



Energy-Efficient Retrofitting of Multifamily Buildings with Low-Income Families

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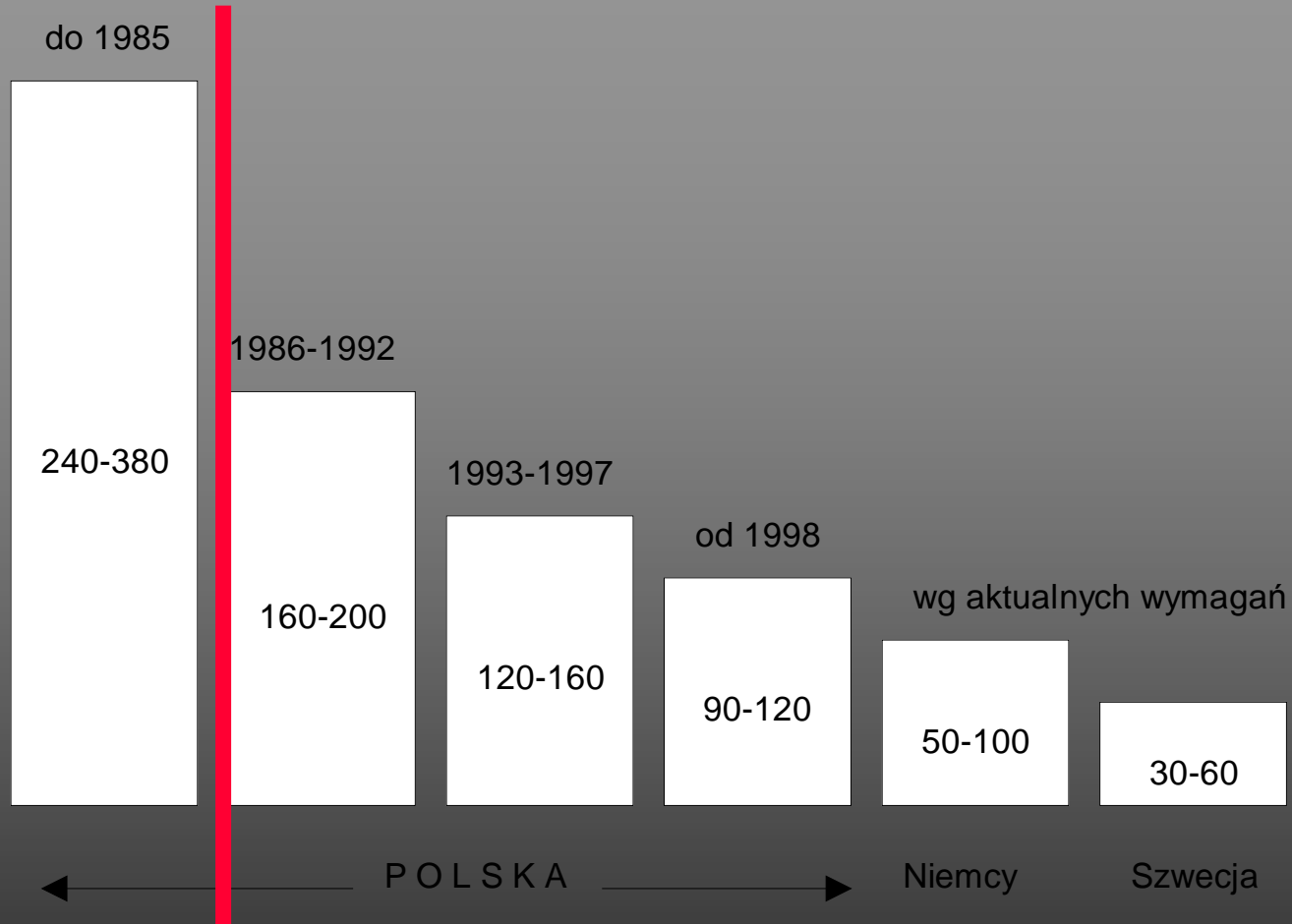
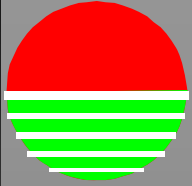


Renovation market of residential sector

	total	Buildings constructed in:						
		before 1918	1918 - 1944	1944 - 1970	1971 - 1978	1979 - 1988	1988 - 2002	after 2002
total	4 772 728	413 255	828 167	1 367 542	676 498	763 461	618 348	105 457
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%





Average heat demand for heating in kWh/m² usable space in residential buildings in Poland according to design standards





Heat standard of multifamily buildings

Heat standard kWh/ m² per year	Buildings in %
lower than 120	5
120 – 150	8
150 - 200	13
200 - 250	15
250 - 300	14
300 - 350	20
350 - 400	15
> 400 kWh	10





State policy towards reduction of energy consumption of buildings

Thermomodernisation Act from 18 December 1998

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	-	-





How does the system work?

