

# Implementation of energy efficiency refurbishment projects: Modernization programs of multifamily buildings

## 4. Transnational Conference Vilnius BEEN – Baltic Energy Efficiency Network for the Building Stock Thermomodernization program in Poland

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*Narodowa Agencja Poszanowania Energii S.A.*



*Project part-financed by ERDF*

**Vilnius, 24 May 2007**

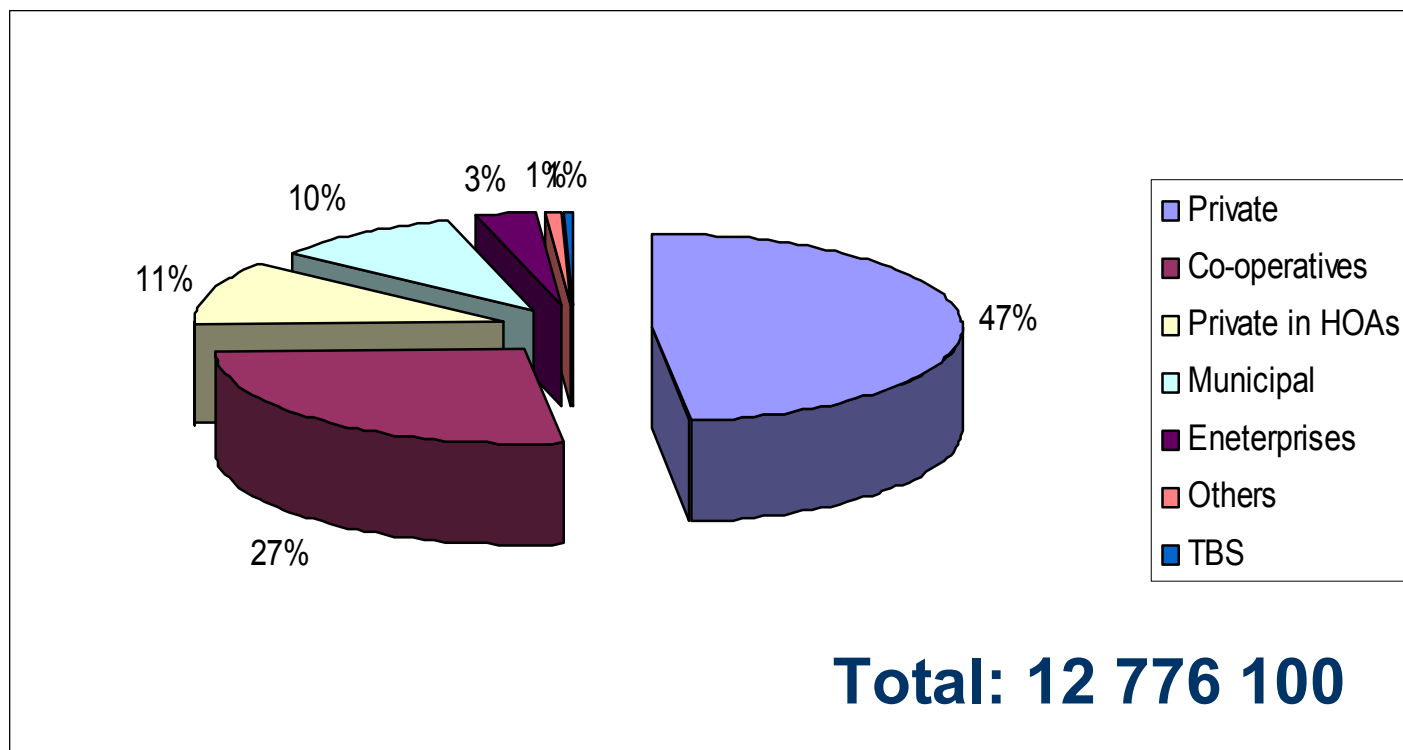
# Ownership of dwellings in Poland

- ◆ 1990 almost all of dwellings belonging to the state have been passed to municipal housing stock (MHS) and it started privatization without any rules
- ◆ 1994 the Act on ownership of dwellings is in force
- ◆ HOA is created by law, when one of dwellings in municipal building is sold to the tenant
- ◆ HOA is to be registered in court and in land registers as common ownership of the building and the plot
- ◆ decisions are taken by majority of co-owners or by majority of shares in common ownership
- ◆ HOA is not the legal person, but is creditworthy against the bank
- ◆ HOA are managed by democratically elected boards, which can pass the duties to the professional housing manager
- ◆ the privatization of dwellings in former MHS reached 2005 app. 70%
- ◆ a half of dwellings in multifamily buildings belong to cooperatives and a half to HOA's



