



wbg

wbg Nürnberg GmbH
Immobilienunternehmen

NAG

Nürnberger
Aufbaugesellschaft mbH

FWG

Fränkische Wohnungsbau-
gesellschaft mbH

NORIMA

Immobilien
Dienstleistungen GmbH

Ecological Efficient Rebalitation of Residential Buildings

- Activities of WBG Nürnberg GmbH
for energetic modernisation
in the housing stock

08.11.2006,
Θεσσαλονίκη

Dipl.-Betriebsw. Peter H. Richter
Director of wbg Nürnberg GmbH

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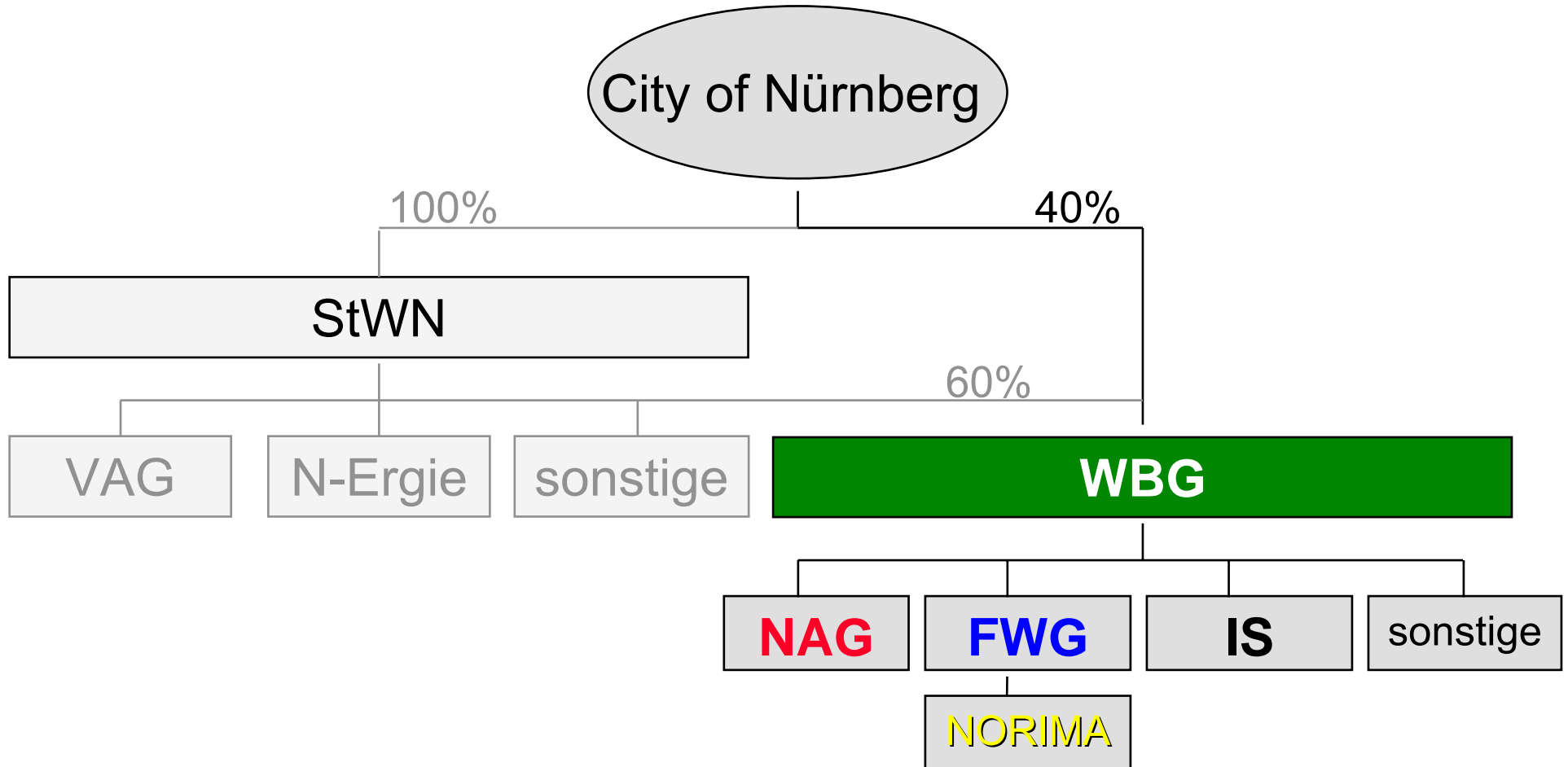
- WBG Nürnberg – The Housing Company
- Trends, Figures and Facts
- Our Vision
- Presentation of our rehabilitation projects
- Economic check of our rehabilitation projects (example)
- Economic and ecologic efficiency of the measures, Proposal:
“Ecological Part”
- Further measures of WBG for Energy-Saving
- Conclusion

Wir gestalten LebensRäume

WBG Nürnberg Gruppe

WBG Nürnberg Group

- The Structure of our Company



Wir gestalten LebensRäume

WBG Nürnberg Gruppe

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WBG Nürnberg Group

- Figures 2005

Turnover	93,4 Mio. €	Staff	~ 200
Balance	~ 506 Mio. €	Administered Housing Stock	~ 26.400
EBIT	17,2 Mio. €	(Rental dwellings : 18.213 units)	
Own Capital	101,2 Mio. €		

Datenstand Jahresabschluss 2005



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WBG Nürnberg Group

- Activities and Fields of Business

- Rental Housing Management
- Management of Commercial Units
- Management of other Units
- Urban Renewal
- Planning and Development
- Developer of Projects
- Services connected with Housing and Real Estate
- Management of free hold flats
- Administration of Housing for third parties
- Services of Insurance



Wir gestalten LebensRäume

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WBG Nürnberg Group

- Our Philosophy

We are the leading Housing Company Group in the Region. It is our Task to design

the *Olybqj#V sdfhv* of People.

- + Problem Solving for municipal Housing Policy and social Mission
- + Economically acting Company: Capable, modern and independent
- + Demonstrate ecological Responsibility



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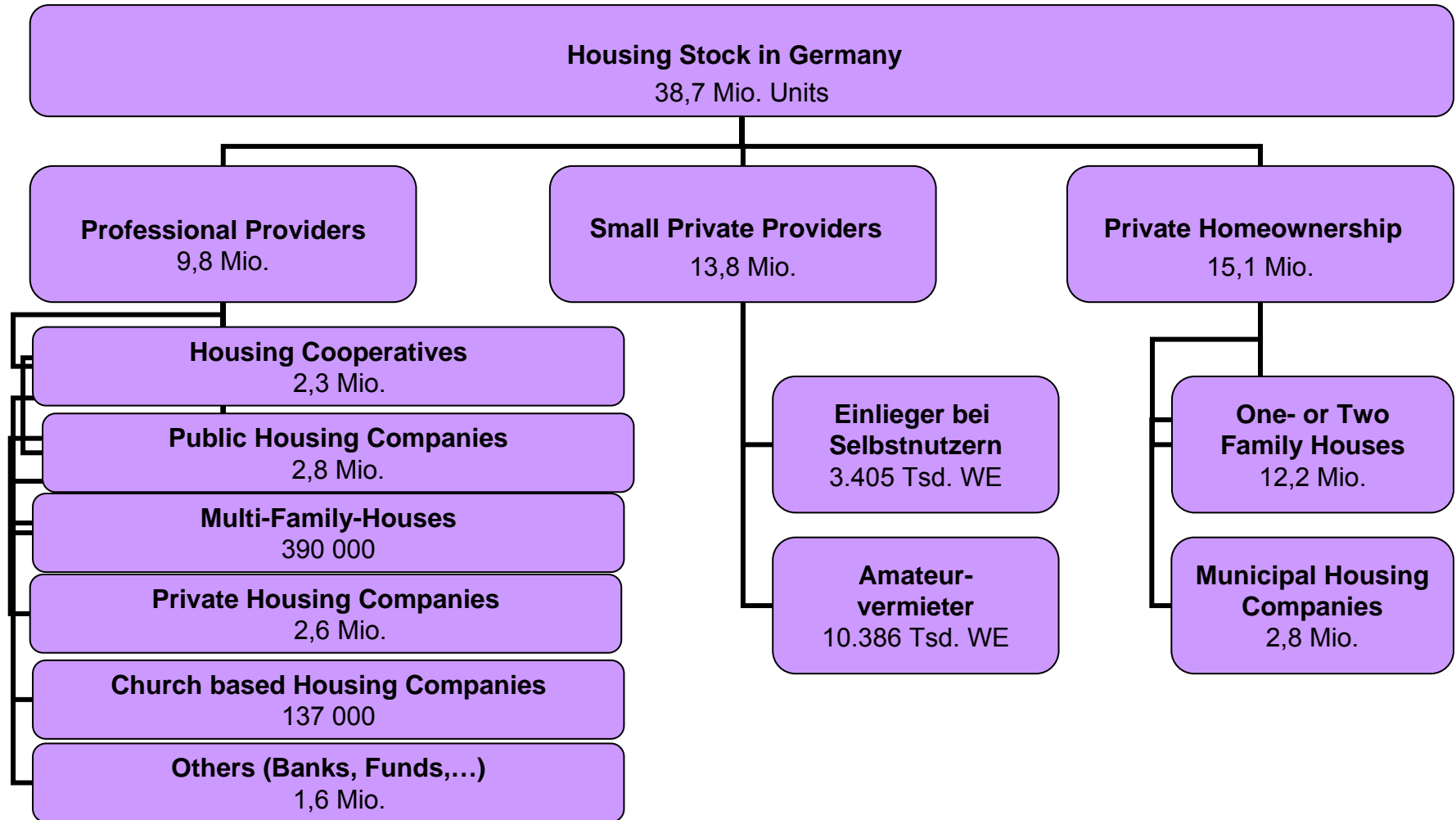
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Trends, Figures and Facts