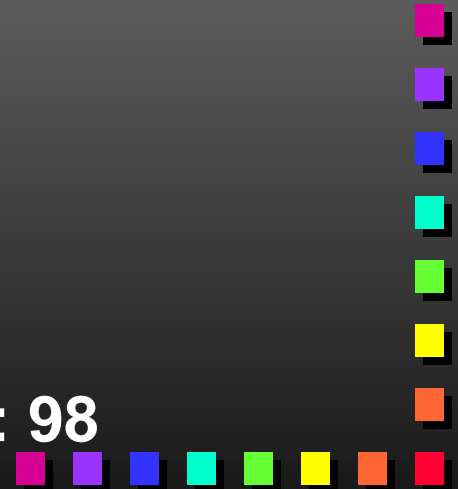
1. The state budget writes money to the Thermomodernisation Fund – 27,5 million Euros for 2005
2. The commercial banks are spending the Fund's money as the 25% bonus to the loans given to the investors
3. The investor's obligation is to present the energy audit which confirms savings required by conditions set by law





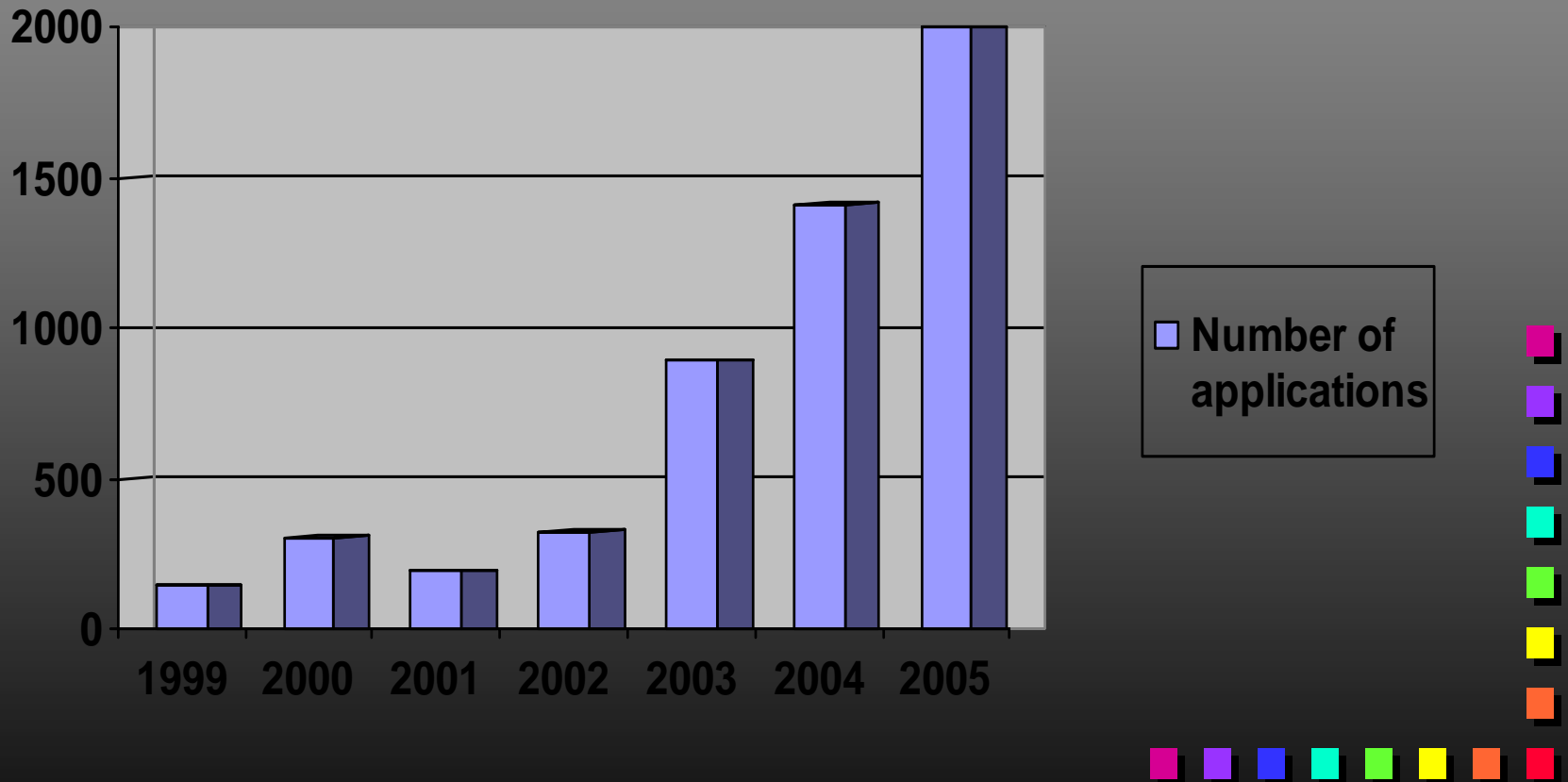
Utilization of the Thermomodernisation fund as of 03.11.2005

