InoFin

Innovative Financing of Social Housing Refurbishment in Enlarged Europe

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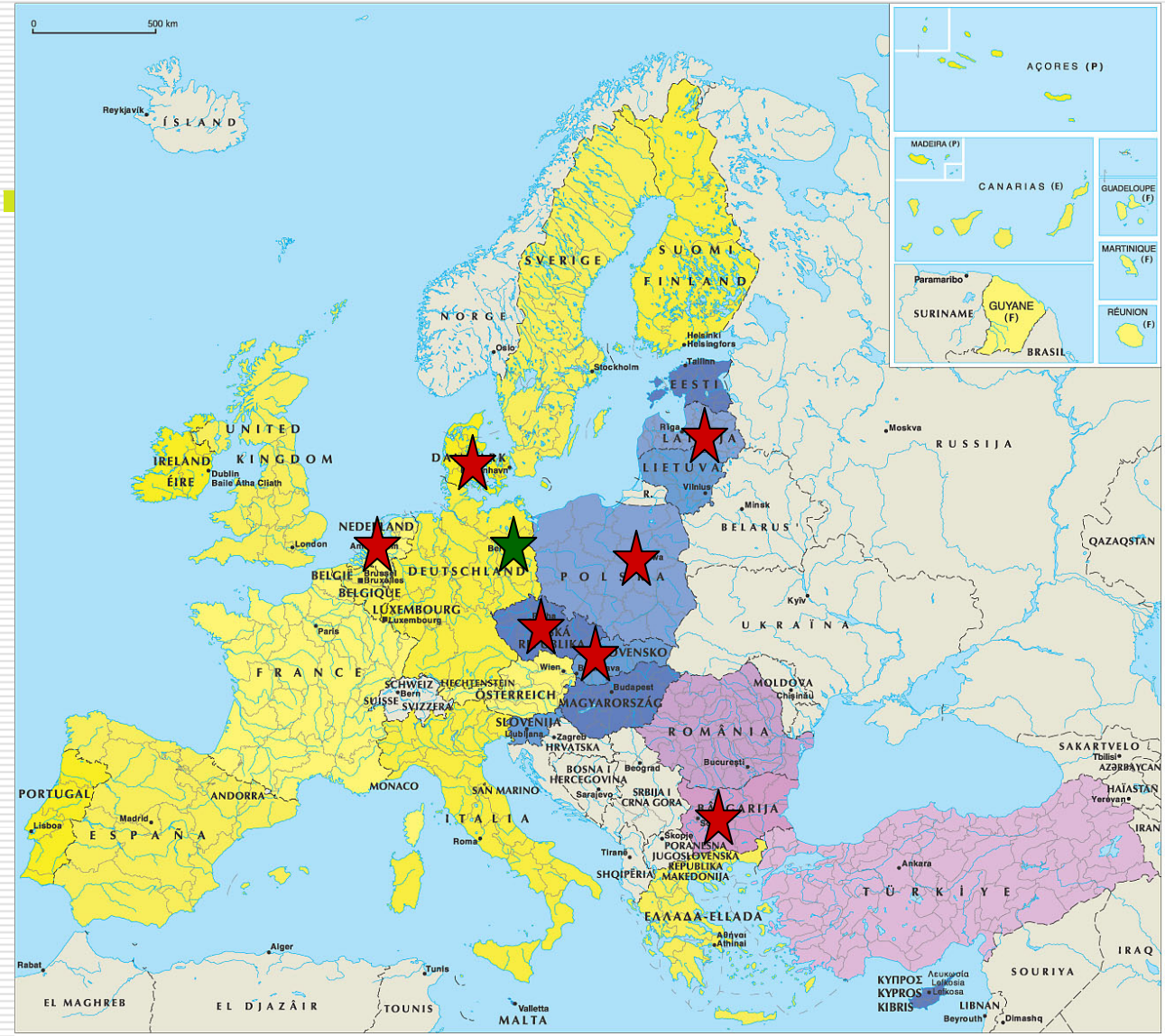
On behalf of the InoFin-Team