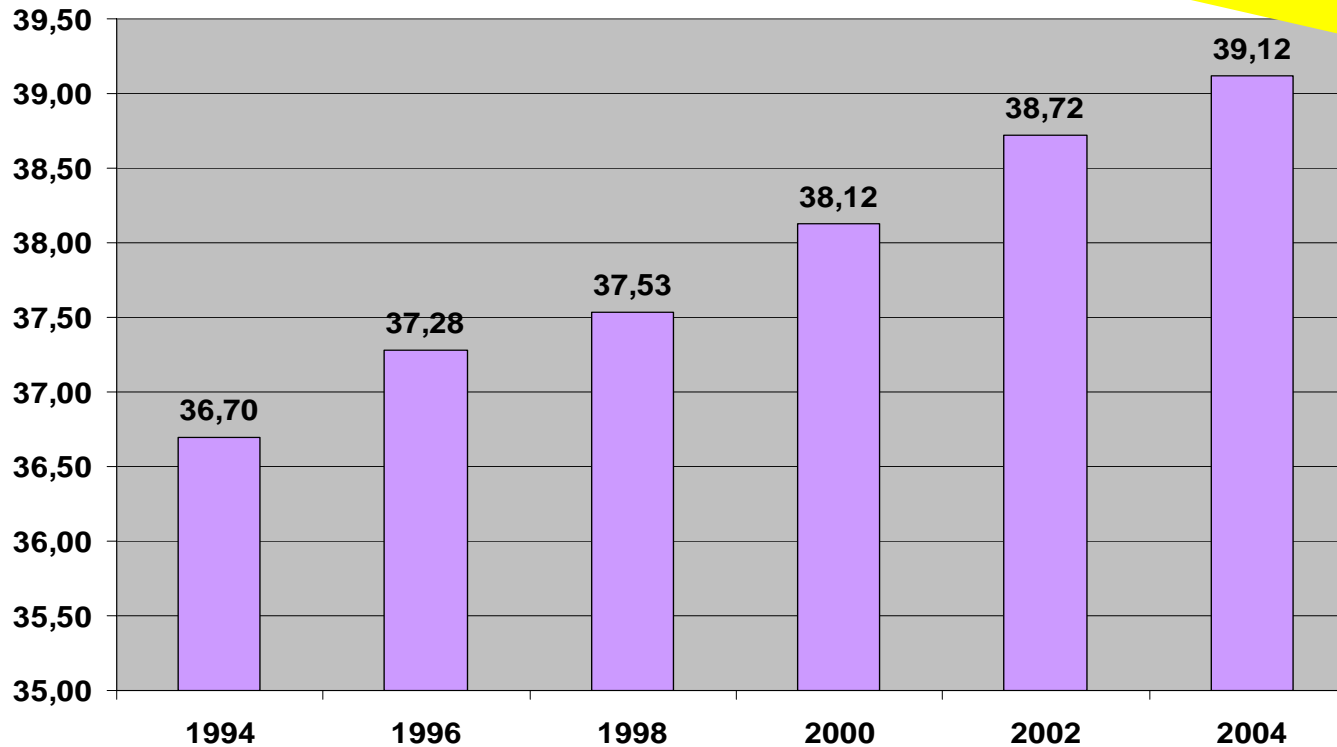


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Trends, Figures and Facts

The Percentage of private Households in Germany will increase until 2015

Number of private Households in the Federal Republic of Germany



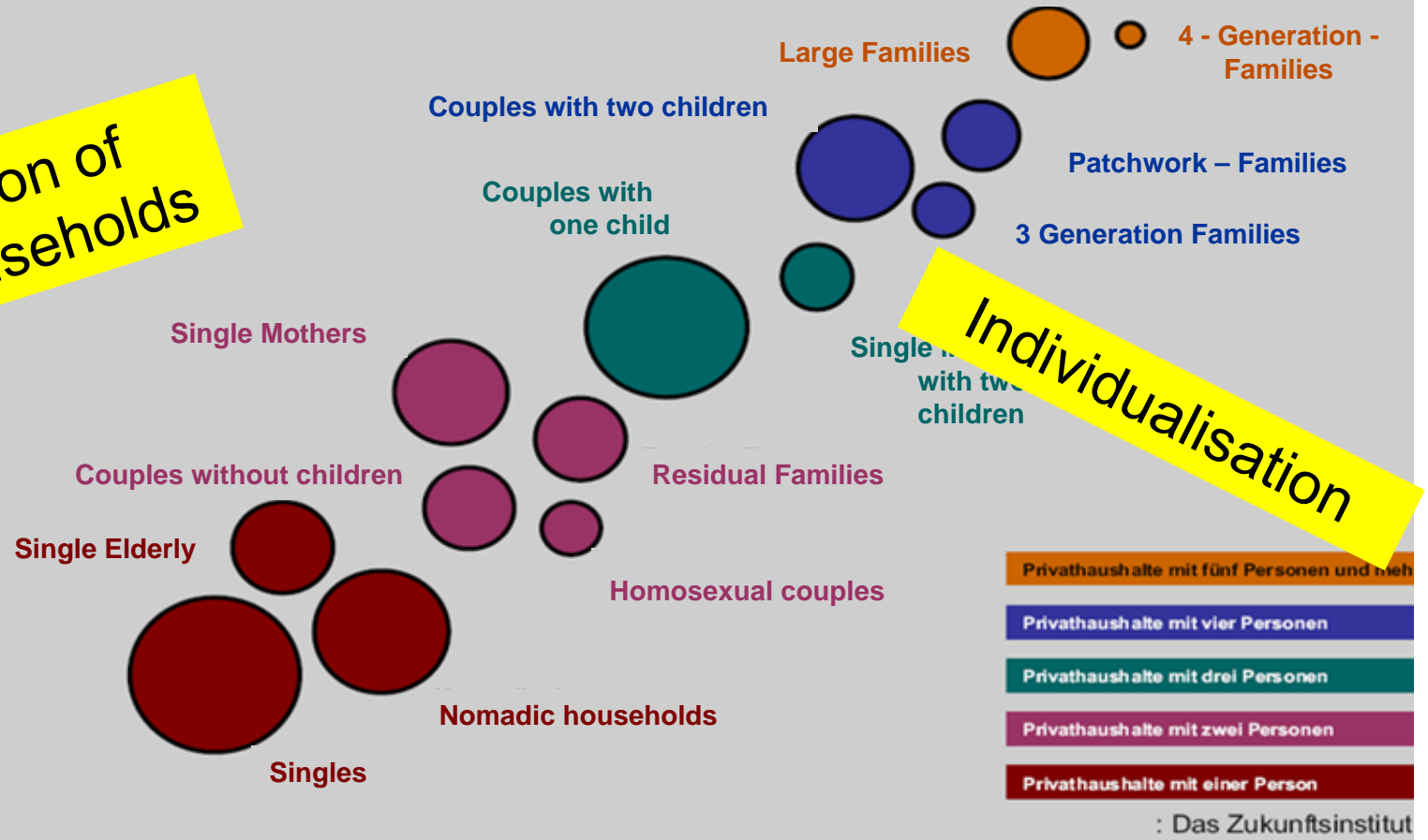
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Trends, Figures and Facts

