



Implementation of the Polish energy efficiency policy in housing sector - related health and well-being benefits and threats

CAPTURING THE MULTIPLE BENEFITS OF ENERGY

Roundtable on Health & Well-being Impacts

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Copenhagen, 19th April 2013



THE POLISH NATIONAL ENERGY CONSERVATION AGENCY

Krajowa Agencja Poszanowania Energii S.A. (KAPE)

KAPE was established on 15th April 1994 after:

- Parliamentary resolution of 9th November 1990 concerning guidelines for energy policy of Poland until 2010
- Decision of the Government of Republic of Poland No 21/92 of 19th May 1992 on creation of an energy conservation agency
- Agreement of ministers of **5th February 1994** concerning creation **the Polish National Energy Conservation Agency – joint stock company**

Historical shareholder's status (1994-2011):

- Ministry of Industry and Trade, Ministry of Environment, Ministry of Spatial Planning and Construction
- National Fund for Environmental Protection and Water Management (100%, Min. of Envir.)
- Agency for Industrial Development (100% owned by MoE)
- Bank of the National Economy (BGK), state bank

Actual shareholder's status – since 2012

- National Fund for Environmental Protection and Water Management 67,74%)
- **KAPE's labour personnel (32,26 %)**



KAPE's KEY ACTIVITIES

- KAPE is **promoting and implementing** world class standards and practices in the fields of Energy Efficiency and Sustainable Development, based on which creates optimal energy efficiency solutions for our customers.
- KAPE's **strategic aim** is supporting the competitive growth of the Polish Economy through improving Energy Efficiency in respect to the rules of Sustainable Development.
- KAPE **offers complex advisory and training services** in the fields of Energy Efficiency and Sustainable Development for **energy companies, industry and building sectors**.
- KAPE also provides **expertise for the Polish Government and Municipalities**, and conducts activities in the fields of educating and promoting rational energy use and development of Renewable Energy Sources.

PLAN OF THE PRESENTATION

1. POLAND'S BEGINNINGS OF 1990'S – housing and energy situation
2. THERMO-MODERNISATION OF BUILDINGS: concept, necessity and tasks
3. KEY PRIMARY TASK FOR KAPE: BUILDING THERMO-MODERNISATION
4. THE ACT SUPPORTING BUILDING THERMO-MODERNISATION
5. THE FUND SUPPORTING BUILDING THERMO-MODERNISATION
6. IMPLEMENTATION OF THERMO-M ACT AND FUND, 1999-2013
7. DIAGNOSIS ON IMPLEMENTATION OF THE BUILDING THERMO-MODERNISATION ACT AND FUND
8. SOME WELL BEING ASPECTS (photo gallery)



*From seminar materials of the Royal Embassy
of Denmark in Warsaw, March 2013*



THE REPUBLIC OF POLAND



Population: 38,0 mln people

Capital: WARSAW (1.9 mln)

Administrative structure:

- 16 voivodeship-s (provinces)

Area: 312.000 km²

- from South to North - 800 km
- from West to East - 750 km

Climate:

- from - 35°C up to + 37°C

- 4 June 1989, free elections
- Parliamentary system, administrative reform
- Constitution of the Republic of Poland, 2 April 1997
- Member of the European Union from 1 May 2004



1. POLAND'S BEGINNINGS OF 1990'S

Housing stock “grey mouses of the „*successful*” socialismuss”

Picture from outside ... and ...



Panel buildings from “building factories” - a Soviet “leading” large panel technology with very poor thermal properties

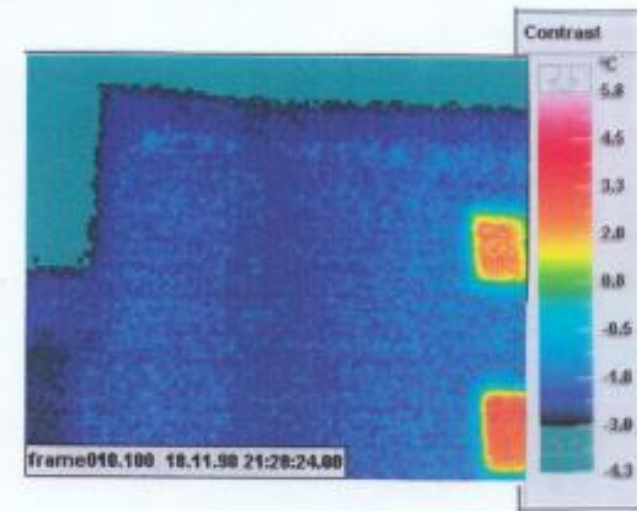
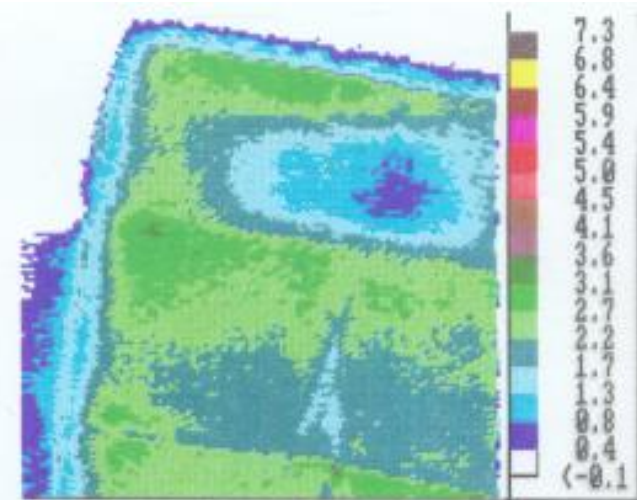
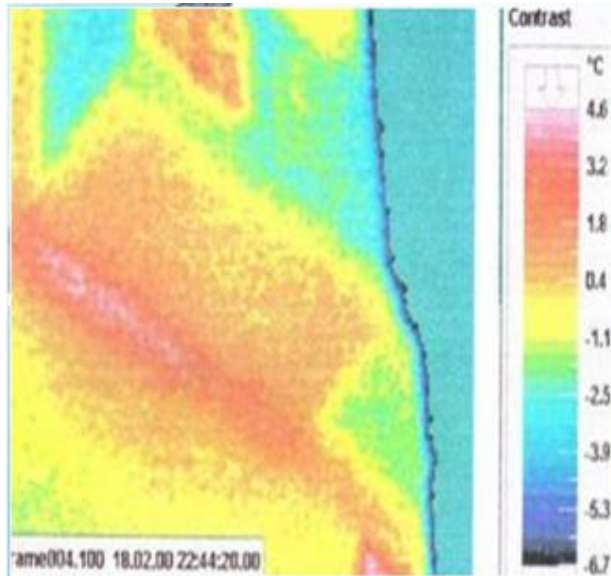


