PARLAMENTO EUROPEO EVROPSKÝ PARLAMENT EUROPA-PARLAMENTET
EUROPÄISCHES PARLAMENT EUROOPA PARLAMENT ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΟΒΟΥΛΙΟ EUROPEAN PARLIAMENT
PARLEMENT EUROPÉEN PARLAMENTO EUROPEO EIROPAS PARLAMENTS
EUROPOS PARLAMENTAS EURÓPAI PARLAMENT IL-PARLAMENT EWROPEW EUROPEES PARLEMENT
PARLAMENT EUROPEJSKI PARLAMENTO EUROPEU EURÓPSKY PARLAMENT
EVROPSKI PARLAMENT EUROOPAN PARLAMENTTI EUROPAPARLAMENTET

COMMITTEE ON INDUSTRY, RESEARCH AND ENERGY

PUBLIC MINI-HEARING

on the

"Energy Performance of Buildings Directive"

Chaired by Mrs Angelika Niebler
Chairwoman of the
Committee on Industry, Research and Energy

Rapporteur
Mrs Silvia Adriana Ticau MEP

European Parliament
Brussels
Room:
16 February 2009, 15.00 - 17.00

DRAFT AGENDA

15:00	**Opening comments**	Angelika Niebler, Chairwoman
15:05	**First panel**	***Current implementation of the EPBD, and issues for the recast: a study for ITRE*** **Heather Haydock** AEA Technology ***Energy performance of buildings: the potential*** **Dr Wolfgang Feist** Passivhaus Institut, Darmstadt, German ***Questions and Answers, discussion***
15:55	**Second panel**	***The EPBD recast: a local and regional perspective*** **Jean-Louis Joseph** Mayor of Bastidonne, France and Rapport on EPBD, Committee of the Regions ***The EPBD recast: an Energy Efficiency Industry perspective*** **Randall Bowie** Rockwool and Eurima ***Questions and Answers, discussion***
16:50	**Conclusion**	Mrs Silvia Adriana Ticau, MEP, Rapporteur on The Energy Performance of Buildings Directive (Recast)

Current implementation of the EPBD, and issues for the recast: a study for ITRE

Joanne Arbon

ITRE Committee, 16th February 2009

Outline of presentation

- Purpose of the study
- Overview on status of implementation
- Lessons learnt and best practice
- Scope of Revision & Recommendations
- Other issues to be considered

Purpose of the study

- Review current status of implementation within Member States
- Review impacts of implementation
- Assess horizontal issues
- Assess links to other Policy and Legislation
- Review Best Practice
- Assess Scope of the proposed recast, and detail any recommendations for consideration

Overview of Implementation

Status

- Only 17 Member States fully implemented
- 7 Member States meeting most but not all requirements
- 3 Member States struggling
  - Finance
  - Methodologies
  - Clarity in text
- Those with existing policies and methodologies in place found implementation easier
- Status is not a good indicator of impact
  - Varying levels of ambitions
  - Variance in complexity/simplicity of calculations
  - Varying methods for delivery

Member State	Latest Status Report	Overview of Status
Austria	**June 2008**	
Belgium	**March 2008**	
Bulgaria	**March 2008**	
Cyprus	**June 2008**	
Czech Republic	**June 2008**	
Denmark	**November 2008**	
Estonia	**May 2008**	
Finland	**August 2008**	
France	**March 2008**	
Germany	**March 2008**	
Greece	**May 2008**	
Hungary	**March 2008**	
Ireland	**August 2008**	
Italy	**June 2008**	
Latvia	**July 2008**	
Lithuania	**May 2008**	
Luxembourg	**September 2008**	
Malta	**March 2008**	
Netherlands	**June 2008**	
Poland	**August 2006**	
Portugal	**March 2008**	
Romania	**May 2008**	
Slovakia	**May 2008**	
Slovenia	**June 08**	
Spain	**May 2007**	
Sweden	**June 2008**	
UK	**September 2007**	

Overview of Implementation

Impacts

- Little evidence collected of impact on EU stock
- Lack of firm evidence on impact of measures on markets
- Limited monitoring and enforcement
- Raised awareness, particularly in political environment
- Raised the numbers and skills of inspectors
- Development of and wider usage of appropriate software tools
- Barriers

Horizontal Issues

- Unified approach required
- Alternative mechanisms in view of current economic situation
- Linkage to other policies and legislation
- Knowledge sharing

Lessons Learnt & Best Practice

Limitations

- Lack of information & clarity
- Market failures
- Diversity of buildings sector
- Low uptake of measures
- Lack of trained professionals
- Behaviour

Best Practice

- Beyond current requirements
- Financing
- Awareness raising & training
- Sharing knowledge

The original Passive Houses in Darmstadt, Germany The Passive House standard is an ultra-low energy building design system which uses extremely efficient building envelopes to significantly drive down energy consumption in structures. The standard is completely voluntary but does have an extremely rigorous set of requirements

Scope of Revision

Greatest Impact:

- Eliminating the threshold of 1000m^2 when the buildings undergo major renovation.
- Introduction of quality and compliance requirements for certificates; together with a requirement for registration of certificate information
- Inspection and reports of the inspection of heating and air-conditioning systems and introducing compliance requirements.
- The requirement for penalties and provision of fiscal measures.