Households 2010 : The Multi – Family

Differentiation of Types of Households



Individualisation

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If we calculate 81 Mio Inhabitants with
40 Square Meters Living Space in Germany,

(Basis: 81 Mio. Inhabitants x 40 m² Living Space)

Then we have 3,25 Billion Square Meters Living
Space with a Consumption of

51,5 Billion Liters Fuel Oil per Heating Period

(Basis: 15,91 Liters Fuel Oil / Square Meters per Year

Assumption based on Techem-Study 2003/2004 in 133 german cities)

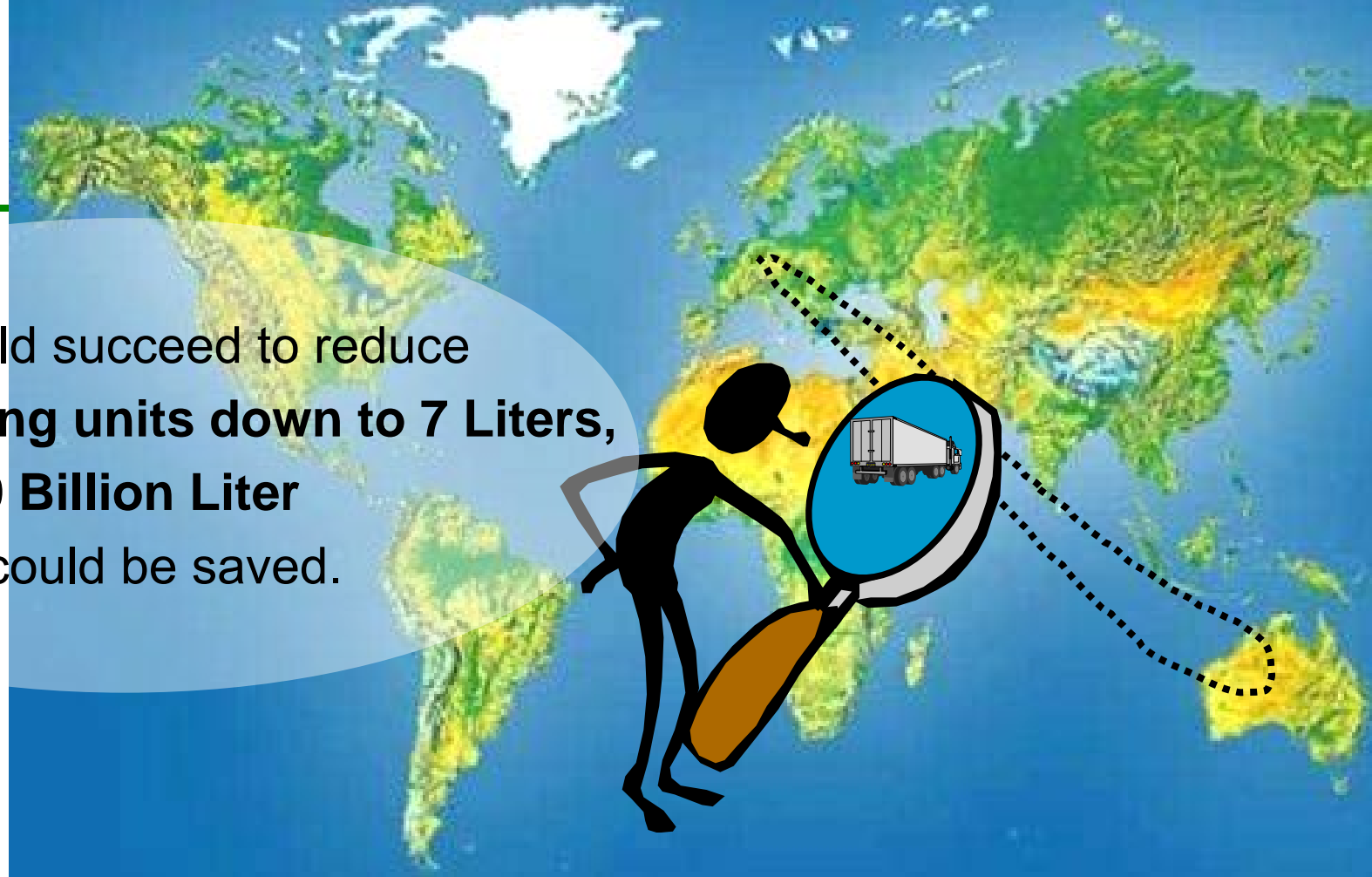


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If we would succeed to reduce
all dwelling units down to 7 Liters,
nearly 30 Billion Liter
Fuel Oil could be saved.



This would mean 1,2 Mio Trucks with 25 tons in a line of **24.000 km.**

.....

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- Our Vision

Until 2012 we want
to achieve a standard
of a **7 – liter - house**
in our stock



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Ecological and efficient Model Projects

	Saved Heating Power In kWh per Year
• Modernisation St. Johannis (7 Liter-Standard , 1.005 Units, 2000-2004)	8.077.000
• Rehabilitation Ingolstädter Str. 131-137 (6 Liter-Standard , 24 Units, 2003)	227.000
• Rehabilitation Eythstr. 31-51, Hansastr. 24-58 (5 Liter-Standard , 95 Units, 2001 u. 2003)	1.026.000
• Rehabilitation Ingolstädter Str. 139/141 (4 Liter-Standard , 12 Units, 2004)	149.000
• Modernisation Jean-Paul-Platz 4 (3 Liter-Standard , 6 Units, 2004)	159.000

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Ecological and efficient Model Projects

	Saved Heating Power In kWh per Year
• Rehabilitation Nordost-Train Station (379 Units, 1989 - 2006)	3.175.000
• Further Rehabilitation Works (371 Units, 1989 - 2006)	3.287.000
• Further Measures of Rehabilitation Combined with Insulation (1.370 Units, 1989 - 2006)	4.000.000



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Result of Rehabilitation Projects

Saved Heating Power

In 3.262 Units total **20.100.000** kWh / Year

Corresponds to

Saved Fuel Oil around 2.010.000 Liter / Year

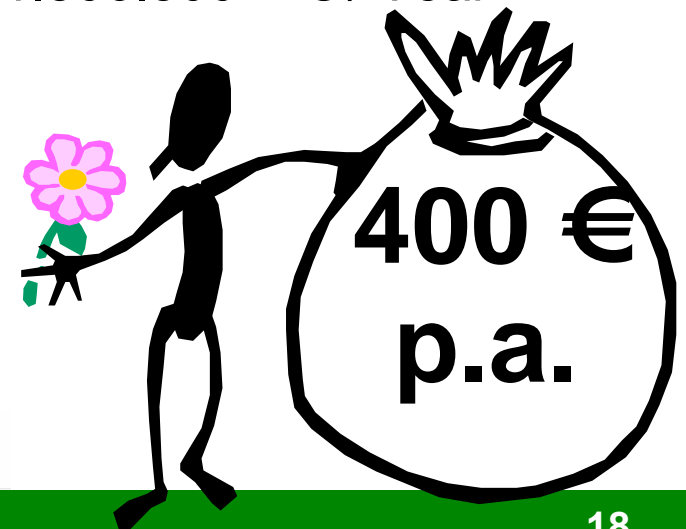
Corresponds to

Saved Heating Costs in 2006 around 1.306.500 € / Year

(Prize: 0,65 Euro/Liter incl. VAT)

Corresponds to

Saved Heating Costs per Unit of around



Wir gestalten LebensRäume

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aktuelle Modellprojekte

Modernisation St. Johannis (7 / Liter-Standard)

Short Description:

Modernisation of 1.005 Units
(Occupied and Ensemble Protection respected)



Measures taken:

- Ecological rehabilitation according to classification as a historical building
(Complete Insulation, New Windows, Roof Rehabilitation)
- Long Distance Heating combined with Power Heating, Interphone and Mailbox
- Balconies, new design of environment
- other measures following tenants' needs