“Eco-buildings” (?) - a fly ash “recycling” technology and application of materials with high radiation for residential buildings



Housing stock “grey mice of the „successful” socialismuss”

Picture from outside ... and ...

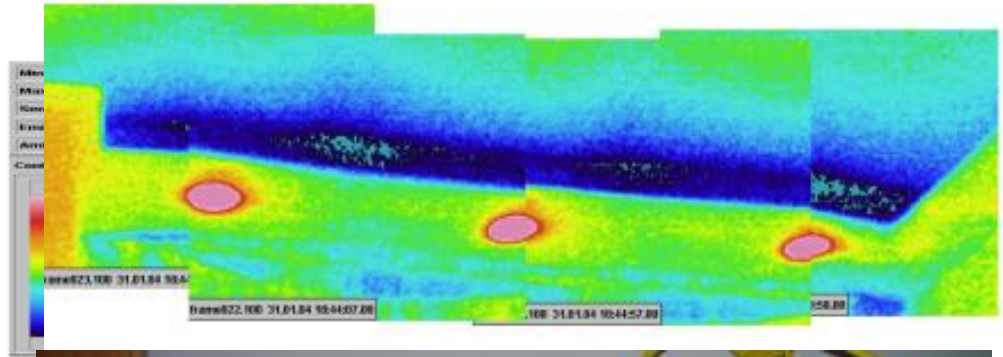
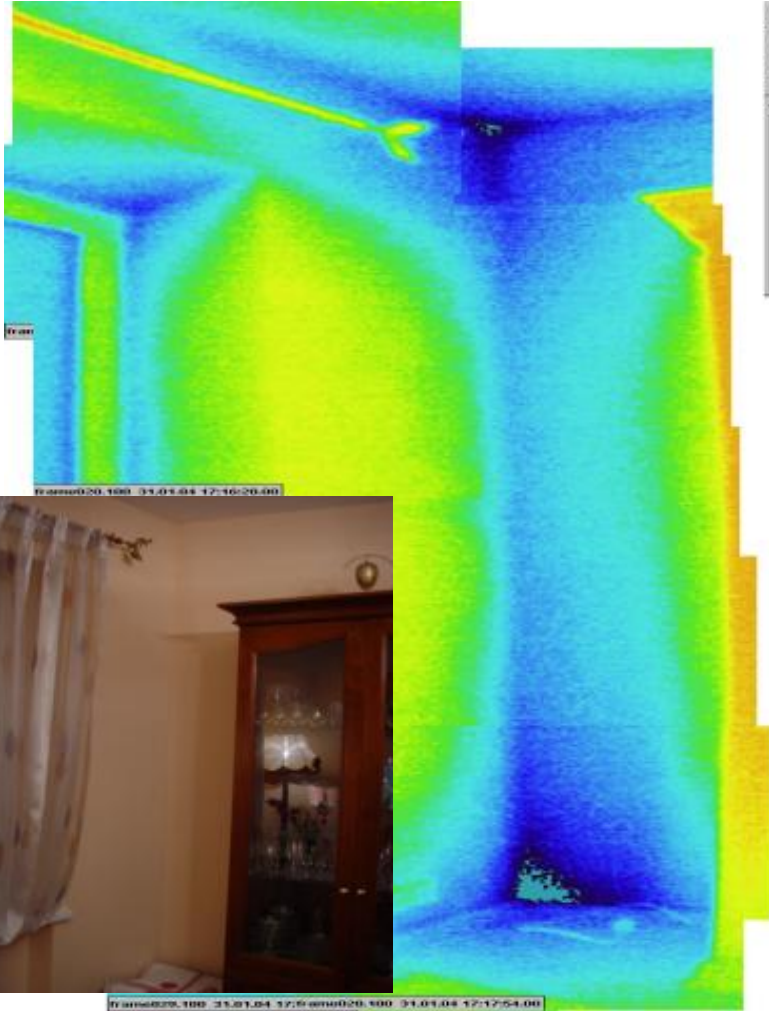


Thermovision mapping, Cracow and Warsaw



Housing stock “grey mice of the „Successful Socialismuss”