InoFin
Tailored Financing Schemes for Social Housing Refurbishment

Intelligent Energy Europe

CEBra
Centrum für Energietechnologie Brandenburg

well spread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MADEIRA (P)
CANARIAS (E)
GUADELOUPE (F)
MARTINIQUE (F)
RÉUNION (F)
Paramaribo
SURINAME
GUYANE (F)
BRASIL
Reykjavik
ÍSLAND
SVERIGE
SUOMI FINLAND
NORGE
Oslo
Stockholm
Helsinki
Helsingfors
Tallinn
EESTI
Riga
LIETUVA
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AZƏRBAYCAN
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Yerevan
IRAN
BOSNA I HERCEGOVINA
Sarajevo
Beograd
SRBIJA I CRNA GORA
PORANEŠNA JUGOSLOVENSKA REPUBLIKA MAKEDONIJA
Skopje
Tirana
SHQIPËRIA
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Lisboa
Madrid
ESPAÑA
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SAN MARINO
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ΕΛΛΑΔΑ-ELLADA
Athinai
Αθήναι
Alger
Rabat
Tunis
EL MAGHREB
EL DJAZAÏR
TOUNIS
Valletta
MALTA
ΚΥΠΡΟΣ
KYPROS
KIBRIS
Λευκωσία
Lefkosia
Lefkoşa
LIBNAN
Beyrouth
Dimashq
SOURIYA
IRAQ

InoFin Team

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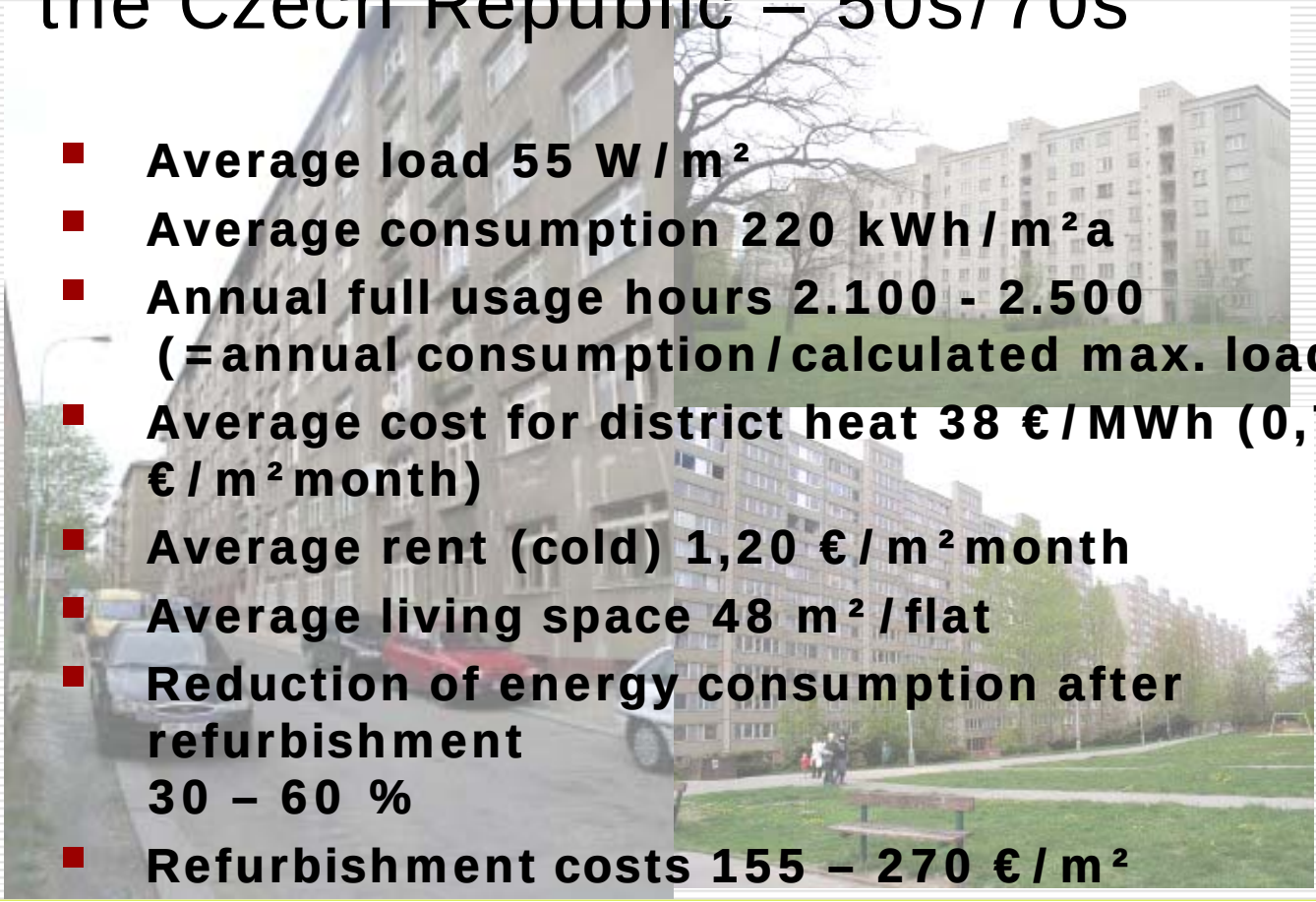
(2) ECNet - Energy consulting network Aps, Denmark
(3) ENVIROS, s.r.o., Czech Republic
(4) ECN – Energy research Centre of the Netherlands
(5) SEC – Sofia Energy Centre, Bulgaria
(6) Ekodoma, Latvia
(7) ECB – Energy Centre Bratislava, Slovakia
(8) NAPE – Nat. Energy conservation agency, Poland