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aktuelle Modellprojekte

Modernisation St. Johannis

Building Costs:

- nearly 33,75 Mio. €
- (500,--Euro/Square Meter)



Results:

- Low Energy Consumption Standard (7 Liter-Standard EnEV)
- Favourable Financing Conditions (KfW-Loans)
- Up-Grading of the whole Area
- Improvement of the Housing Value
Better Housing Standard,
Ensuring Sustainability



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aktuelle Modellprojekte

Rehabilitation Ingolstädter Str. 131-137 (6-Liter Standard)

Short Description:

Construction Year: 1952

Change of the Building after becoming vacant 24 Units



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aktuelle Modellprojekte

Rehabilitation Ingolstädter Str. 131-137

Measures taken:

- Check and improvement of all electric connections, windows, walls
- Central Hot Water supply
- Balconies

Construction

Costs per Square Meter Living Space: 931 Euro

Results:

- Low Energy standard (6 Liter – Standard EnEV)
- Improved Living Standard, Ensuring Sustainability

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aktuelle Modellprojekte

Rehabilitation Eythstr., Schweinau (5 Liter-Standard)

Short Description:

Energetic rehabilitation of 95 Units
(Constr.Year 1939/40)
and new construction of 12 units

Measures taken:

Reduction of energy consumption by 70% through:

- new heating and ventilation system
- use of long distance-heating combined with Energy Power System
- 10 cm external insulation



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aktuelle Modellprojekte

Rehabilitation Eythstr., Schweinau (5 Liter Standard)

Construction Costs:

- Nearly 2,53 Mio Euro
- (means: 1.115,--Euro/Square Meter)

Results:

- Low Energy Standard (5 Liter Standard EnEV)
- Favourable Financing Conditions
- Improved Living Quality (Balcony)
- Ensured Sustainability through up-dated equipment



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aktuelle Modellprojekte

Rehabilitation Ingolstädter Str. 139-141 (4 Liter – Standard)

Short Description:

- Construction Year 1952
- small units with unfavourable ground plans
- in **total 24 housing units (please remember!)**
with 860 square meters living space

Measures taken:

For ensured sustainable leasing:

- new **heating**, ventilation with double use of heating
- 20 cm insulation of **facades**, new **windows**
- 25 cm insulation of **attic floor**
- insulation of **cellar** ceiling
- added **balconies**



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aktuelle Modellprojekte

Rehabilitation Ingolstädter Str. 139-141

Construction Costs:

- 1.055 Euro per Square Meter Living Space
- Included additional costs for passive house – component: nearly 120,-- Euro/square meter

Results:

- Low Energy Standard
(nearly 4 Liter – Standard EnEV)
- Improved Living Quality (Balcony)
- Ensured Sustainability through modern equipment

Vier-Liter-Haus
Die Wohnungsbaugesellschaft (wbg) hat für 1,5 Mio. Euro Häuser in der Ingolstädter Straße zu echten Energie-Sparbüchsen umgebaut: Diese Gebäude verbrauchen weniger als vier Liter Heizöl pro qm und Jahr!

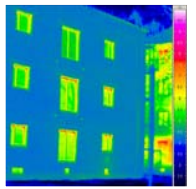


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aktuelle Modellprojekte

Rehabilitation Jean-Paul Platz (3 Liter Standard WSVO)



Short Description:

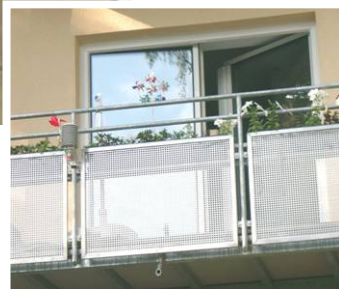
Modernisation of 6 big dwellings (occupied units)

Construction Year: 1930

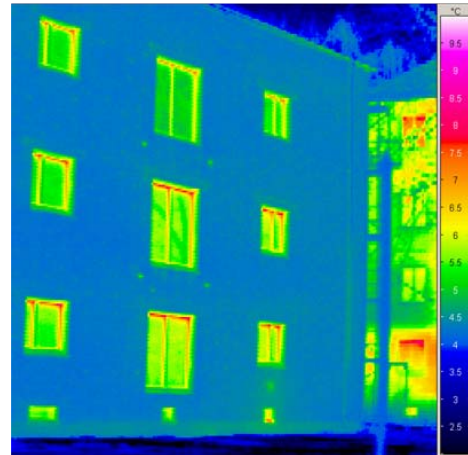
Measures taken:



„Blower-Door-Tests“



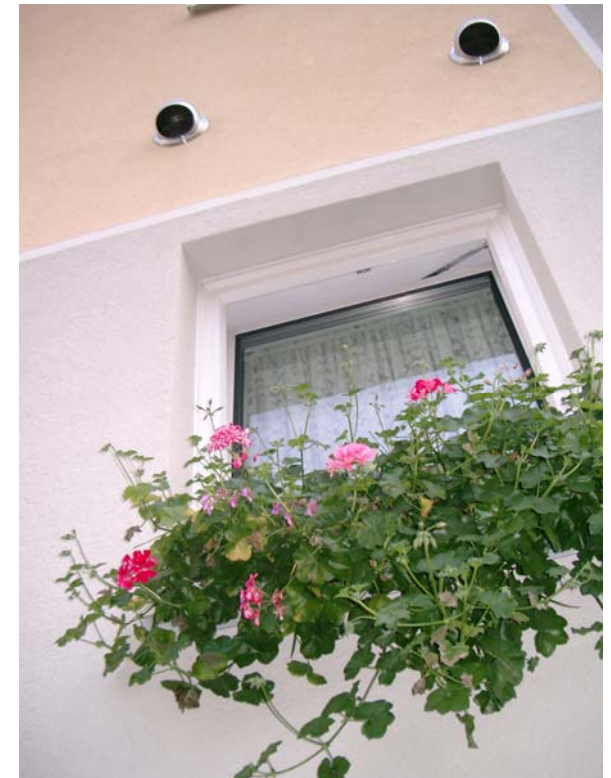
Balconies



Thermographic measures

Wir gestalten LebensRäume

Ventilation systems with
double heating use



Plastic window frames
(0,8W/square meter K)

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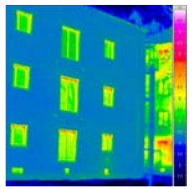
Wir gestalten LebensRäume

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Modernisation Jean-Paul-Platz 4 (3 Liter-Standard WSVO)



Short Description:

Modernisation of 6 big dwellings (occupied)
(Construction Year : 1930)

Ventilation systems with double heating use

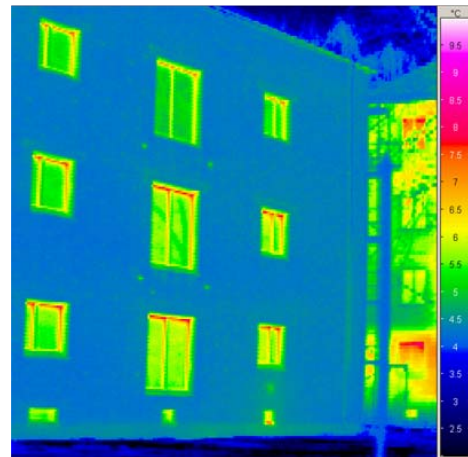
Measures taken:



„Blower-Door-Tests“



Balconies



Thermographic Measures



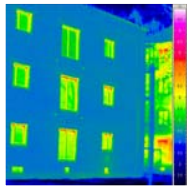
Plastic Window Frames

Wir gestalten LebensRäume

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Modernisation Jean-Paul-Platz 4 (3 Liter-Standard WSVO)

Economic justification: Construction Costs



Total Costs	623.000 €
(Included scientific studies	72.000 €
Not included : Change of dwelling, developing	25.000 €)

Distribution of Rent:

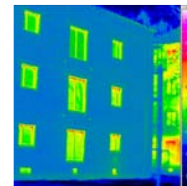
For Rehabilitation:	509.450 €
For Maintenance:	<u>113.550 €</u>
Total:	623.000 €

Constr. Costs per square meter living space:	503 €
Included additional costs for passive house:	ca.100 €