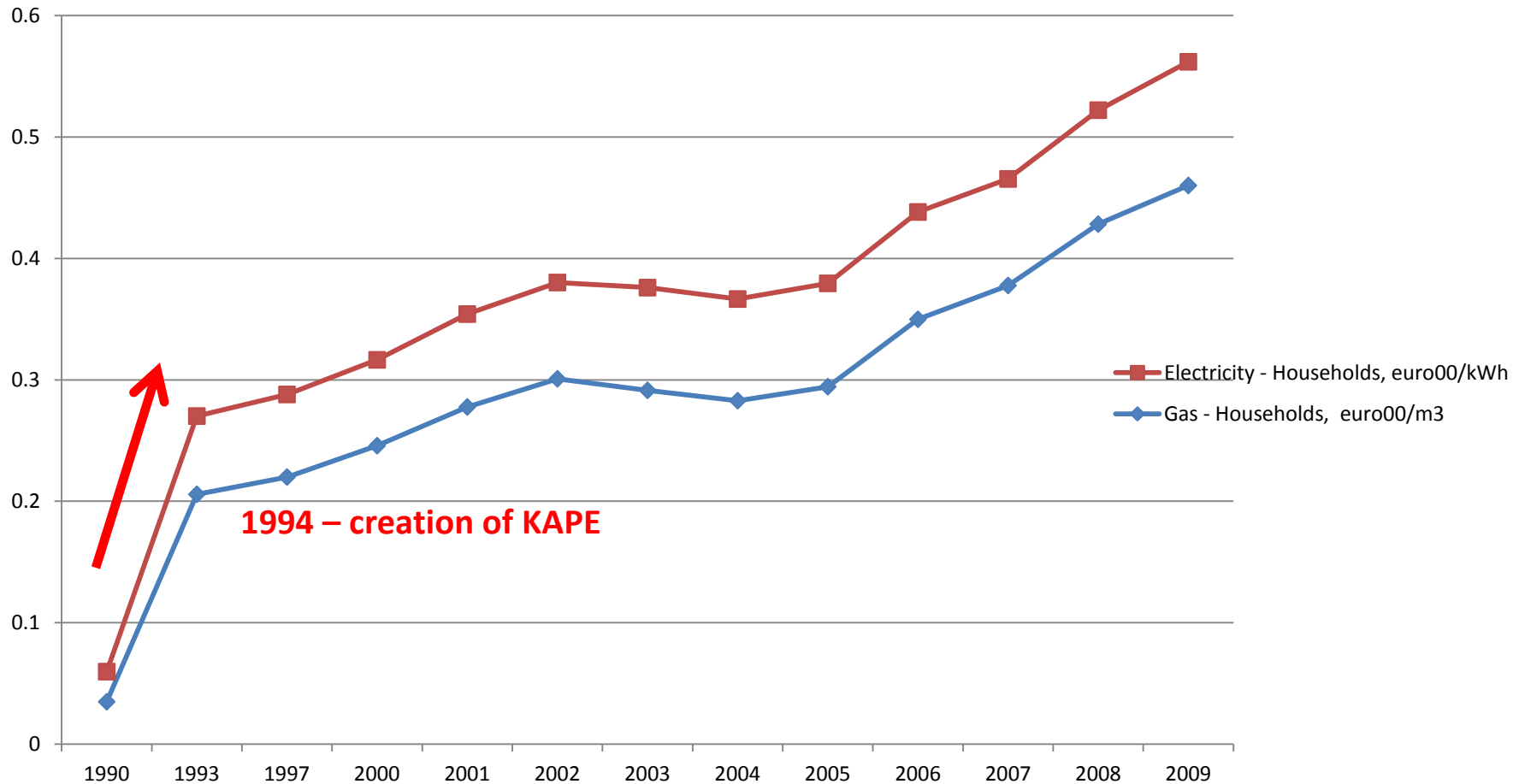
... picture from inside





Galloping energy prices and social security

POLAND'S energy sector proud of the world's leading position of the coal mining and „standing on the hard coal” – selfsufficient supply



Source: EFFICIENCY OF ENERGY USE 1999-2009; 2000-2010, Main Statistical Office, Warsaw, Books: 2011 and 2012

2. THERMO-MODERNISATION OF BUILDINGS: necessity, concept and task



*Illustration from a brochure of the Danish Ministry of Housing and Urban
Development, 1988*

SECURE: energy supply !!!

**MINIMIZE: social cost of
energy prices increase !!!!!**

THERMO-MODERNISATION:

**Task: to dress existing buildings
... aprox. 11,0 mln flats**

- 4,5 mln single family buildings
- 350.000 multifamily buildings

New constructions (1994):

- 70.000 new flats/year

Missing in Poland (1994):

- 1,5-2,0 mln flats



3. KEY PRIMARY TASK FOR KAPE

Building thermo-modernisation

a. ENERGY CONSULTANCY SCHEME FOR BUILDINGS, 1995-1998

- Aid programme of the Danish Government via the Danish Energy Agency
- Implementing institutions:
 - Danish Institute of Technology, DTI, Taastrup
 - Polish National Energy Conservation Agency, KAPE
- Project results and impact:
 - **12 participants** nominated by KAPE on the DTI training in Denmark, 1995
 - 72 hours training curriculum in Polish developed by the trained branch leaders (XI 1995)
 - **60 branch trainers** from all Poland (Dec. 1995)
 - **Building Energy Consultancy Secretariat** established in KAPE (Mr. Darek Koc, head)
 - a national wide training activities, 1996-2011
 - ca. **4500 professionals** trained on voluntary basis (architects, construction, electrical and HVAC engineers, 1996-2011)
- Project sustainability:
 - **Association of the Polish Energy Building Auditors** (ca. 1500 members)



2012 – the name of ENERGY CONSULTANT withdrawn from the state regulated professions III



Secretariat for Building Energy Auditors KAPE S.A.