Brandenburg – typical building with 50 flats

- **Average load 70 W/m²**
- **Average consumption 160kWh/m²a**
- **Annual full usage hours 2.100-2.500**
  (=annual consumption/calculated max. load)
- **Average cost for district heat**
  60€/MWh (0,80 €/m²month)
- **Average rent (cold) 3,20 €/m²month**
- **Average living space 60 m²/flat**
- **Reduction of energy consumption after refurbishment 40%**
- **Refurbishment costs 700 – 800 €/m²**

Typical residential building in the Czech Republic – 50s/70s



- **Average load 55 W/m²**
- **Average consumption 220 kWh/m²a**
- **Annual full usage hours 2.100 - 2.500 (=annual consumption/calculated max. load)**
- **Average cost for district heat 38 €/MWh (0,70 €/m²month)**
- **Average rent (cold) 1,20 €/m²month**
- **Average living space 48 m²/flat**
- **Reduction of energy consumption after refurbishment 30 – 60 %**
- **Refurbishment costs 155 – 270 €/m²**

Poland – typical building with 50 flats

- **Average load 100 W/m²**
- **Average consumption 300 kWh/m²a**
- **Annual full usage hours 2.100-2.500 (=annual consumption/calculated max. load)**
- **Average cost for district heat 90 €/MWh (0,80 €/m²month)**
- **Average rent (cold) 0,20 €/m²month**
- **Average living space 43 m²/flat**
- **Reduction of energy consumption after refurbishment 43%**
- **Refurbishment costs 50 – 200 €/m²**

Energy costs in €/MWh

	BG	CZ	LV	Sk	Pl
DH	28	44	32	44	35
Nat G.	34	34	21	29	32
Oil	97	44	36	41	68
Coal	12	13	8	17	25
Wood	10	11	9	9	15
Elektr	75	38	62	42	

- 7 Mio dwellings in Poland **(230 kWh/m², 100 Mio MWh, 35 €/MWh, 3.6 bn €)**
- 1.2 Mio dwellings in Czech Republic **(200, 15, 39, 0.6)**
- 0.8 Mio dwellings in Slovakia **(170, 11, 34, 0.38)**
- 0.7 Mio dwellings in Bulgaria **(180, 8, 27, 0.2)**
- 0.4 Mio dwellings in Latvia **(150, 4, 26, 0.1)**

In Poland 2 bn € could be invested in welfare, economic growth, etc instead of dissipating them to the environment if 18.2 bn € (40 €/m²) could be spent

Objectives (1)

- **contribute to increasing the energy efficiency in social housing by at least 30 % on average,**
- **contributing to an overall reduction of about 5 % in EU energy use,**
- **main beneficiaries being the inhabitants of social housing**
- **missing innovations in financing refurbishment projects is one of the biggest obstacles to reach EU targets.**
- **East European partners from Czech Republic, Poland, Latvia, Bulgaria and Slovak Republic joint forces with West European partners from advanced countries like the Netherlands and Denmark to develop innovative Tailored Financing Schemes.**

Financing Schemes

- Grants
- Privatisation
- Performance Contracting, Third Party Financing
- Commercial loans
- Soft loans
- Energy Service Companies (ESCO's)
- Investment Funds for Energy Efficiency and Renewable Energy Sources, in particular for small-scale investments e.g. as revolving funds
- Structural funds
- Public participation models with citizens holding shares of RES or RUE investments
- Competition models e.g. between
  - Voluntary Agreements for "green energy" (RES, energy efficiency in buildings, transport and industry)
  - Procurement schemes for RUE and RES investments in buildings, industry and transport