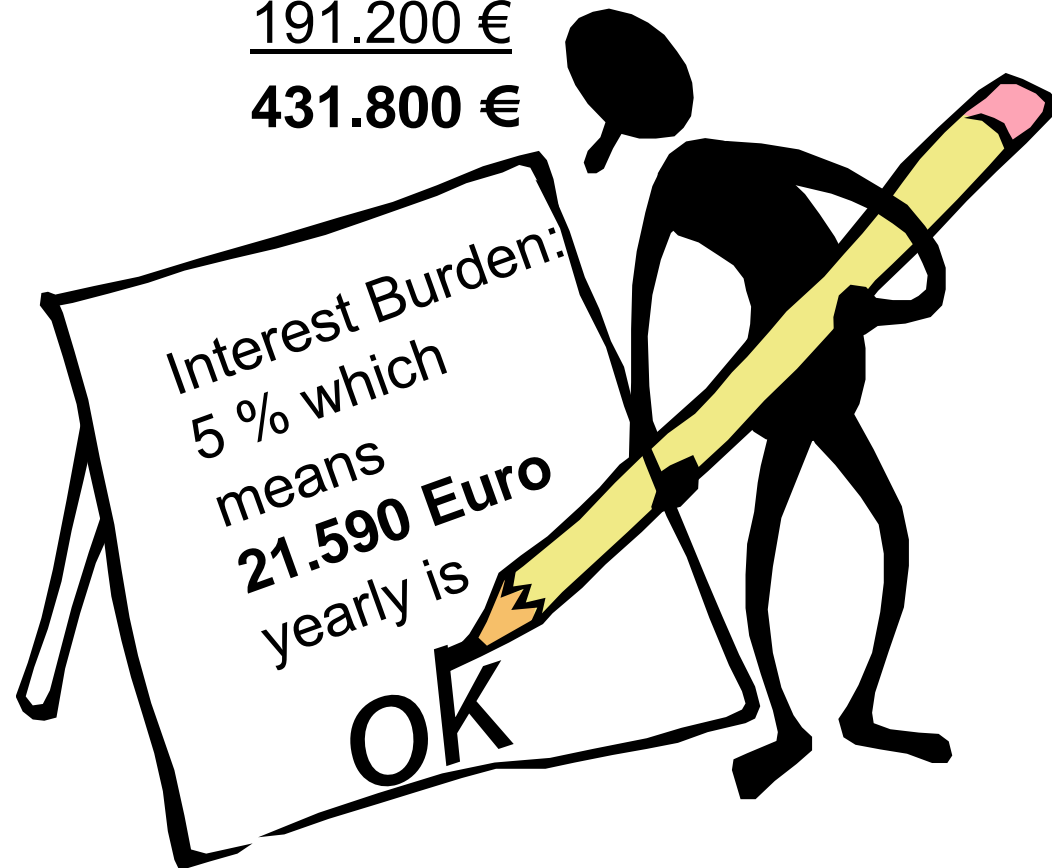
Wir gestalten LebensRäume

Modernisation Jean-Paul-Platz 4 (3 Liter-Standard WSVO)

Economic justification: Construction Costs



Total Costs	623.000 €
./. Subsidy EU Target 2 – Funds	<u>191.200 €</u>
Remaining amount	431.800 €

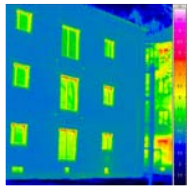


Wir gestalten LebensRäume

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Modernisation Jean-Paul-Platz 4 (3 Liter-Standard WSV0)

Economic justification: Construction Costs



Net Rent (before Modernisation) 2,35 € / per Square Meter / Month

Rent Table (cold) 6,05 € / per Square Meter / Month

(According to the rent table Nürnberg 2004)

The **rent have been fixed** in the following way:

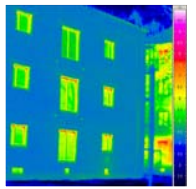
Rent per Month and Square Meter

	<i>Cold</i>	Warm	Increase
Tenants before renovation took place	4,26	5,61	1,35
New Tenants in 2003	4,93	6,28	-
New tenants starting 1.3.2005	6,05	7,40	-

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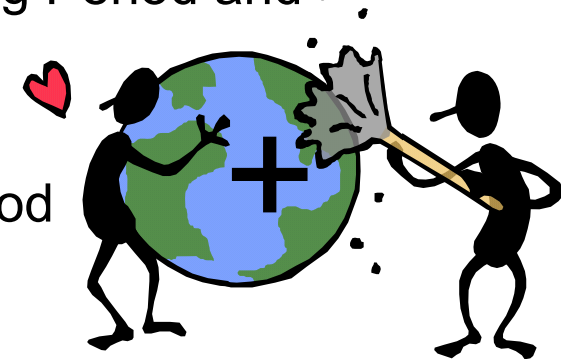
Modernisation Jean-Paul-Platz 4 (3 Liter Standard WSVO)

Economic Calculation: Heating Costs:

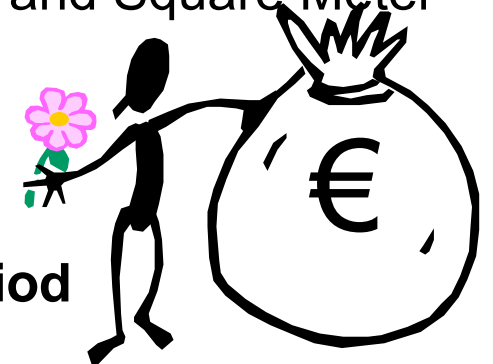


Economic Calculation: Heating Costs:

Living Space: 150 Square Meters
Consumption of Fuel Oil: **Nearly 20 Liters** per Heating Period and .
Square Meter
Price for Fuel Oil: 0,65 €
Heating Costs: 1.950,00 € per Heating Period



Living Space: 150 Square Meters
Consumption of Fuel Oil: **3,0 Liter** per Heating Period and Square Meter
Price for Fuel Oil: 0,65 €
Heating Costs: 292,50 € per Heating Period



Saved for the Tenant: 1.657,50 € per Heating Period

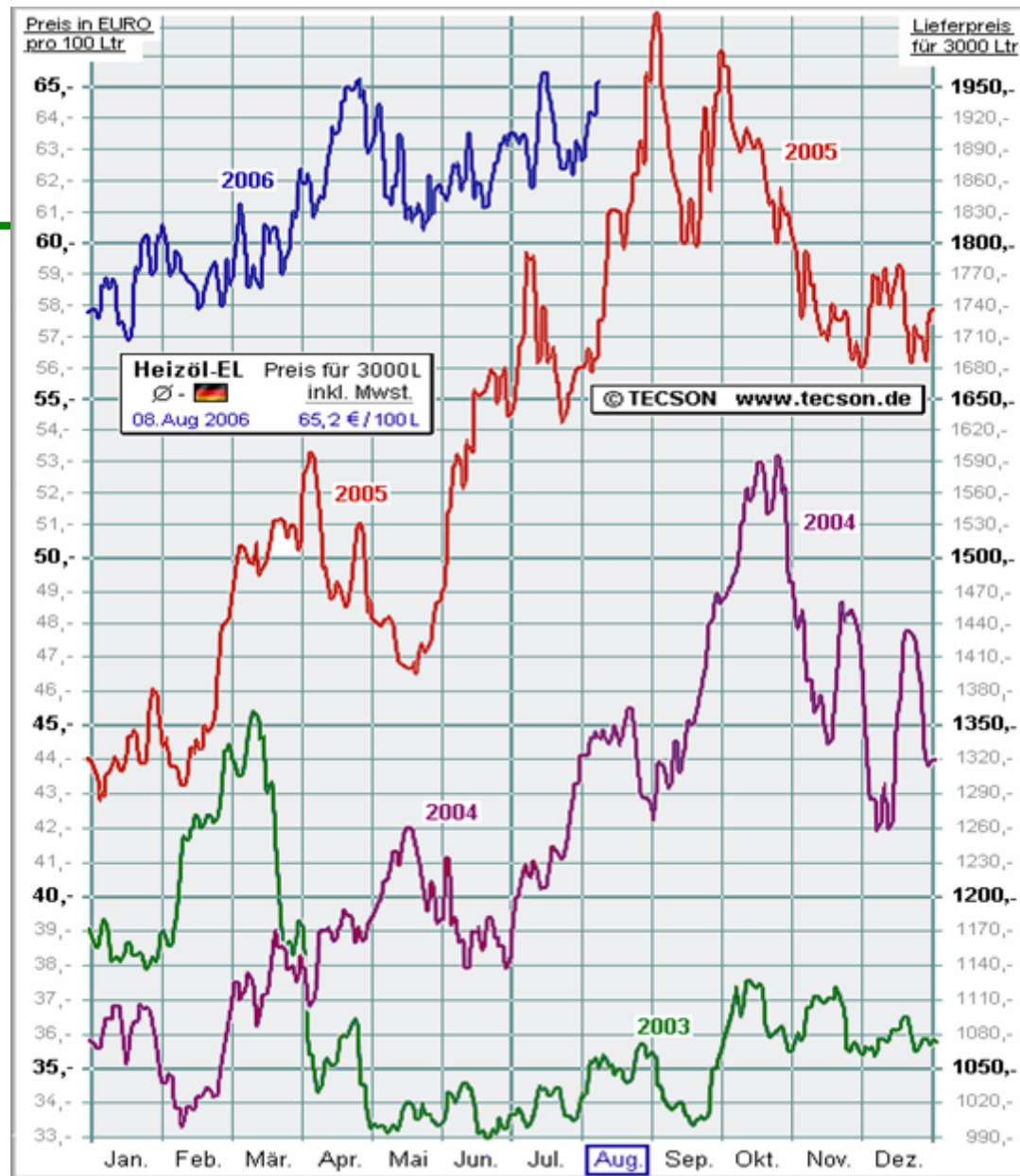
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The Price for Fuel Oil is increasing...