(established 1996, assistance of the Danish Technological Institute)

Main tasks of the Secretariat:

- Information centre for the building thermo-modernisation
- Monitoring of energy efficiency investments
- Promotion of the energy audit standard
- Handbooks and information materials
- Calculating software (information and monitoring)
- Information for investors about energy auditors
- Running a national training scheme for building auditors
- Energy auditors authorisation scheme (1000 +)
- Organising a database of auditors (3500 +)



Secretariat for Building Energy Auditors KAPE S.A.

(established 1996, assistance of the Danish Technological Institute)

a. NATIONAL BUILDING ENERGY TRAINING SCHEME KAPE S.A.

Main tasks of the Secretariat:

- **Development of the training scheme**
- **General requirements for scope of training programme**
- **Basic requirements for training organisers**
- **Authorisation and contracting courses**
- **Co-operation with lecturers from academic centres**
- **Training materials (developing and updating)**
- **Supervision of the quality of courses**
- **Issuing diplomas for the successful course participants**



KAPE's building thermo-modernisation activities

c. DEMONSTRATION PROJECTS

Demonstration building thermo-modernisation project granted by the Danish Ministry of Housing and Urban Development; implementation by COWI-KAPE



Before thermo-modernisation, Warsaw, 1998



After thermo-modernisation, Warsaw, 2000



Demonstration building thermo-modernisation project granted by the Danish Energy Authority; implementation by DTI-KAPE

c. DEMONSTRATION PROJECTS



Social, municipality owned building in Warsaw, 1998-2001



LESSONS LEARNED: Thermo-modernisation + revitalisation concept project = well-being = EE + improvement of living conditions , Warsaw-Piaseczno, 2001

c. DEMONSTRATION PROJECTS





4. ACT AND FUND SUPPORTING BUILDING THERMO-MODERNISATION

Key stakeholders – responsibilities and actions

Parliament : *unpredicted „late night” solutions on Thermo-modernisation of the Act and Fund*

Ministries governmental offices (*as in 1994*):

- Ministry of Industry and Trade
- Ministry of Environment
- Ministry of Spatial Planning and Construction – *leading ministry for thermo-modernisation, works started by MoIT in 1992/1993 (energy plan, ERG)*
- Ministry of Finance
- Ministry of Justice

Governmental offices

- Energy Regulatory Authority
- Office for Protection of Competition and Consumers
- National Fund for Environmental Protection and Water Management (*NFOŚiGW*)
- Municipal offices (environmental protection and architecture units)

Bank of the National Economy (*BGK*)

The Polish National Energy Conservation Agency (*mixed functions*)

- Advise to ministries
- Cooperation with key actors of thermo-modernisation movement

Remark: Sectoral approach (limited strictly due to competences of ministries) to energy efficiency issues; lack of regular co-operation, slow progress of works



4. ACT AND FUND SUPPORTING BUILDING THERMO-MODERNISATION

Key stakeholders – responsibilities and actions

The Polish National Energy Conservation Agency (mixed functions)

- Advise to ministries
- Cooperation with key actors of thermo-modernisation movement

Supporting institutions (regional and local level)

- Regional Energy Conservation Agencies
- Energy & environmental ngo-s

Supporting institutions (national level)

- Technical universities
- Institutes of the Polish Academy of Sciences
- Central Research&Development branch institutes
- Professional's chambers (civil and HVAC engineers, architects)

Building owners:

- Public buildings
- Private buildings
- Housing cooperatives

Market:

- Building materials producers
- Equipment producers
- Wholesalers
- Construction and building companies



4. ACT SUPPORTING BUILDING THERMO-MODERNISATION

18th December 1998

The Act defines:

- 1. Principles of support for thermo-modernisation investment projects aimed at:**
 - a. reduction of consumption of energy supplied to residential houses and houses for purposes of heating and domestic hot water used by municipal entities for purposes of public service;
 - b. reduction of energy losses in local distribution networks and supplying local heat sources if efforts to reduce consumption of energy supplied to buildings as mentioned in paragraph a) above have been undertaken;
 - c. total or partial replacement of conventional energy sources on non-conventional ones, including renewable.

2. Principles for establishing of the Thermo-Modernization Fund and its application.

Eligible EE investments: buildings, local heating piping networks, local heating plants



5. FUND SUPPORTING BUILDING THERMO-MODERNISATION

18th December 1998

Basic assumptions:

- thermal - modernisation premium – repayment by the Bank of National Economy 25 % of credit, **after repayment by the investor of the entire bank credit (loan), i.e. after max. 7 years**
- Credit based on commercial conditions (interest rate 7 - 10 %)
- The credit granted for completion thermo-modernisation project cannot exceed 80 % of the total cost
- Repayment period can not exceed **7 years**;
- Repayment of the credit has to be possible from energy cost savings
- Fulfilling the requirements concerning minimum level of energy consumption reductions