Other elements:

- ‘Minimum’ energy performance requirements & calculation of ‘cost-optimal’ levels
- Clarification of definitions
- Low/zero carbon buildings
- Training

Recommendations

- Implementation, enforcement & monitoring
  - Current lack of evidence
  - Economic situation
- Definitions & Methodologies
  - Harmonisation & linkage
  - Cost Optimal
  - Tools
- 1000m2 Threshold
  - Best practice
- Low or Zero Carbon buildings
  - Deadlines
- Certificates
  - Thresholds
  - Public buildings
  - Penalites & enforcement, particularly private rental market
  - Registration of certificate data

Recommendations II

- Inspections and Quality Control
  - Volumes
  - Qualified persons
  - Information and guidance
  - Mechanical ventilation
- Training
  - Harmonisation
- Wider context
  - Linking with other policies
  - Knowledge sharing
  - Research into impact of current economic situation

Conclusions

- EPBD has been implemented successfully in the main, although impacts not yet clear
- There is scope for further work particularly on a unified approach throughout the EU
- EU need to be clear about what the current situation is with regard to the building stock
- Knowledge sharing and developing replicable practices should play a key role

- EPBD has resulted in increased stakeholder awareness of energy efficiency in buildings
- The proposed recast will clarify and strengthen implementation and increase predicted emission reductions, and other impacts
- The EPBD is the only mandatory labelling scheme, and other Countries are looking to the EPBD as an example