- **Number of applications: 5056**
- **4469 positive, 400 negative,**
 - **Single family: 522**
 - **Multifamily: 3780**
 - **Public: 603**
 - **Hostels: 51**
 - **Local heat sources and networks: 98**
 - **Others 2**





Trend of utilization of the Thermomodernisation fund





Thermomodernisation process

- Elaboration of energy audit
- Loan application
- Obtaining the loan letter and thermomodernisation bonus
- Designing
- Construction permit
- Performing
- Confirmation conformity with the audit and design





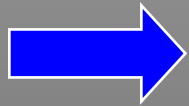
Total renovation of building occupied by low-income families

- Cost 50 - 125 euro/1 sqm
- Main financing source – building (HOA, cooperative) renovation fund
- By 0,5 euro/1sqm/month the fund reaches 6 euro/1sqm/year e.g. 360 euro/year per apartment of 60 sqm
- The renovation period takes 7-15 years

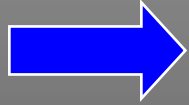




Main problems



Collection own sources



Mentality barriers



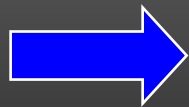
Passivity of building boards



Passivity of self-government



Low knowledge of thermomodernisation law



Lack of direct additional support for vulnerable families





Main problem – achieving creditworthiness by investor

- Value of renovation fund
- Renovation charge
- Remaining income
 - Renting free spaces
 - Special charge
- Security of the loan
 - Mortgage
 - Proxy to the bank account





Problem of guarantee

New guarantee fund of Global Environmental Facility, started operation January 2006, provides:

- 1. 50% subsidy to cost of elaboration of energy audit**
- 2. Guarantee for HOA`s with low creditworthiness**





Example of performed project





Example of performed project

Building constructed 1963, construction material „big plate”, number of apartments 48, 2400 sqm area

List of implemented measures:

- Insulation of walls 13 cm
- Replacement of windows in staircase
- Insulation of roof 12 cm
- Modernization of heating installation





Example of performed project

- Cost of measures 95 000 euro
- 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





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





Further financing opportunities

- Investment loans – commercial conditions
- Subsidy from the municipal budgets – for communally owned buildings only
- Grants from the ecological funds – for larger settlements (starting from 400/1000 KW heat demand)
- Refunding from the EU Structural funds – for revitalization areas only
- Own investments – added storey
- Renting free spaces





Refunding from the EU Structural Funds

Item 1: revitalization of old city centers and postindustrial and post military areas

- the applicants: communes which have the revitalization program elaborated

Item 2: renovation of public buildings

- the applicants: communes which prepared projects according to the regional development strategies

Main decision maker:

the Regional Administration – Marshall of Province





Targets

- The state support to thermorenovation measures is limited by current sources to approximately 2000 buildings yearly
- There is expectation that the market forces will additionally support the thermorenovation of residential buildings, through:
 - special loan offers of banks – reduction of loan costs
 - participation of suppliers of goods and services in awareness campaigns





Policy towards vulnerable families

- **Mixed self-government/state subsidy to maintenance cost of apartments (heat, energy, water supply)**
- **Self governmental social housing development supported by the state: pilot project for refurbishment of 180 buildings country wide with high energy standard, supported with 30% subsidy to refurbishment cost**
- **State support to rents of apartments in usual multifamily buildings, occupied by vulnerable families: element of new housing strategy in Poland**