THERMO-MODERNISATION FUND

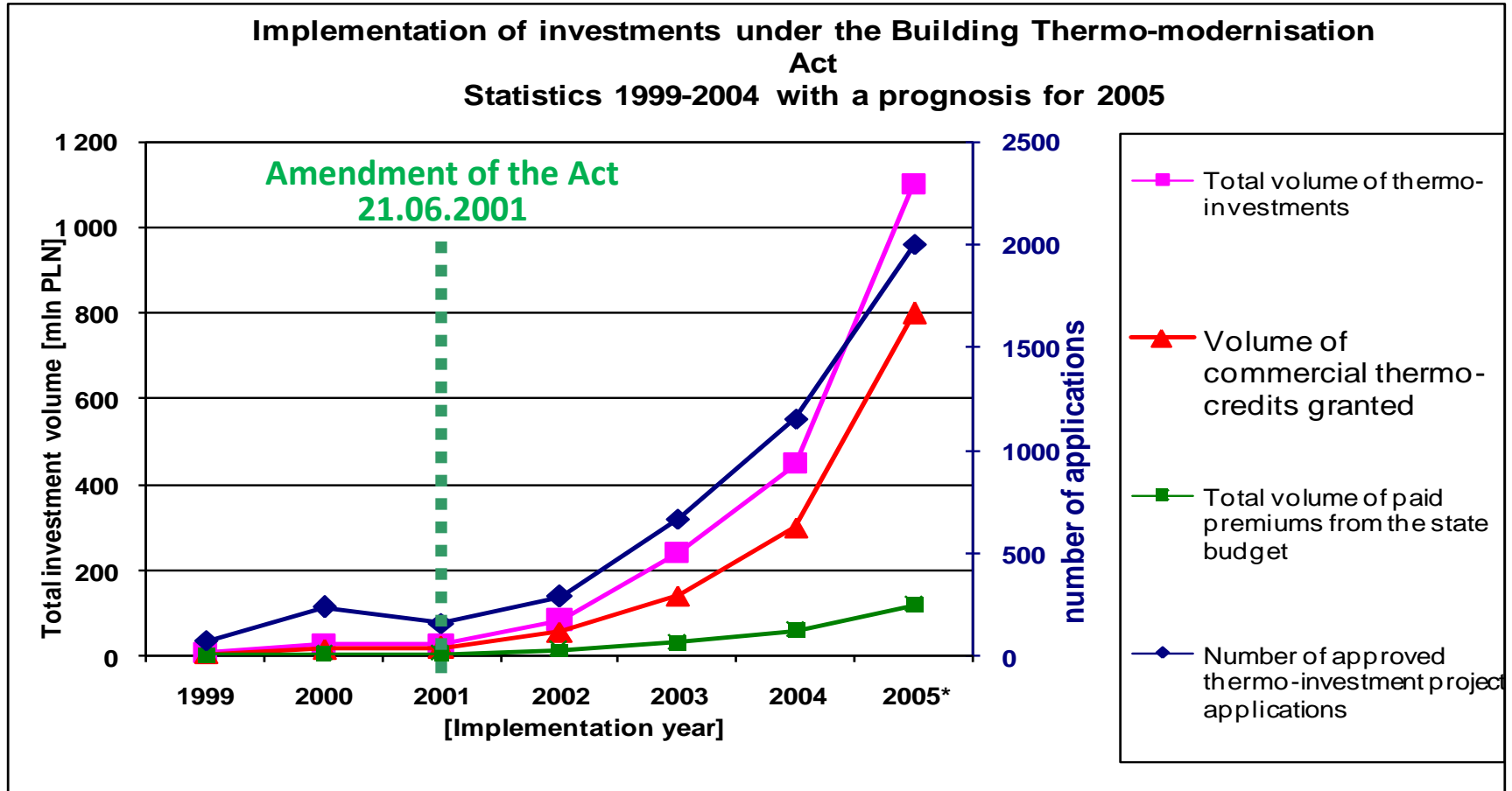
of 18 December 1998 after amendment on 21.06.2001

Basic assumptions:

- thermal - modernisation premium – repayment by the Bank of National Economy of 25 % of a credit utilised for completion of the thermo-modernisation investment by investor, directly after completion of the investment
- Credit based on commercial conditions (interest rate 7 - 10 %)
- The credit granted for completion thermo-modernisation project cannot exceed 80 % of the total cost
- Repayment period can not exceed 10 years;
- Repayment of the credit has to be possible from energy cost savings
- Fulfilling the requirements concerning minimum level of energy consumption reductions

On 21 November 2008 new act on Act on Support for Thermo-Modernisation and Building Refurbishment Investments