Passive House School in Bremen

Passive House in Hamburg

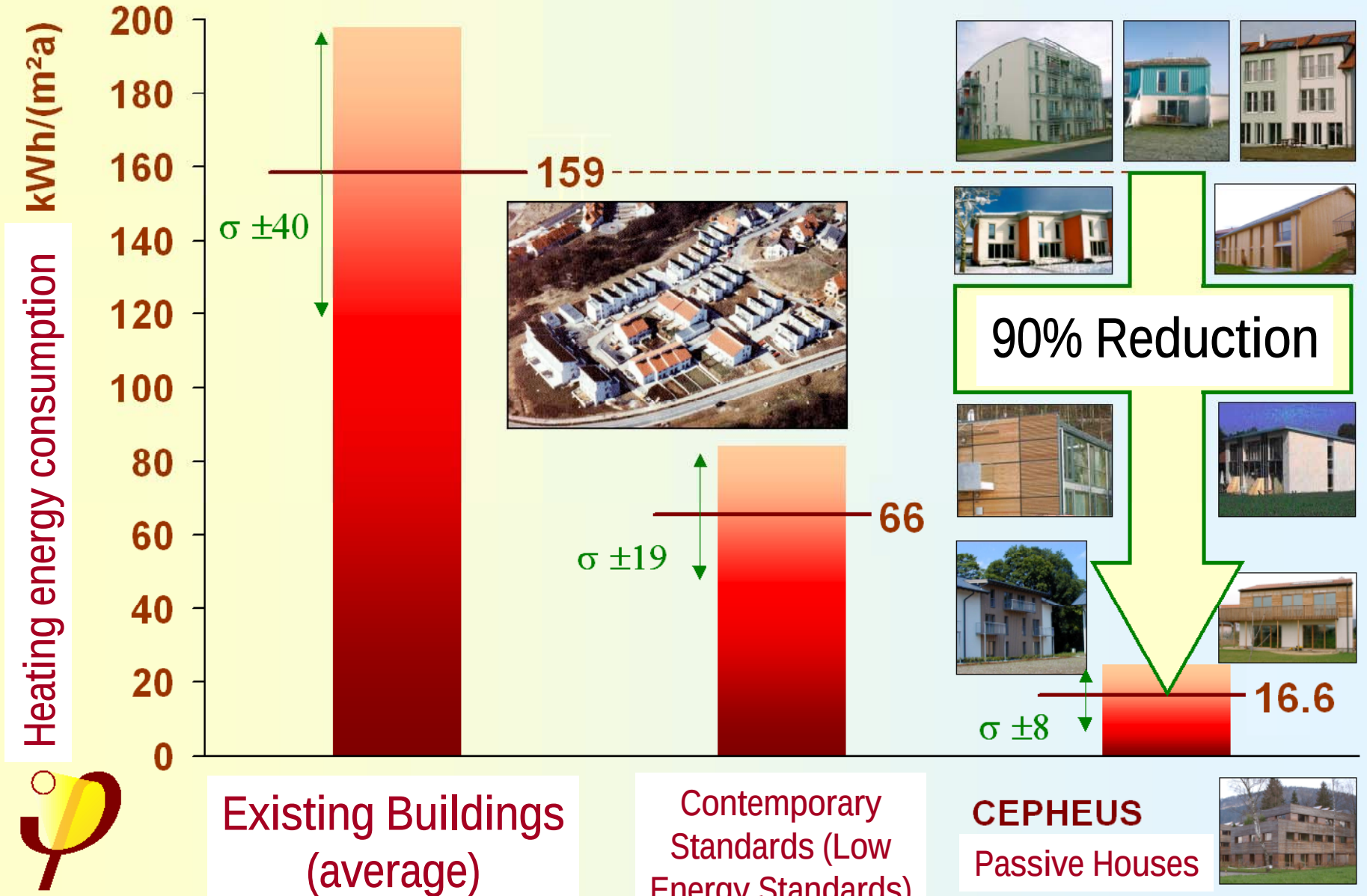
Passive House School in Klaus/Austria

Energy Performance of Buildings: the Potential

Univ.-Prof. Dr. Wolfgang Feist
Passive House Institute, D-64283 Darmstadt
Germany

www.passivehouse.com

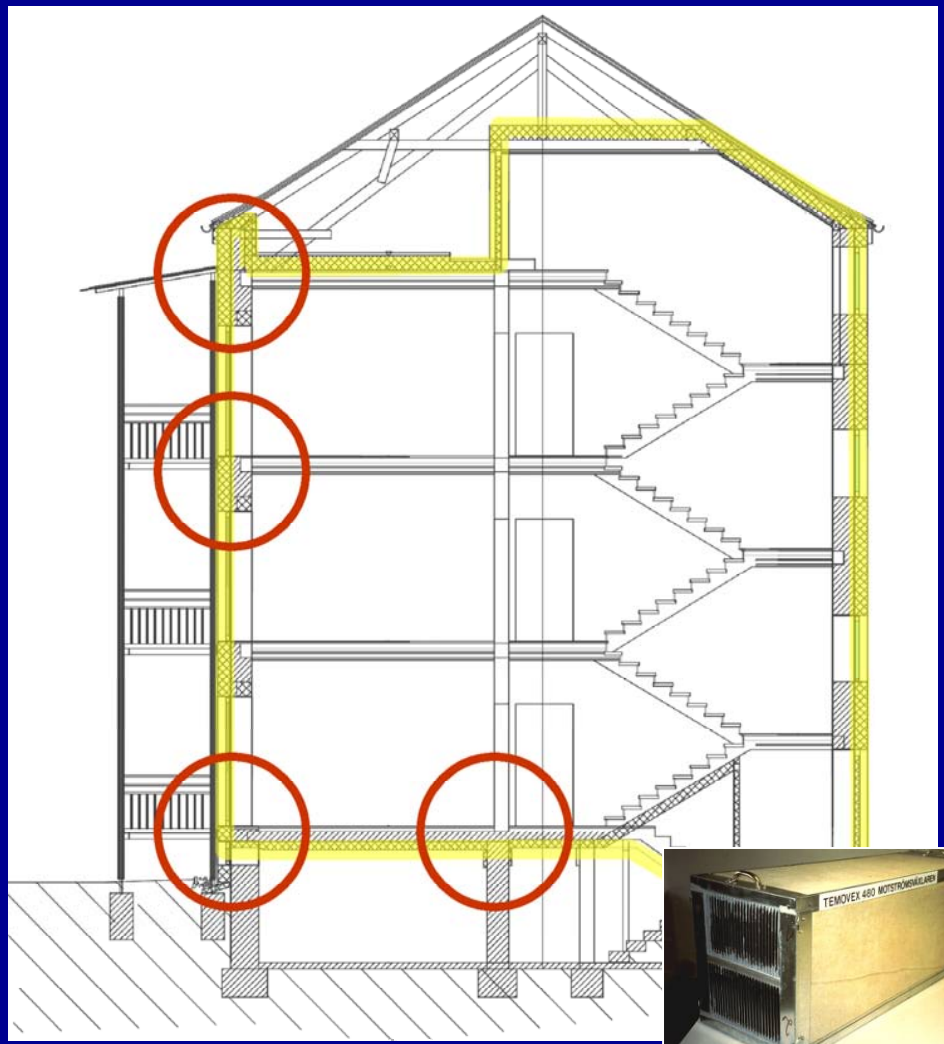
Results of the CEPHEUS project – compared to Existing Buildings and Contemporary Standards