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# Ownership structure of dwellings in Poland



Source: (2005) Central Statistical Office



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## Existing residential building stock in Poland (2002)

	total	Buildings constructed in:						
		before 1918	1918 - 1944	1944 - 1970	1971 - 1978	1979 - 1988	1988 - 2002	after 2002
<b>total</b>	<b>4 772 728</b>	<b>413 255</b>	<b>828 167</b>	<b>1 367 542</b>	<b>676 498</b>	<b>763 461</b>	<b>618 348</b>	<b>105 457</b>
urban area	1 780 594	176 411	331 041	425 199	236 578	298 650	266 202	46 513
rural area	2 992 134	236 844	497 126	942 343	439 920	464 811	352 146	58 944

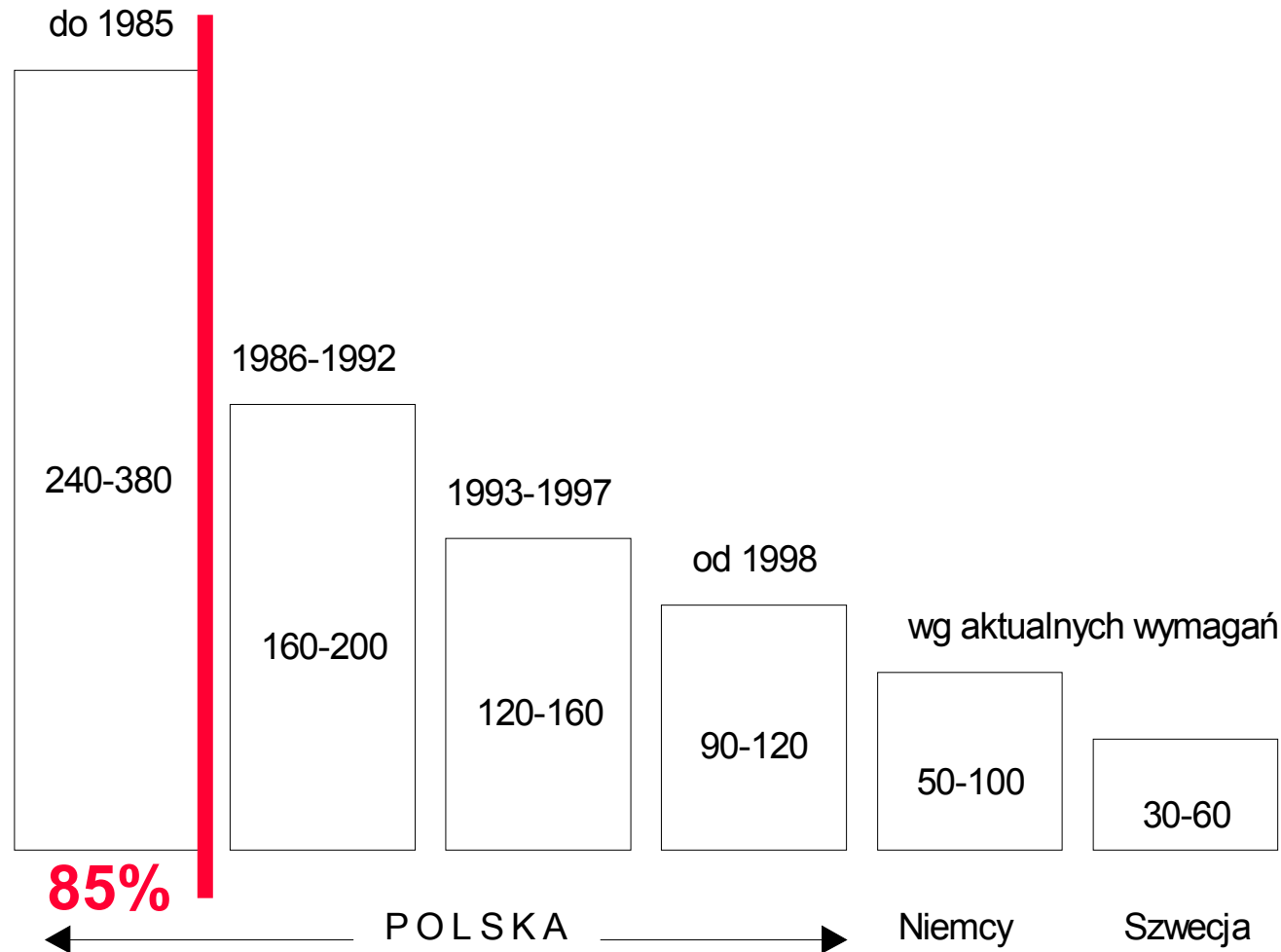


85%



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# Average heat consumption for heating in kWh/m<sup>2</sup> usable area depending on period of construction of buildings in Poland



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## To overcome the deficit, the grant system was 1998 introduced (Thermofund)

- ◆ the minimum calculated energy savings after refurbishment should exceed 25%/a ( in average in Poland for housing stock it is app. 40%/y)
- ◆ the monthly rate of repayment of the loan should not exceed the monthly calculated energy savings over 10 years (calculation period)
- ◆ the loan can be obtained up to 80% of total refurbishment cost