...and the saving in comparison with a non-rehabilitated dwelling is increasing for the tenant in a rehabilitated dwelling !

But is the investment also worthwhile for the landlord?

Quelle:
aktueller, durchschnittlicher Preis pro Liter inkl. MwSt. bei 3000 Liter Abnahme für Heizöl EL nach DIN 51603-1 mit max. Schwefelgehalt von 0,2%, Stand Aug. 2006, Quelle: www.tecson.de



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Economic Justification of ecologically efficient measures

Example: Rehabilitation Ingolstädter Str. 139-141 (4 Liter-Standard EnEV)

24 Housing Units with 860 Square Meters Living Space

Measures taken:

For securing sustainable leasing:

- **new heating**, Ventilation with double use of heat
- 20 cm insulation of **facades**, new **windows**
- 25 cm insulation of **attic floor**
- insulation of **cellar ceiling**
- New **balconies**

Construction Costs:

- Constr. Costs per Square Meter Living Space:
1.055 Euro per Square Meter
- Included additional Costs for Passive House:
Nearly **120,- Euro per Square Meter**



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Economic Justification of ecologically efficient Measures

Rent Calculation:

3,75 € per m² Rent at Present

6,32 € per m² New theoretical Rent after adaption of rent by
according Energy Supply Law EnEV

7,42 Euro per Square Meter

(2,57 € per Square Meter)

7,42 € per m² New theoretical Rent after adaptation of rent by
Modernisation measures with higher effects
than EnEV

(3,67 € per Square Meter)

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Economic Justification of ecologically efficient Measures

Win-Win-Win?

How can it be made possible, that in future more economically efficient rehabilitation measures can be realized, which go far beyond the minimum standard (EnEV)?

The optimum would be a **WIN – WIN – WIN** - Situation

for the environment,

for the tenants

and for the investor...



Economic Justification of ecologically efficient Measures

Proposal “Ecological Supplement”

The target of the ecological supplement is to **realize a rent level**, which is above the comparable table **rent for dwellings**, where measures have been taken, which **are beyond the minimum standard**, required by legal regulations. **These rent supplement can be used for the financing of additional investment for ecological improvement.**

Example: **120 Euro per square meter** ecological supplement
(Modernisation part beyond legal regulation of energy saving EnEV)

Financed by favourable loans of KfW (Interest Rate: 2,55%) there is an interest burden, which corresponds to the “Rent ecological supplement”:

0,26 € per Square Meter - This supplement is added to the rent as a constant amount.

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Economic Justification of ecologically efficient Measures

View of Tenants

The ecological supplement is a motivation for the landlord to realize modernisation measures beyond the legal requirements of Energy Saving.

From an ecological and economical point of view the application of an ecological rent supplement is correct and important.

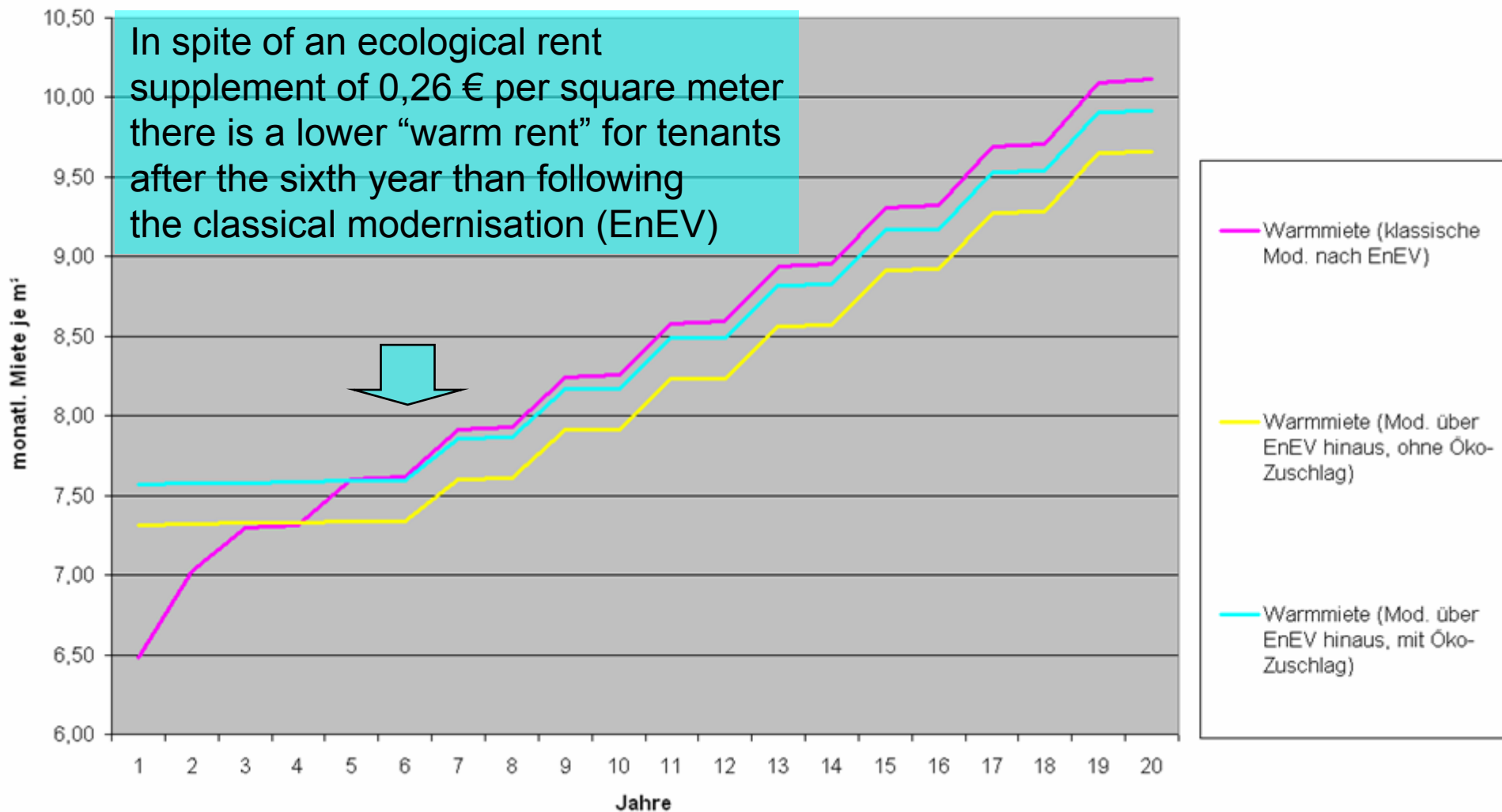
But how is it regarded from the tenants' point of view?



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Mietersicht: Entwicklung der Warmmiete



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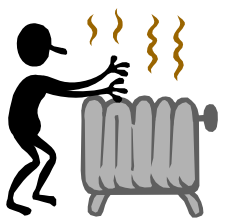
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Further Measures

After the realization of modernisation measures the tenants are informed about the correct use with the new facilities.