The essentials: Good Insulation, Smart Details, Superwindows, Heat Recovery

Net Gain Windows

Topp Insulation

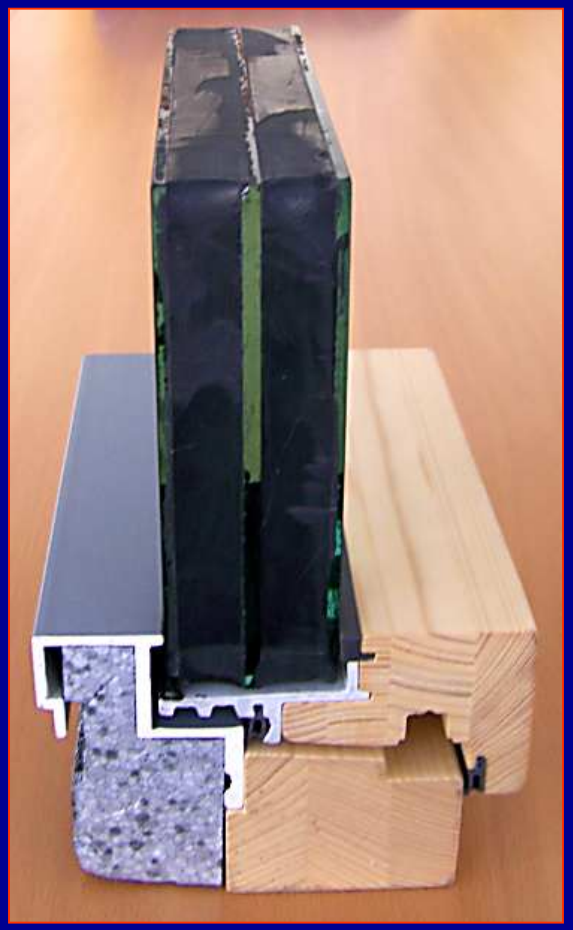


Heat Recovery

contemporary window

U = 1,4 W/(m²K)

net loss



Window of the Future - already available!

U = 0,8 W/(m²K)

net gain

Existing Buildings – Refurbishment with Factor 10 before...

Existing Buildings – Refurbishment with Factor 10

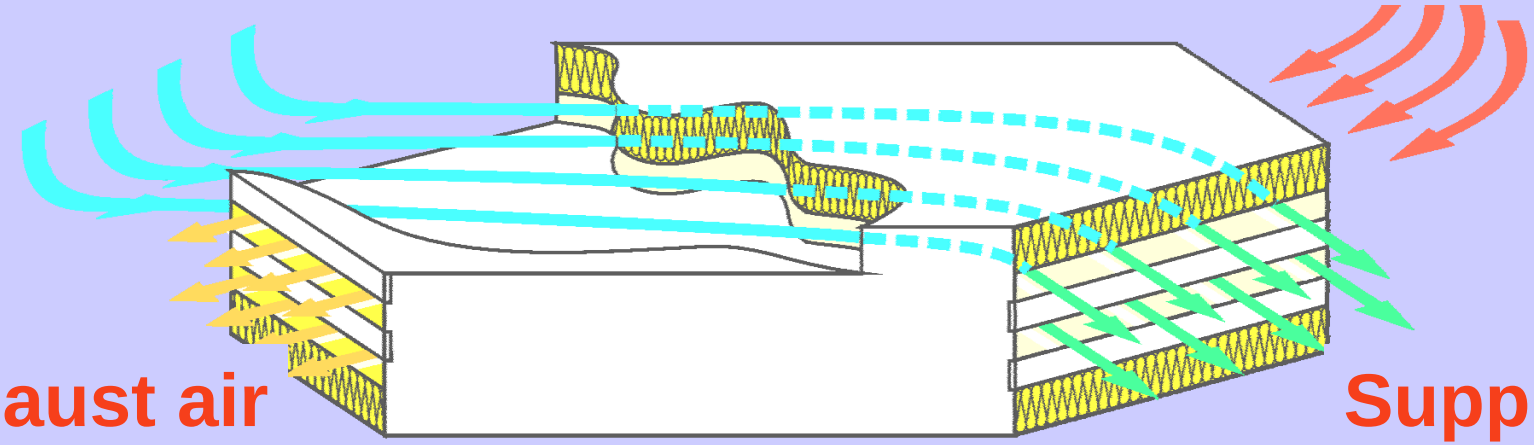
... after.

Heat Recovery Ventilation:

80% to 90% recovered

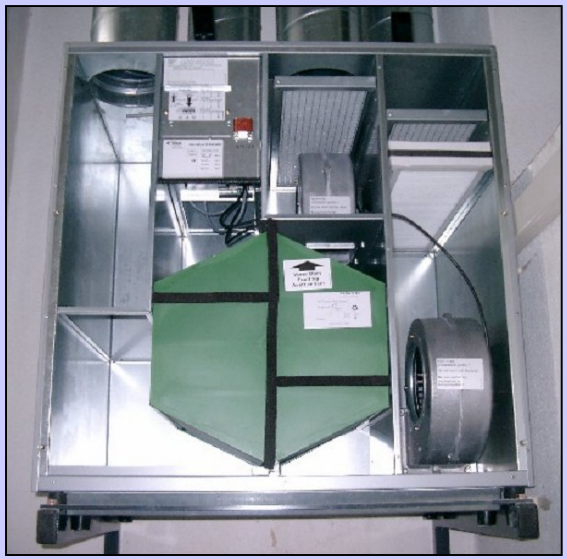
Fresh air

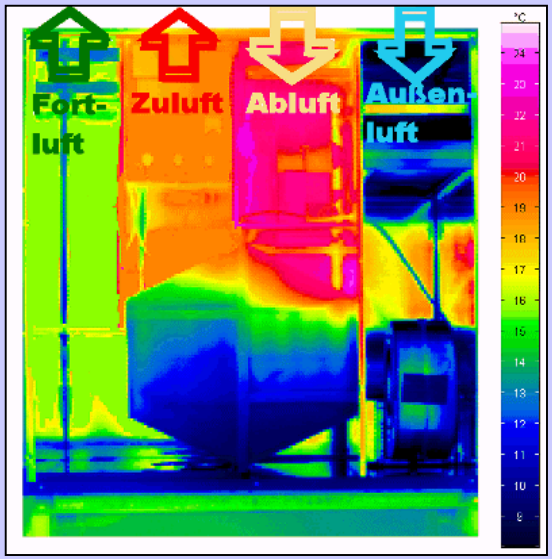
Extract air



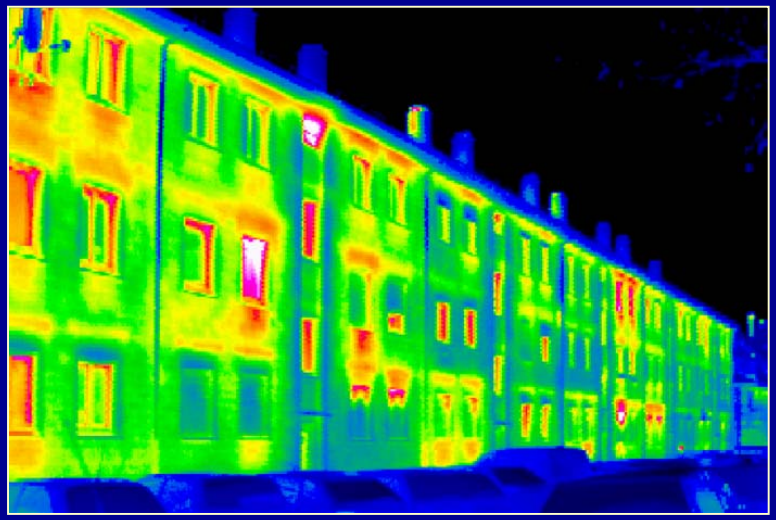
Exhaust air

Supply air





Prospect for existing Buildings – Frankfurt Retrofit using Passive House Technology