Expected results

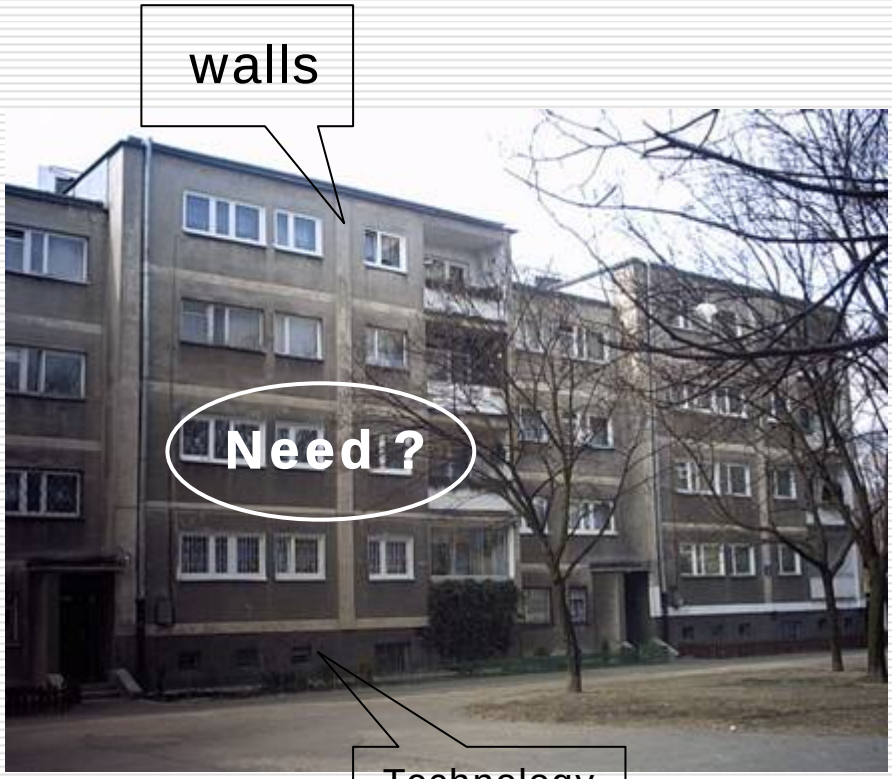
- **Working financing schemes**
- **As all organizations are closely related to their government bodies the InoFin project is highly welcome to foster the implementation of the Building Directive by recommendations on adjustment of the national implementing rules.**
- **The InoFin-Team would be glad to remove a crucial barrier mainly from Eastern European markets on building refurbishment supporting job creation in the building industry and faster realization of the member countries obligation to reduce carbon dioxide emissions.**

Work packages

(1) Project management and reporting (CEBra)
(2) Situation in financing social housing refurbishment (ECN)
(3) Design of financing schemes tailored to refurbishment of social housing (ECNet)
(4) Testing tailored financing schemes on various types of projects (SEC)
(5) Design of necessary adjustments to the legal and institutional framework (ECB)
(6) Specific dissemination activities (CEBra)
(7) Common dissemination activities (CEBra)

principally speaking

Seal and insulate!



Fresh air

control!

heat

Used air

exploit!