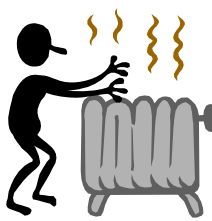
This is done in personal talks and with information leaflets.

Example:

“About the correct dealing with thermostats”

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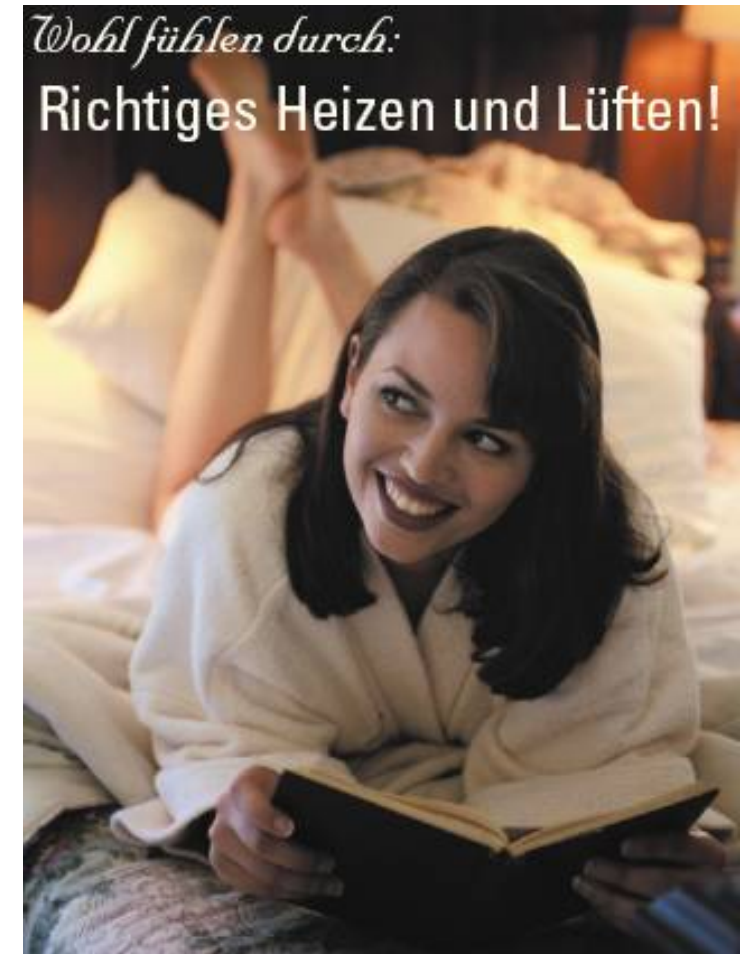
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Further Measures

Through reasonable ventilation and heating high energy saving can be realized.

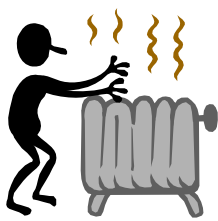
There is a leaflet for the tenants, which can be downloaded from the Internet. www.wbg.nuernberg.de zur Verfügung.

■ Vermeiden Sie grundsätzlich während der Heizperiode gekippte Fensterflügel. Sie führen zu enormen Wärmeverlusten und erhöhen die Heizkosten. Besser ist auch hier das gezielte kurze Lüften.



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Further Measures

Important advice for energy saving and news from the quarterly tenants' newsletter can be taken:

“WE ARE AT YOUR SERVICE”

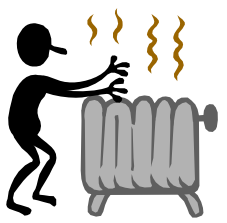
or

if needed-visits at home can be made by the technical service team



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Further Measures

In **2005** and **2006**

Photovoltaic elements of

Photovoltaic

elements of 5.000 square meters have been

installed for

132 households

for electric supply.



Example:
Zollerstraße



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Conclusions

Economic Justification considering the principle of sustainability:

The “Break-Even” between costs and benefits based on ecology and economy can be found!

What is reasonable?

3 Liter-,

4 Liter-,

5 Liter-,

6 Liter-

or 7 Liter – House?



The energy certificate is illustrating the benefit of ecological building to the client!

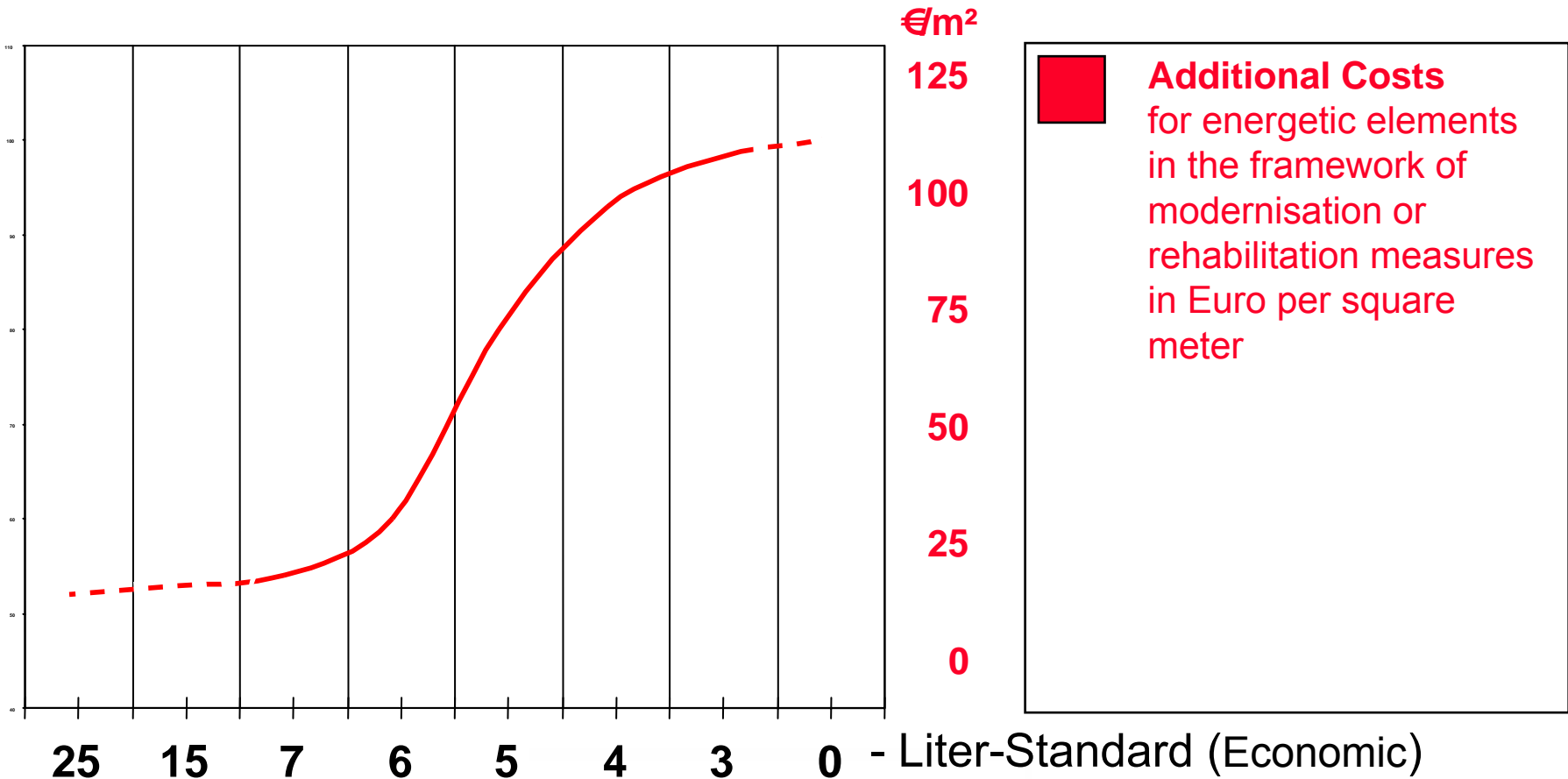
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Conclusions