6. IMPLEMENTATION OF THE ACT AND FUND

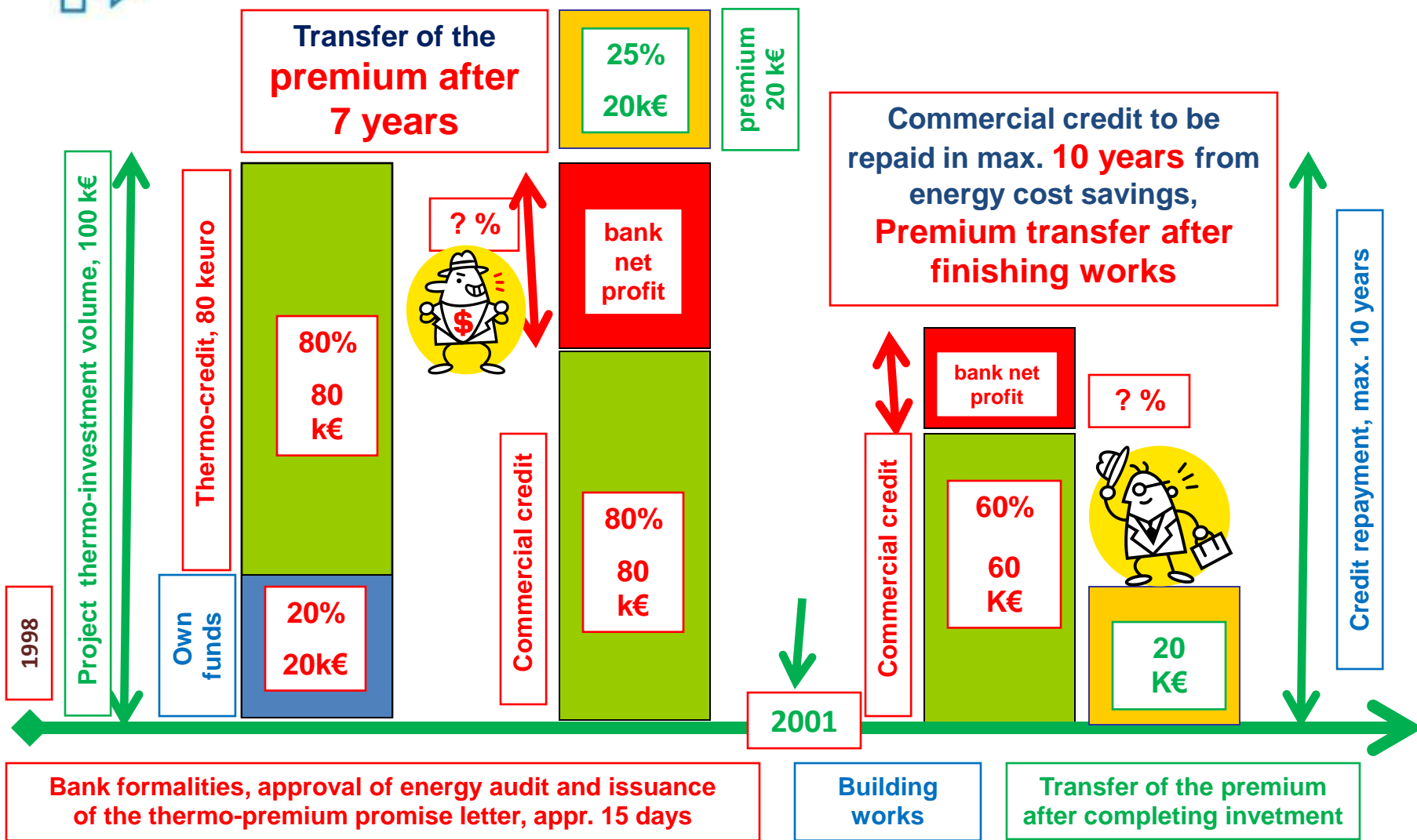


Source: KAPE



THERMO-MODERNISATION FUND

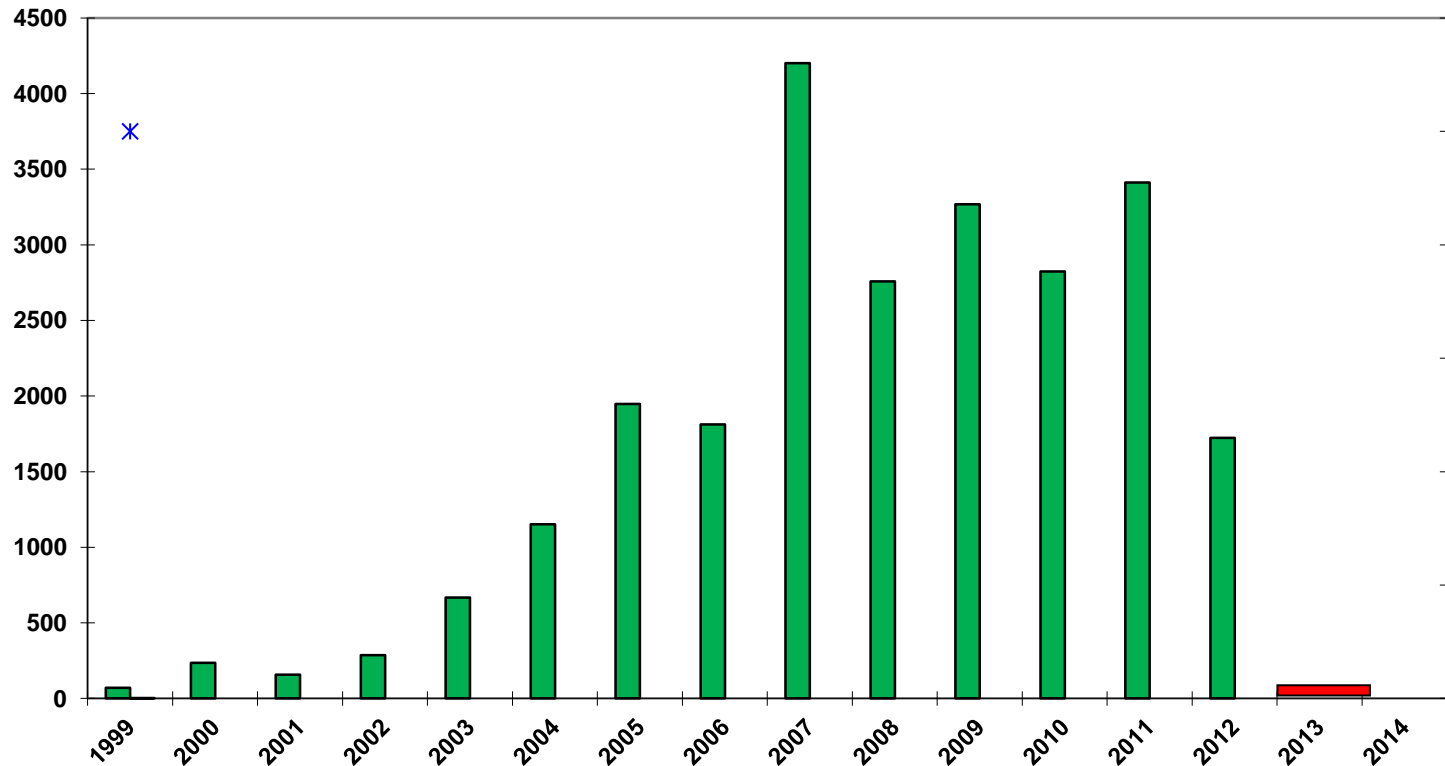
Interventions by the Minister of Finance 1998 and 2001