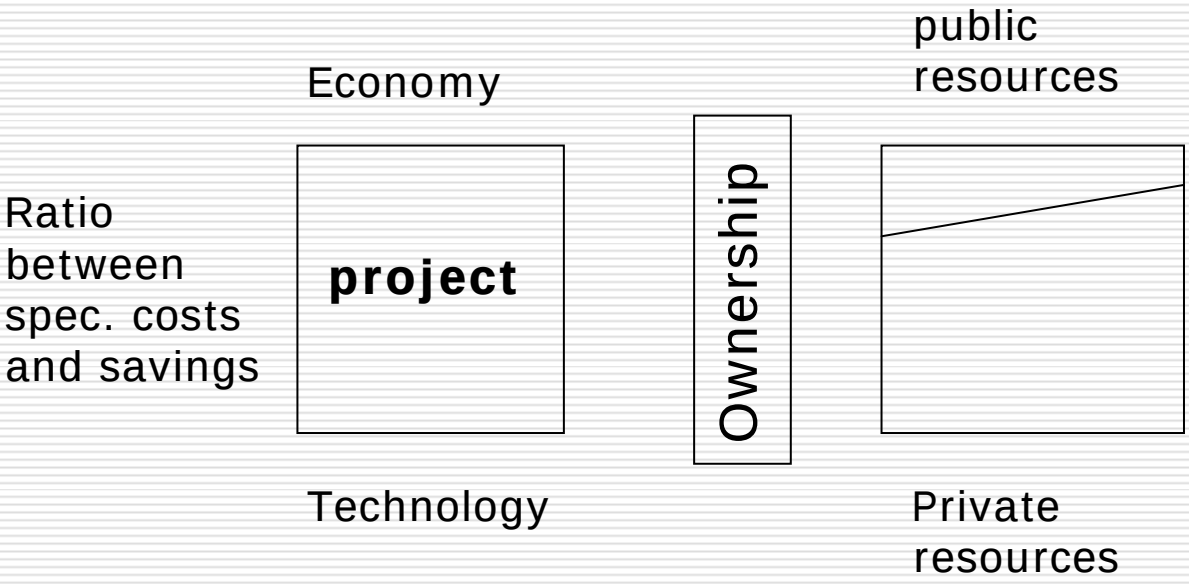
Transmission

reduce!

substitute!

optimize!

Principles found so far



Public Responsibility — Who should do what? — private initiative

Polish Thermo-Renovation Fund

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

- Main sources of financing come from State budget
- The initial capital - 1,25 million €; the current sources of financing allocated to the Fund are equal to 40 million €
- Year by year amount and number of extended bonuses are increasing:

In 2002	3 260 000 €	286 bonuses
In 2003	7 576 000 €	668 bonuses
In 2004	14 638 000 €	1 152 bonuses
In 2005	28 934 000 €	1 947 bonuses
In 2006	26 538 000 €	1 706 bonuses

- By the end of May 2006, 6 222 bonuses were extended to the total amount of 83,1 million €
- For year 2007 there is amount of 64,0 million € planned

One open Question

- Estimation of needed resources says about 630 Mio EURO when the goals of the system have to be achieved. It means annually 157 Mio Euro during next 4 years. The state plan for next year is just 64 Mio Euro. Since the co-financing of the measures in multifamily buildings by the EU structural fund won't be available in wide range, the needed resources will be to highest probability mobilized by the state budget.
- There is still an open question, how to finance the thermomodernisation of remaining part of housing constructed 1945-1988 e.g. app. 570,000 buildings with 7 Mio dwellings defined for the InoFin project as a target group.

Municipal support with non-interest loan

Valmiera city council provides non-interest loans for dwelling buildings to improve energy efficiency:

- Max. amount of loan is 7,000 EUR
- max length of loan is 3 years
- payback time of energy efficiency measures <4 years.

This is financed from Privatisation funds of municipality.

European Structural funds

Latvian government has taken decision that ~ 43 million EUR from EU structural funds for 2007-2013 will be allocated to energy efficiency projects in housing sector.

This money will cover co-financing costs for

- ~570 buildings assuming that
- co-financing from EU </=75%
- total refurbishment costs </=100,000 EUR per building

Green Investment Scheme (GIS)

WB has been requested by the Government of Latvia to carry out an analysis of options for trading Latvia's surplus Assigned Amount Units (AAU) pursuant to Art.17 of the Kyoto Protocol to the UNFCCC – incl. options for the structuring of pilot Art.17 transactions and options for investing the revenues from such transactions through a Green Investment Scheme.

The money from trade of AAUs is planned to invest in renewable resources projects and energy efficiency projects.

Actors involved

- Latvian government
- Financing of GIS
  - WB, EBRD, ???
  - consulting institutions
- Commercial banks
- Energy auditors
- Home owner association/condominiums
- Agreement about EE measures
- Energy manager for monitoring
- Verificators

Economic / risk barriers

GIS is planning to provide up to 40% of eligible costs for energy efficiency projects. This will reduce overall costs and will bring better conditions for loan from commercial bank.

Portfolio of buildings has to be prepared to packaged project in acceptable size.