87%

Aufkirchen / Montessori Main School

Passive House School Building

Architectes Walbrunn-Grotz-Vallentin-Loibl

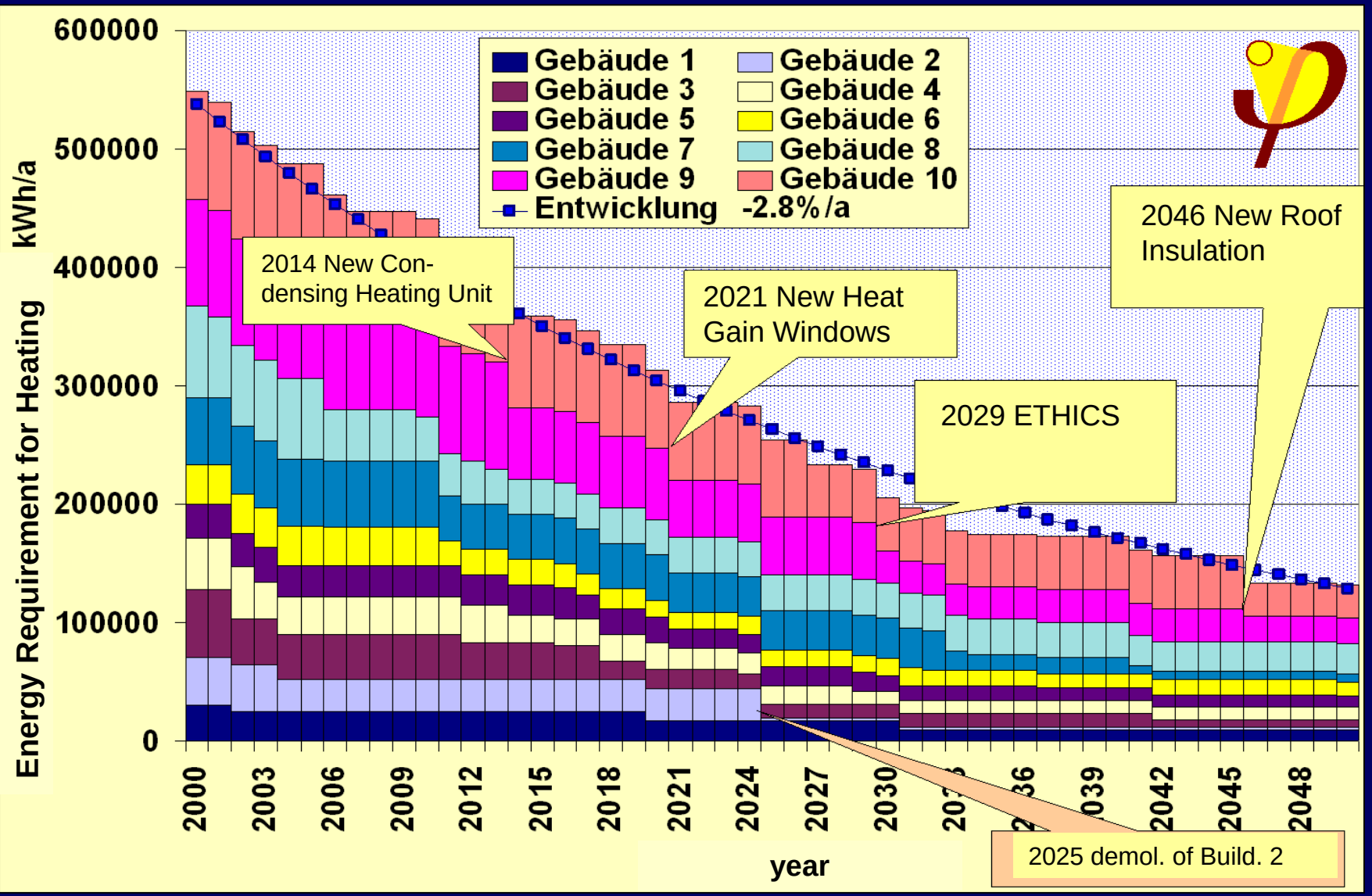
Civil engineering Lackenbauer und Mack