- ◆ the bonus from the state budget is given to the bank, which finances the refurbishment in given building, in amount 25% of the loan (bonus for reduction of the capital) just after accomplishment of the measures identified in energy audit of the building
- ◆ the fundamental document necessary for obtaining the state support is the energy audit, which scope and form are regulated by the Ordinance of Ministry of Infrastructure from 15.01.2002; the energy audit gives the technical assumptions for the refurbishment and estimates the cost of measures and their effectiveness, as well as calculates the monthly rate of repayment of the loan, required own sources and the amount of the loan
- ◆ the energy audits are subject of verification their compliance with Law by the national Bank Gospodarstwa Krajowego



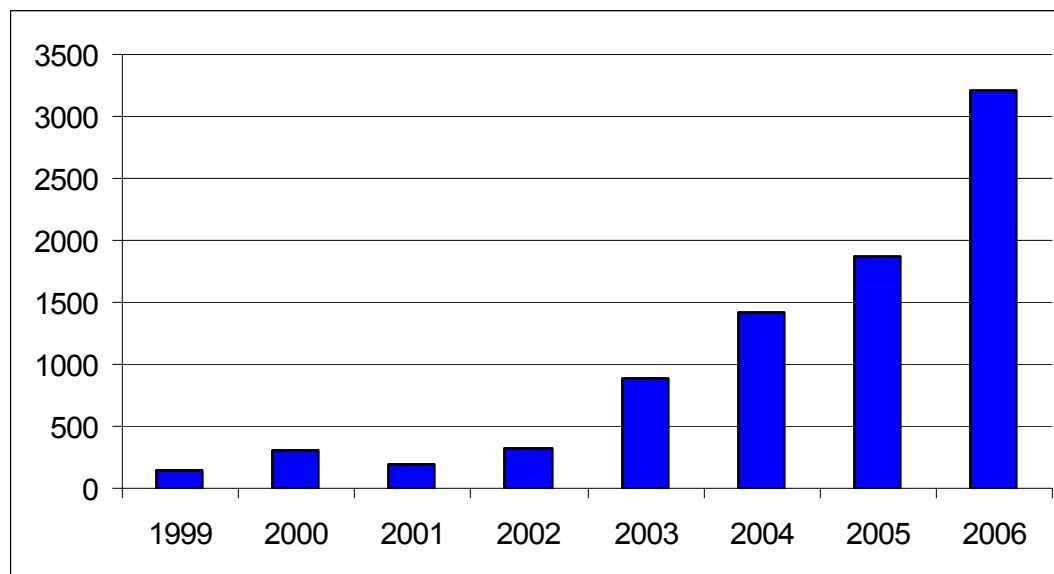
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# State policy towards reduction of energy consumption of buildings

## Criteria for beneficiaries

Thermomodernisation project	Type of savings	Savings achieved
modernization of heating system in building, exclusively	reduction of annual energy demand	at least 10%
comprehensive modernization	reduction of annual energy demand	at least 25% or at least 15% when the heating system was modernized during 1985-2001
modernization of local heat source and district heating networks	reduction of annual energy losses	at least 20%
connection to district heating network due to liquidation of local sources	reduction of annual heat costs	at least 20%
conversion of conventional energy sources into renewable (unconventional) ones	-	-