Building Thermomodernisation Act and Fund, 1998-2013

Number of approved applications (energy audit, bank loan)



Number of approved applications (energy audits, bank loan) - appr. 25.000 investment projects, in total

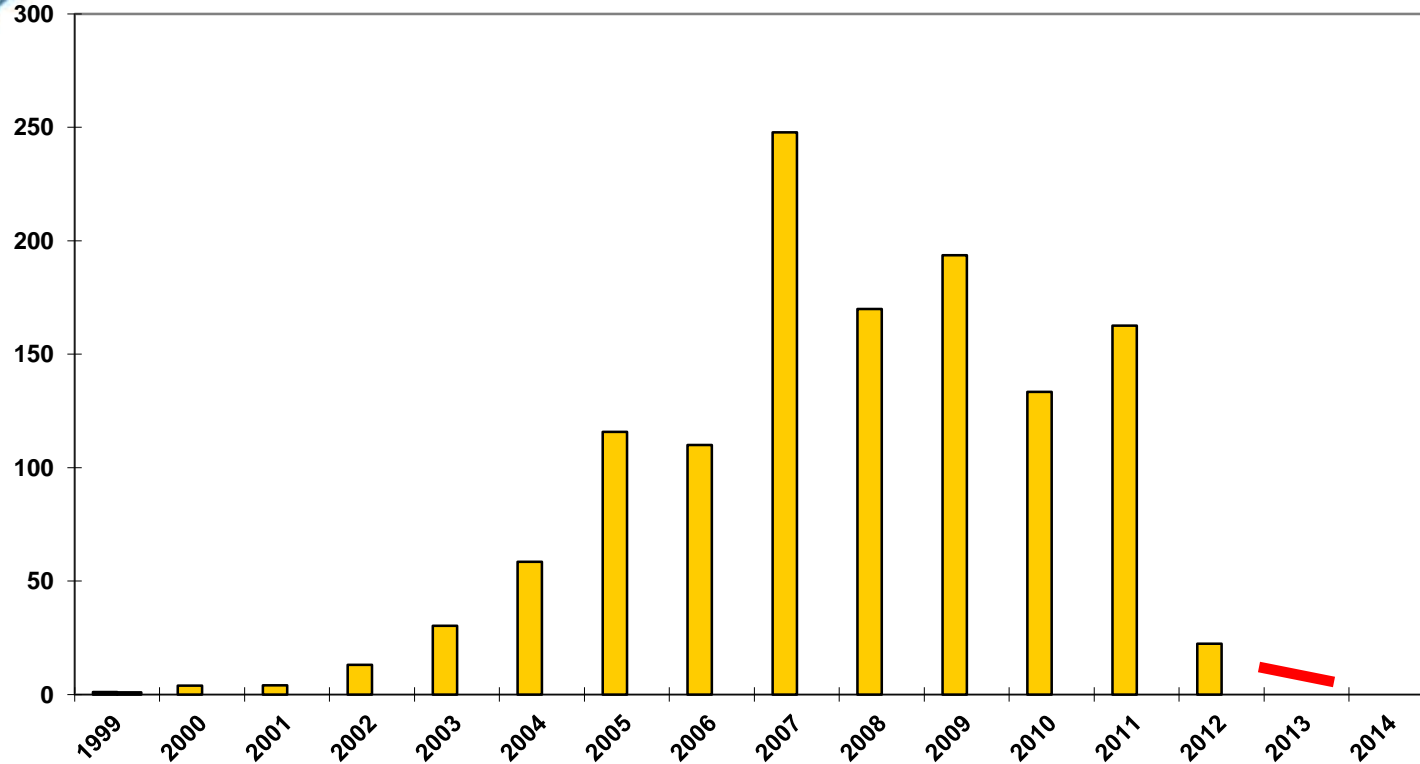
Source: Bank BGK, KAPE

Thermo-modernisation and Building Refurbishment Fund not supplied in 2013 with financial means by the Minister of Finance - is the Fund cancelled after 13 years ?????