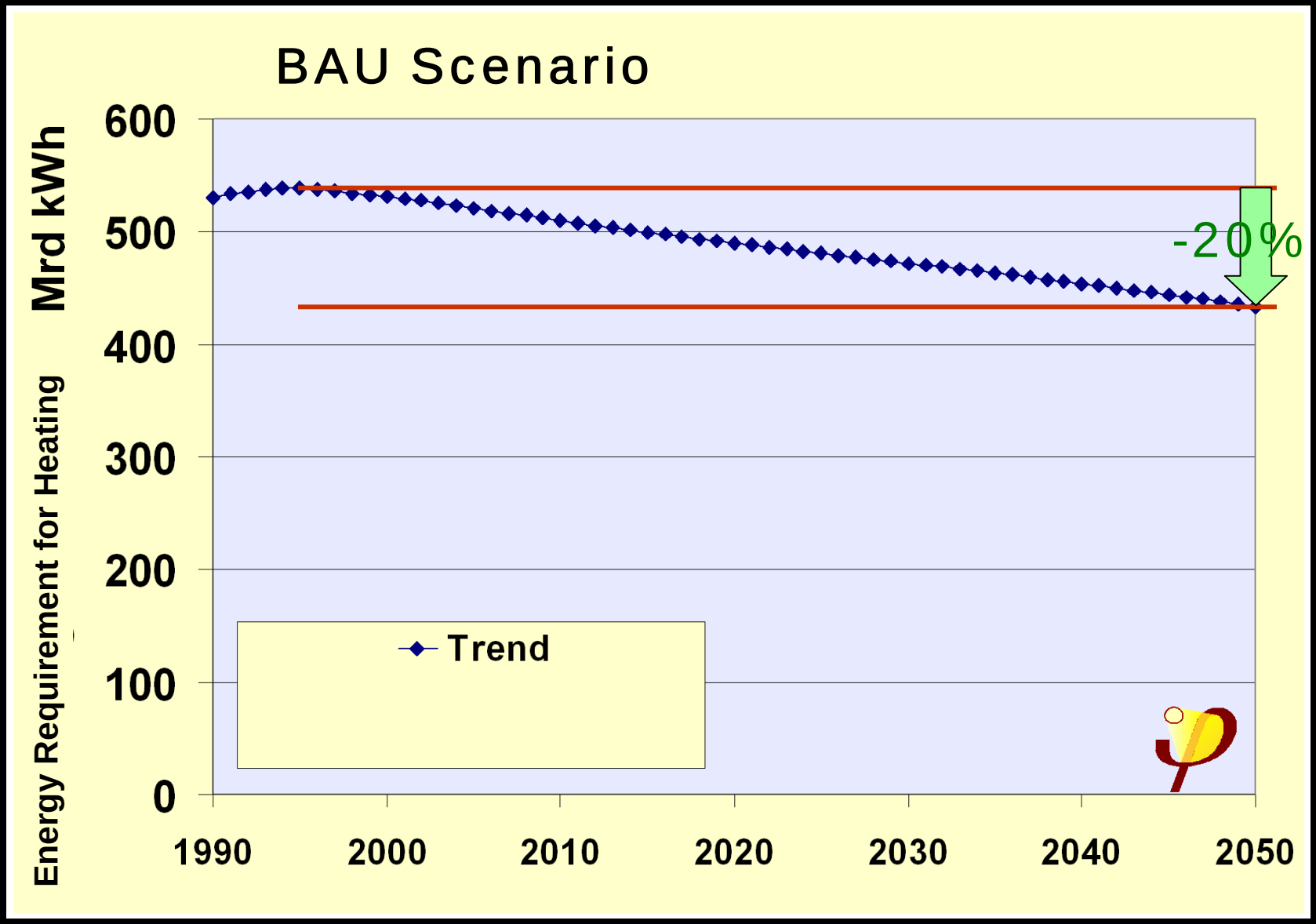
completed 2004;
3300 m² floor area

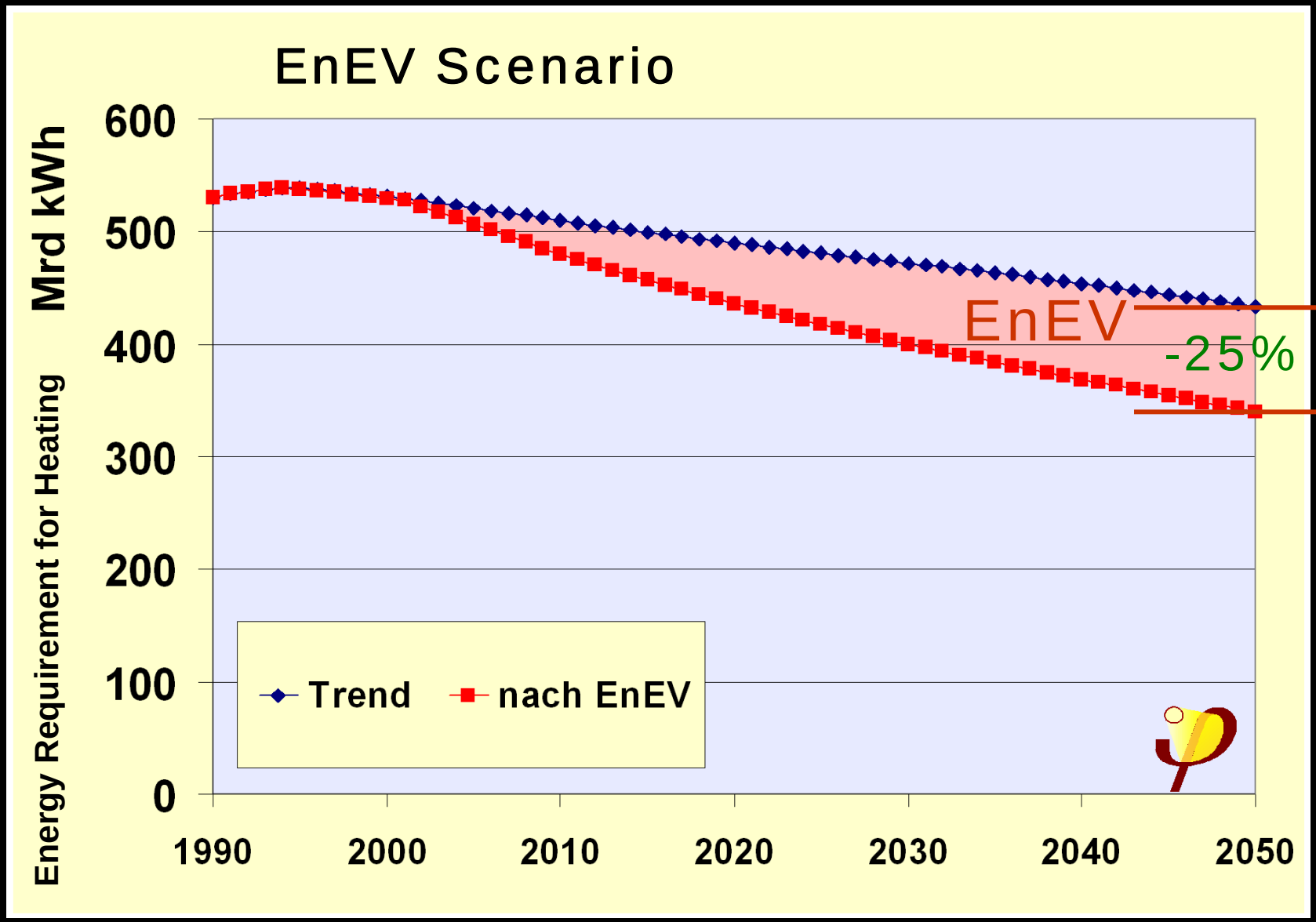
Montessori Society Landkreis Erding e.V.