## Utilisation of Polish Thermofund - trend



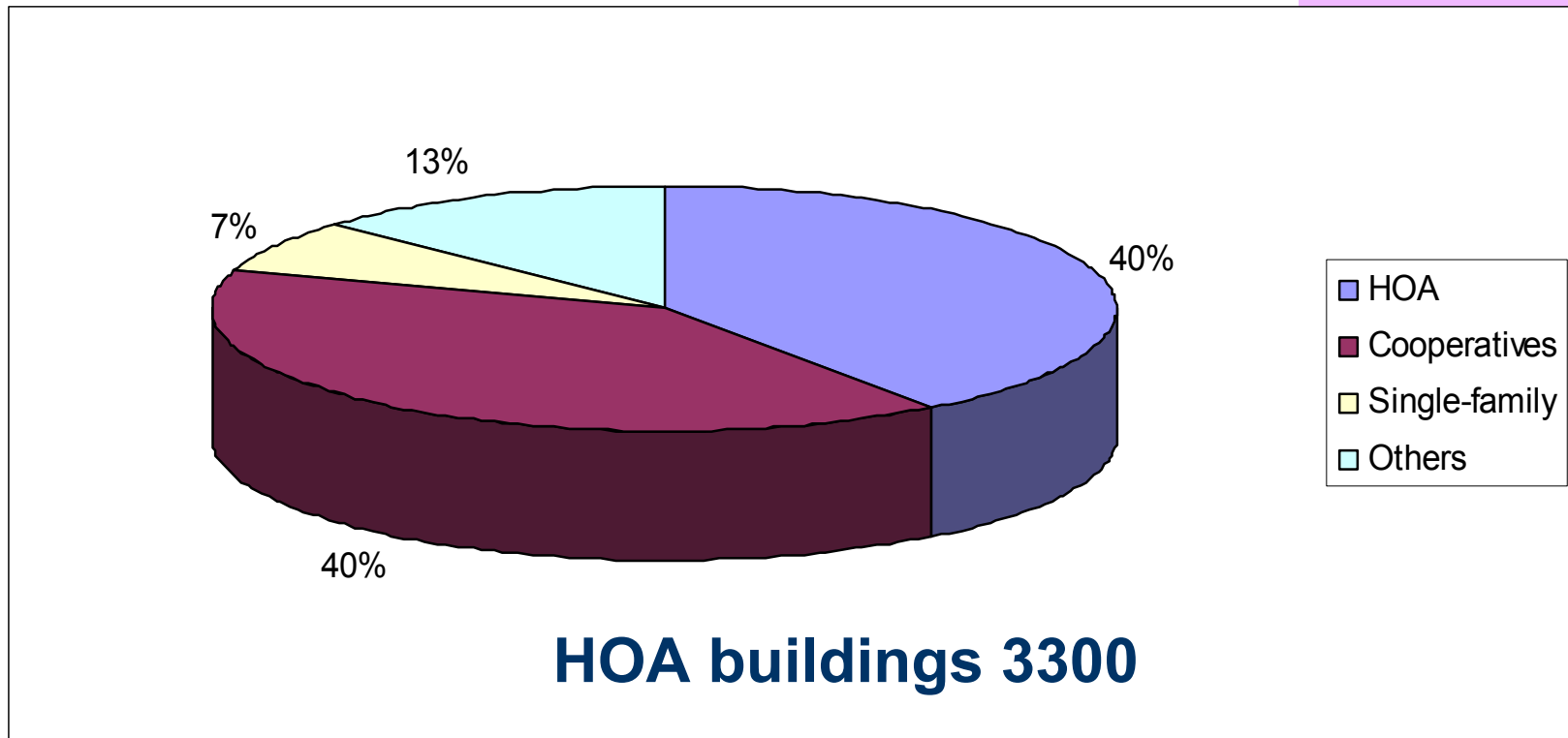
**Number of applications for grant – total 8346**



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## Utilisation of the Fund by categories of buildings



# Perception of the system

Intermediary results of assessment:

- ◆ the Polish scheme was constructed as instrument dedicated especially to residential multifamily buildings. It was assumed that during the 10 years of activity of the system (starting 1999) app. 50,000 buildings with 2,500,000 apartments will be retrofitted with utilization of the scheme. Until now app. 10% of this goals was achieved. The reasons for delay are:
  - in initial period until 2001 the calculation period for repayment of loans from savings (in energy audits) was 7 years; starting 2002, this period equals to 10 years; this modification of law made the meeting of criteria of obtaining the bonus more attractive,
  - the scheme was not assisted until 2002 by active awareness campaign - implementation of “Friendly Home” campaign is one of reasons of the increased the number of applicants
  - low social acceptance for financing own investments by loans due to high interest rates (from 30% in 1999 to 8% in 2006); now over 10,000,000 loans have been given to individual households for consumer goods



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# Example of performed project



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## Example of performed project (2003)

**Building constructed 1963, construction material - panels, number of apartments 48, 2400 sqm space**

### List of implemented measures:

- **Insulation of walls 13 cm**
- **Refurbishment of skylights**
- **Insulation of roof 12 cm**
- **Modernization of heating installation**



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## Example of performed project

- Cost of measures 95 000 euro

**40 euro/m<sup>2</sup> = 1980 euro/dwelling**

- Yearly heat cost savings 9 500 euro
- Yearly heat consumption savings 41,7%
- Own sources collected 20 000 euro
- Loan 75 000 euro
- Bonus from the state 25%=18 750 euro
- Installment 56 250 euro + interest



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## Conditions and results

- Renovation charge raised to 1 euro/sqm/month e.g. 2000 euro/month during 1 year before project
- Monthly rate of installment and interest to be repaid 775 euro/month (during 10 years)
- Tenants have reduced the private income tax through renovation tax regulation
- The heat comfort is better
- The market value of the flat raised by 10%
- The heat cost reduced by 0,45 euro/sqm/month e.g. 25 euro/month/apartment





Narodowa Agencja Poszanowania Energii S.A.

## Targets

- The state support to thermorenovation measures is limited to approximately 2000 buildings yearly (1%/y)
- There is expectation that the promotion of the support to the thermorenovation of residential buildings will follow through:
  - special loan offers of banks – reduction of loan costs
  - participation of associations of suppliers of goods and services in awareness campaigns



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# Nationwide educational program “Friendly Home” Promotion of low energy buildings in Poland Preparing market for EPBD

## Scope of the program

- Designing buildings
- Energy efficient retrofiting
- Maintenance
- Certification

Voluntary industry driven  
with government patronage



## Mądry Polak przed budową



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# Target groups

- Private investors
- Corporate investors (housing coops. , home owners associations, housing managers, etc.)
- Local authorities officers
- Professionals
- Media



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# Activities

- Publications:
  - Brochures
  - Posters
  - Leaflets
- Seminars
- Taking part in professional fairs
- Communication platform [www.domprzyjazny.org](http://www.domprzyjazny.org)



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# Organization and Partners

- Patronage and supervision – Ministry of Construction
- Professional backup – National Energy Conservation Agency, Building Research Institute, Association of Energy Auditors, Technical Universities
- Organizational matters – NAPE since Oct. 2006
- Financing:

POCZTA POLSKA



BANK GOSPODARSTWA KRAJOWEGO

Bank polski w 100%



Bank Ochrony Środowiska S.A.



Polska Tzworopowa Energetyka Odnawialna



Zrzeszenie Analityków Energetycznych



European Green Cities Network



- Distribution framework agreement with Poczta Polska – National Post Company,

- Project by project:

- Banks
- Associations of construction materials and equipment producers,



dr inż. Andrzej Wiszniewski

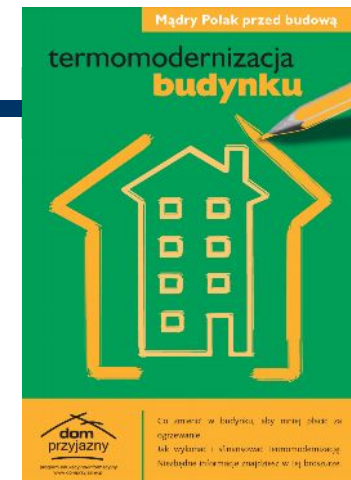


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# Projects completed

- Brochures:

- Low energy house – 100,000
- Thermomodernisation of buildings – 400,000
- One – layer wall houses – 100,000
- Multi - layer wall houses – 100,000
- Building superstructures and modernization of multifamily houses – 100,000
- Building superstructures and modernization of detached houses – 100,000
- Thermomodernisation and upgrading of public houses – 50,000
- Modernisation of heat supply systems in buildings – 60,000



Each brochure is accompanied by poster 5 -10 thousand



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# termomodernizacja

## obniżenie kosztów ogrzewania budynku

poprawa jakości życia oraz stanu środowiska naturalnego

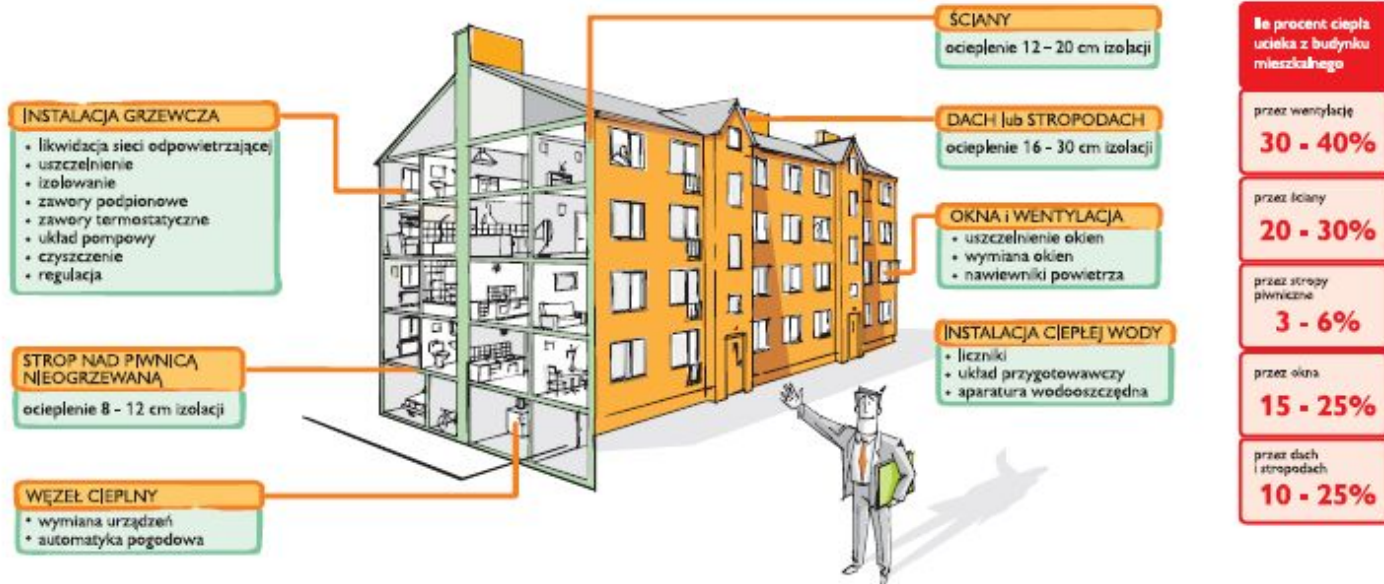
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BANK GOSPODARSTWA KRAJOWEGO

Bank założony w 1945 roku

Bank zarządza Funduszem Termomodernizacji  
www.bgk.com.pl, e-mail: fi@bgk.com.pl, infolinia: 0-801 66 76 55



efekt = oszczędność

KOSZT OGRZEWANIA  
DANE

OSZCZĘDNOŚCI  
NATY KREDYTU  
KOSZT OGRZEWANIA  
PO MODERNIZACJI

OSZCZĘDNOŚCI  
PO SPŁACENIU KREDYTU  
KOSZT OGRZEWANIA

Jak wykonać i sfinansować termomodernizację, dowiesz się z broszury dostępnej w Wydziale Architektury i Budownictwa Twojego urzędu, spółdzielniach mieszkaniowych i u zarządców lokali mieszkalnych.



partner  
Departament Architektury i Budownictwa Ministerstwa Infrastruktury  
Związek Realizacji Systemów i Posażeniowych RP  
Narodowa Agencja Poszanowania Energii S.A.  
Stowarzyszenie Zarządców Nieruchomości Województwa Świętokrzyskiego



Stowarzyszenie i organizacja współpracująca  
Stowarzyszenie Producentów Styropianu

MIWO Stowarzyszenie Producentów Włny Mineralnej, Szklanej i Szałajnej



Bank Górnicy Środkowej S.A.  
Polskie Towarzystwo Energetyki Zrównowazonej  
Zrzeszenie Auditorów Energetycznych  
European Green Class Network

INTERREG III B

Baltic Energy Efficiency Network  
for the Building Stock

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## Projects completed (cont.)