Organizational barriers

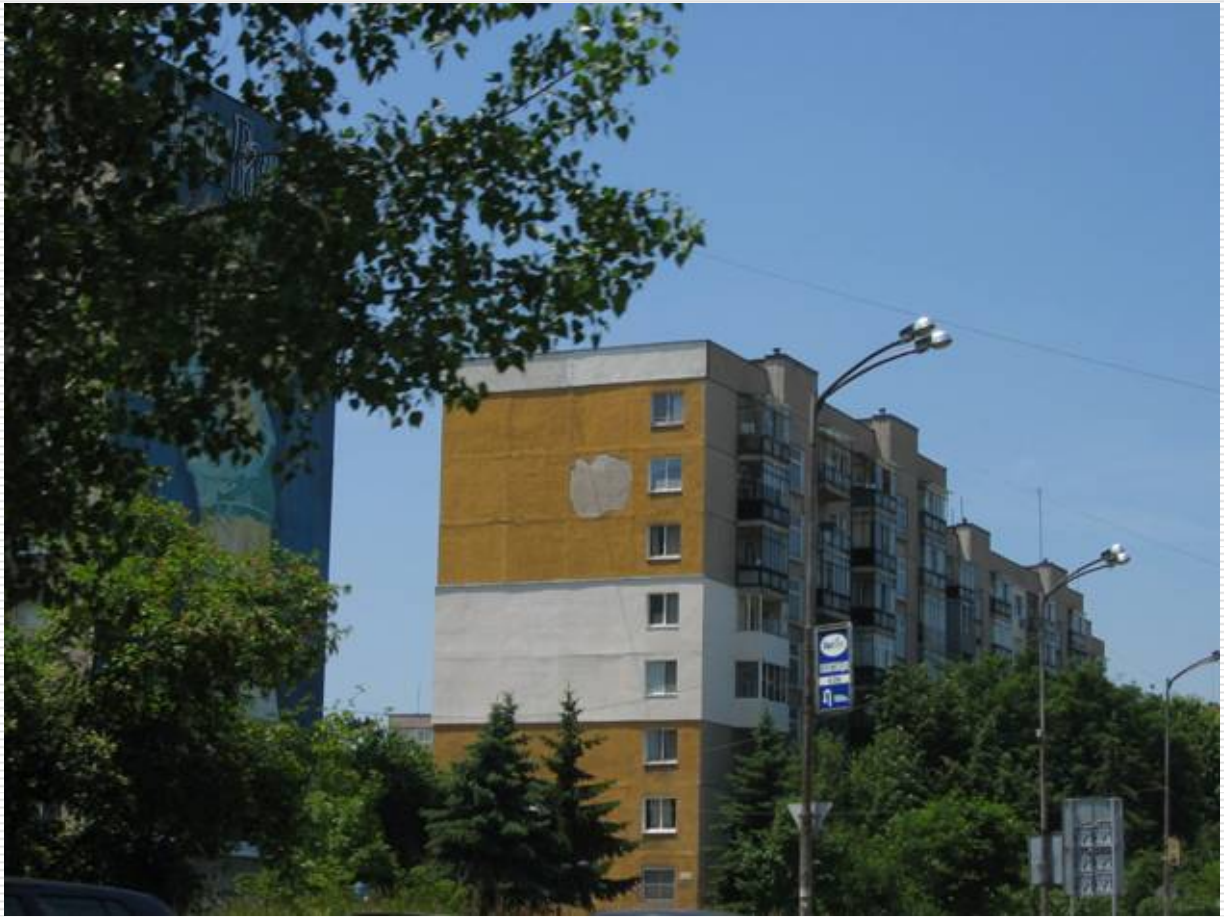
It is not clear about those buildings, which are connected to DH system which is participating in EC ETS scheme. In this case of reduction of energy consumption in buildings DH company will sell allowances.

The Residential Energy Efficiency Credit Line

EBRD extend loans to 4 private Bulgarian banks for on-lending to the residential sector for improvement in energy efficiency both in blocks of flats and individual houses.

Eligible sub-projects include the following energy efficiency improvement:

- **Energy efficient windows;**
- **Thermal insulation on walls, roofs, slabs;**
- **Efficient biomass boilers;**
- **Solar water heaters;**
- **Efficient gas boilers.**



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Thank you !

Hope to get in touch for technology transfer and promotion

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Legal structure of “owner”

- **Poland**
- **Czech Republic**
- **Slovakia**
- **Brandenburg**
- **Bulgaria**
- **Latvia**