Building Thermo-modernisation Act and Fund, 1998-2013

Thermo-modernisation premium, 25% subsidy, *mln. PLN*

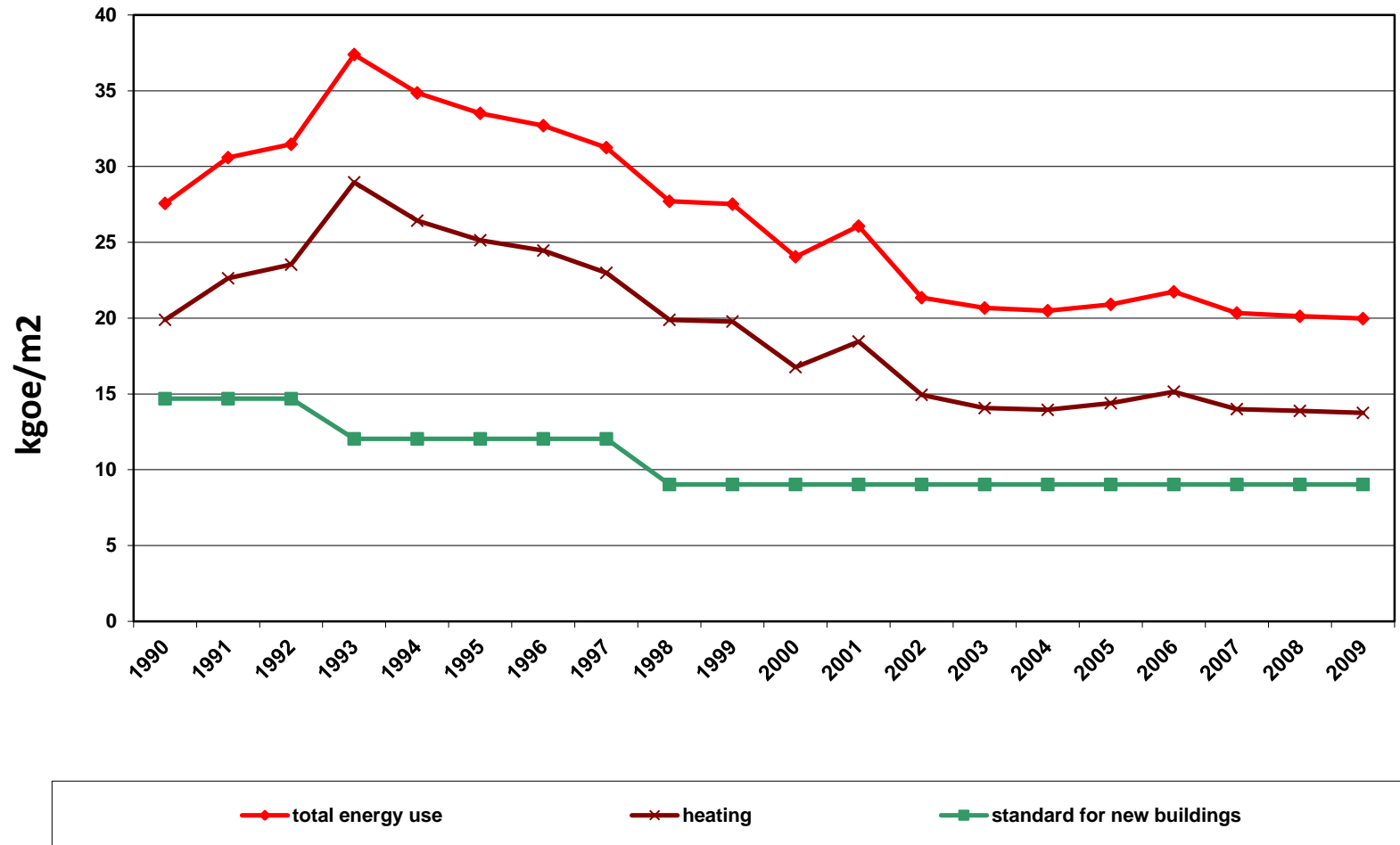


■ Thermomodernisation premium, 25% subsidy (mln. PLN) - total: 1,266 bln PLN

Source: Bank BGK, Dane liczbowe Funduszu Termomodernizacji i Remontów, 2012

Thermo-modernisation and Refurbishment Fund not supplied in 2013 with financial means by the Minister of Finance - practically the Fund is cancelled after 13 years

Energy use in households per m²



Source: EFFICIENCY OF ENERGY USE 1999-2009;. Main Statistical Office, Warsaw, Book: 2011



7. DIAGNOSIS ON IMPLEMENTATION OF THE BUILDING THERMO-MODERNISATION ACT AND FUND



- i. In Poland exists a regular, complementary framework - policy, legal, institutional and professional - for implementation of advanced sustainable building programmes, but *lack of supporting research programmes*.
- ii. Huge, unprecedented the national thermo-modernisation program of buildings was implemented in Poland, in period 1999-2012.
- iii. Approximately, 25.000 projects were granted subsidy of about 300 mln €. from the state budget - est. investment volume 5x more.
- iv. In statistical data given by the bank BGK – operator of the T-M Fund, none source information about planned energy or CO₂ saving is available.

Prescription:

1. At all levels - national, regional and local respective continuous actions have to be undertaken in order to reduce energy consumption in buildings with respective financial support schemes.
2. Research programmes should be established in order to study multifunctional aspects of thermo-modernisation of buildings, especially the health and sick-building related aspects.
3. R&D programmes should be established immediately in order to support energy management monitoring, inspection and labelling schemes.
4. The Government should urgently develop measures in order to force RES-oriented design and passive buildings.



THE POLISH NATIONAL ENERGY CONSERVATION AGENCY

Poland-Japan Energy Conservation Technology Centre
Industrial Training Centre & Facility (in-house)



**Thank you for attention
and
welcome in co-operation !!!**



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