- Leaflets:
  - Energy-saving apartment usage – 2.5 million
  - New system of buildings energy certification – 60,000
- Seminars for the representatives of local authorities, building owners and administrators held in 5 cities, each attended by approximately 120 people
- Seminars sponsored over 10\*100 people
- Seminars in Warsaw 2\*150
- The program's presence on several fairs.



dr inż. Andrzej Wiszniewski



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# Internet communication platform

[www.domprzyjazny.org](http://www.domprzyjazny.org)



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**Mądry Polak przed budową**  
program edukacyjno-informacyjny

Pod patronatem: Departamentu Architektury i Budownictwa  
Ministerstwa Infrastruktury



### Termomodernizacja budynku.

**Idea:**  
Dotarcie do zarządców, użytkowników budynków i lokali w celu podniesienia świadomości korzyści płynących z termomodernizacji.

**Autorzy:**  
dr inż. Maciej Robakiewicz, dr inż. Aleksander Panek - Narodowa Agencja Poszanowania Energii.

**Jedynym sposobem ograniczenia kosztów ogrzewania ponoszonych dziś i w przyszłości jest zmniejszenie ilości zużywanej energii ciepłej. Można to osiągnąć, wykonując termomodernizację budynku.**

**Patronat:**  
Departament Architektury i Budownictwa  
Ministerstwa Infrastruktury  
Narodowa Agencja Poszanowania Energii.  
Związek Rewizyjny Spółdzielni Mieszkaniowych RP.

**Institucje współpracujące:**  
[Bank Gospodarstwa Krajowego](#), [Bank Ochrony Środowiska SA](#), [Stowarzyszenie Producentów Styropianu](#), [Stowarzyszenie Producentów Włny Mineralnej](#), [Szkłanej i Skalnej](#), [Polskie Towarzystwo Energetyki Słonecznej](#), [Zrzeszenie Auditorów Energetycznych](#), [European Green Cities Network](#).

**Dystrybucja:**  
Skierowana do administratorów budynków komunalnych i spółdzielczych, właścicieli prywatnych, również poprzez 2885 urzędów na terenie całej Polski.

**Nakład:**  
brozsura - 115 000 egz. - plakatów - 10 000 egz.

**Forma:**  
Pakiet składający się z 44-stronicowej broszury A5 z plakatem B1.



[Pobierz plakat \(.jpg\)](#)



[Pobierz list \(.pdf\)](#)

**Patronat medialny:** [www.murator-dom.pl](http://www.murator-dom.pl)

**Partner wspierający:** POCZTA POLSKA

zeglówych informacji udziela koordynator programu: [Cezary Jasiczak](mailto:Cezary.Jasiczak), tel. kom. 502 604 237, e-mail: [ary.jasiczak@ardo.pl](mailto:ary.jasiczak@ardo.pl)  
iz wydawca: **ARDO Publishing**; ul. Słoneczna 15a, 60-286 Poznań. tel./fax (0-61) 861 00 05.



## Survey of inhabitants awareness concerning energy efficiency in multifamily buildings

- ◆ The survey was conducted during the meeting home owners associations organized on 3d March 2007 in co-operation with Warsaw district administration Mokotów
- ◆ The set of questions was taken and upgraded from the Latvian surveys, made 2005 among 3007 inhabitants
- ◆ Number of participants of the survey in Warsaw was app. 100



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## Survey of inhabitants awareness –results

Energy efficiency issues vs. economy?	%
Do you know, that implementation of all above mentioned measures in building constructed before 1985 can bring 40% reduction of heat bill?	80
Do you know the heat bill of your dwelling	56
Do you agree to increase your monthly renovation charge in order to implement the above mentioned measures	80



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