Economic

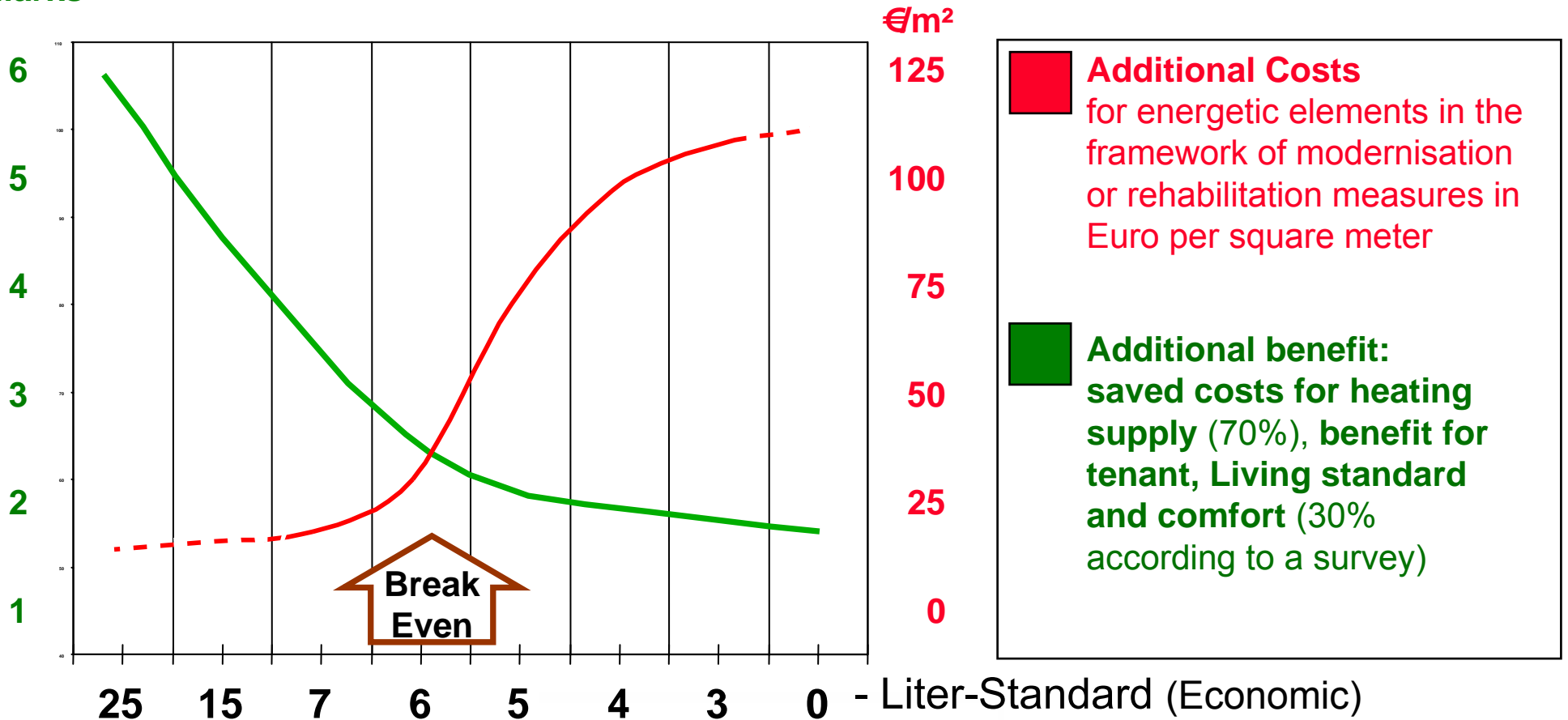




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Conclusions

Economic
Marks

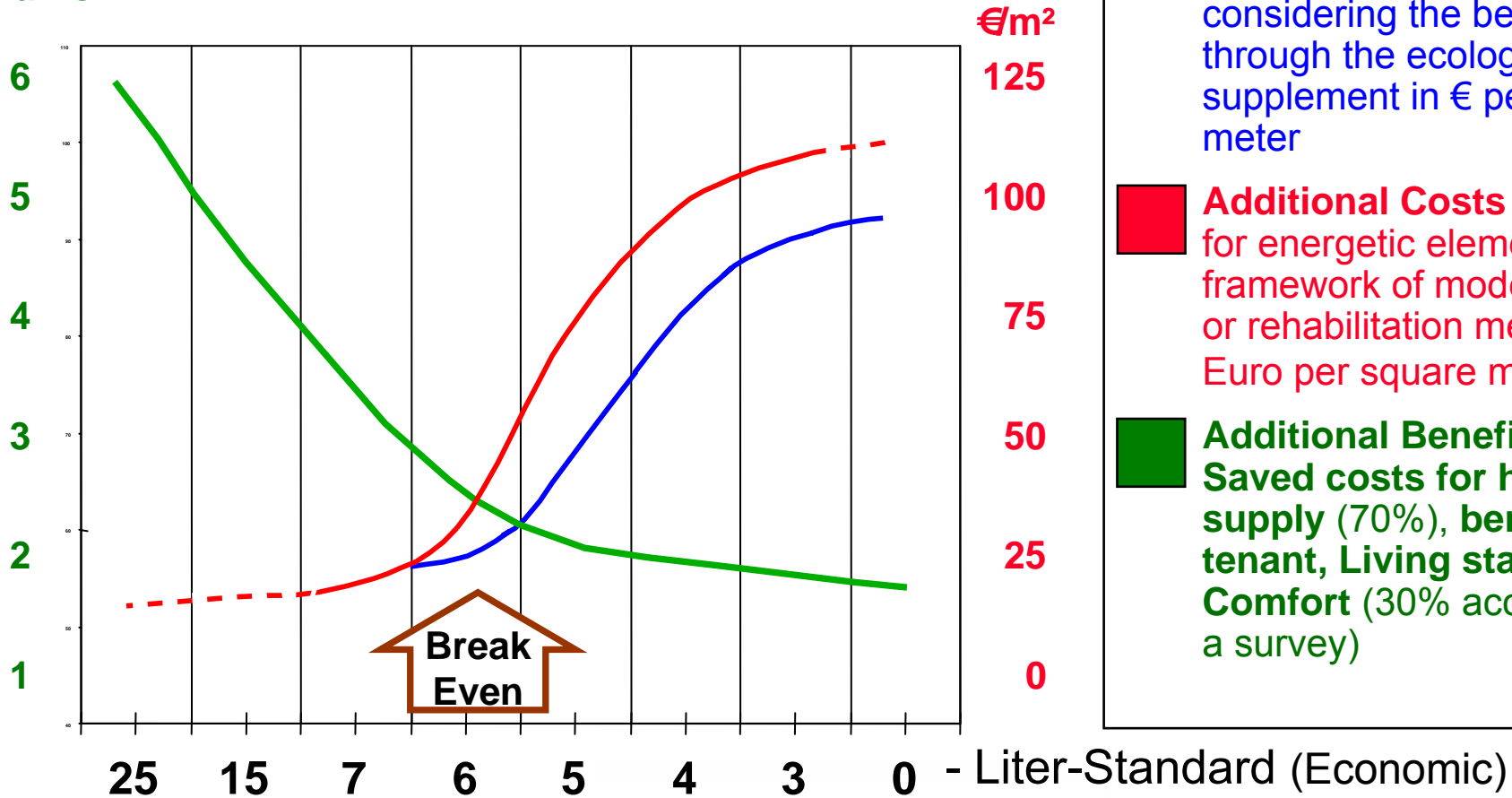




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Conclusions

Economic
Marks



- Additional Costs** for energetic elements considering the benefits through the ecological rent supplement in € per square meter
- Additional Costs** for energetic elements in the framework of modernisation or rehabilitation measures in Euro per square meter
- Additional Benefit:** Saved costs for heating supply (70%), benefit for tenant, Living standard, Comfort (30% according to a survey)



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Conclusions WIN-WIN-WIN-Situation



**High Standard of Housing
And high Quality of Living
In energetically rehabilitated dwellings
-with payable rents for the tenants
and based on economic points of WBG's view**

Wir gestalten LebensRäume

WBG Nürnberg Gruppe

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The obvious additional costs of an ecologically healthy house or a human house are no real ones, because they will be reimbursed through a higher quality of living and happiness.

Depressions of the soul and uncritical behaviour cost much more money!

Friedensreich Hundertwasser

Zitat: „Rede auf der Schmelz“, 1981/1983

Picture: „Schneckenhäuser“, 1987

