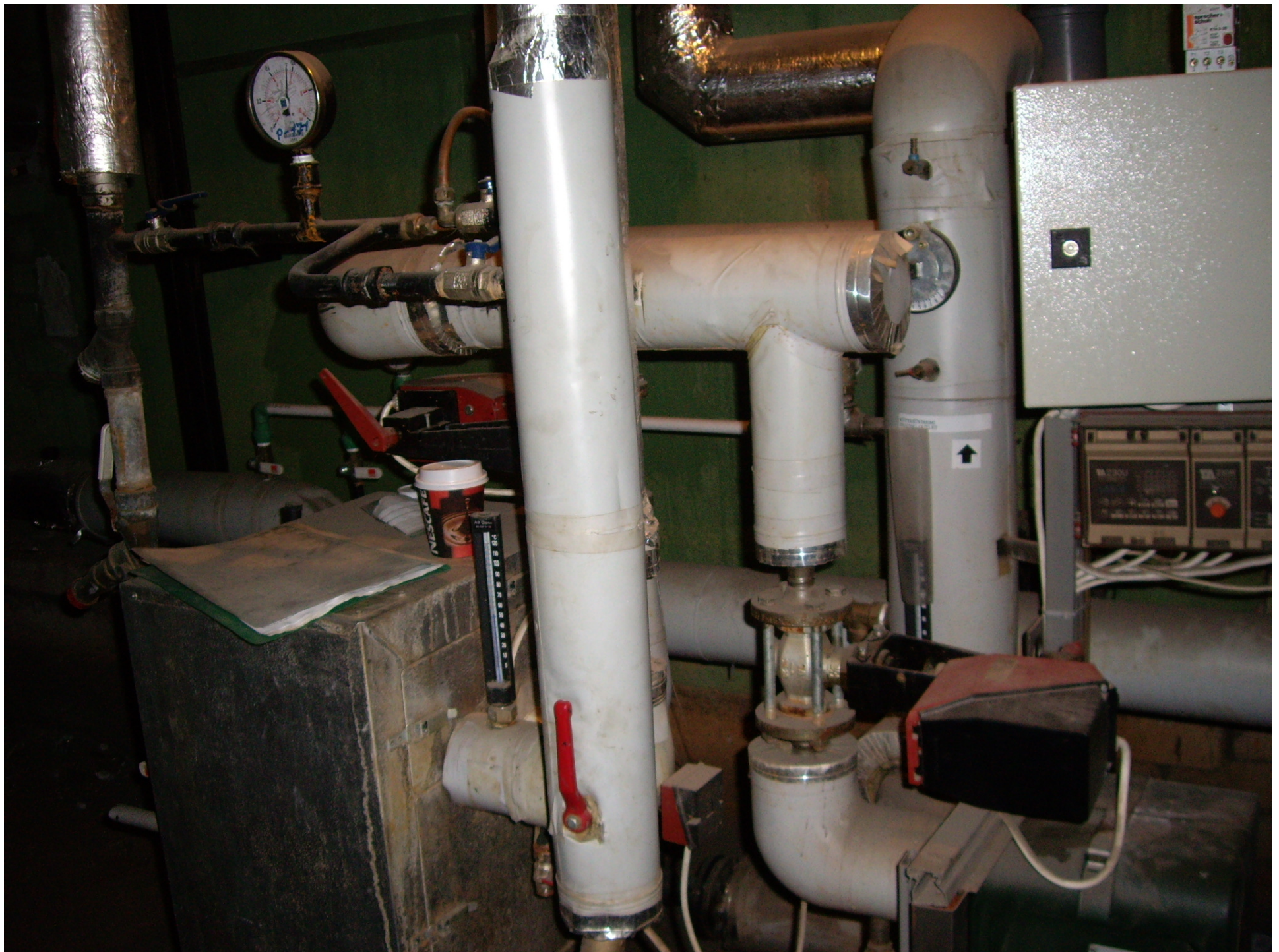


















Thank you for your attention

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