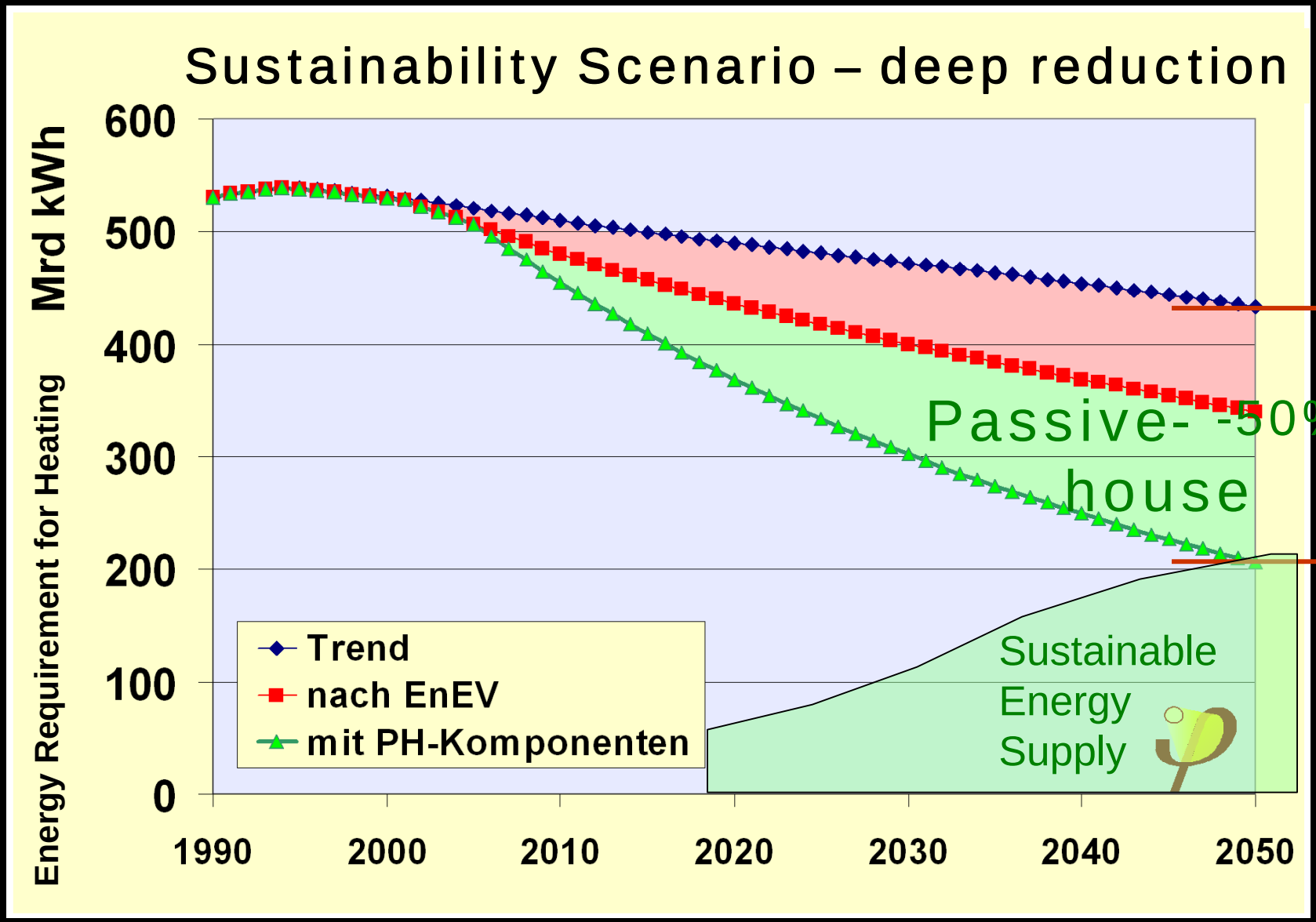
Successful examples: Refurbishment of existing buildings / all –80% to –90%

How Sustainable Refurbishment Can Work / Will Work




BAU Scenario
Energy Requirement for Heating
Mrd kWh
600
500
400
300
200
100
0
1990
2000
2010
2020
2030
2040
2050
-20%
Trend


EnEV Scenario
Energy Requirement for Heating Mrd kWh
600
500
400
300
200
100
0
1990
2000
2010
2020
2030
2040
2050
Trend
nach EnEV
EnEV
-25%

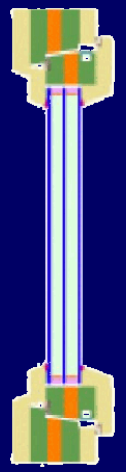

Sustainability Scenario – deep reduction
Energy Requirement for Heating Mrd kWh
600
500
400
300
200
100
0
1990
2000
2010
2020
2030
2040
2050
Trend
nach EnEV
mit PH-Komponenten
Passive- -50%
house
Sustainable
Energy
Supply

While you are at it, ...

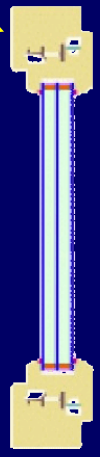
...do not loose the opportunity!

406 €/m²

+106 €



300 €/m²



+40 €

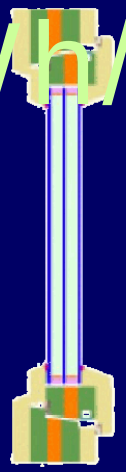
340 €/m²

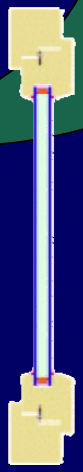
While you are at it, ...

...do not loose the opportunity!

131 € Savings

+71 kWh/a





No savings

+36 kWh/a

65 € Savings

13th INTERNATIONAL CONFERENCE ON PASSIVE HOUSES

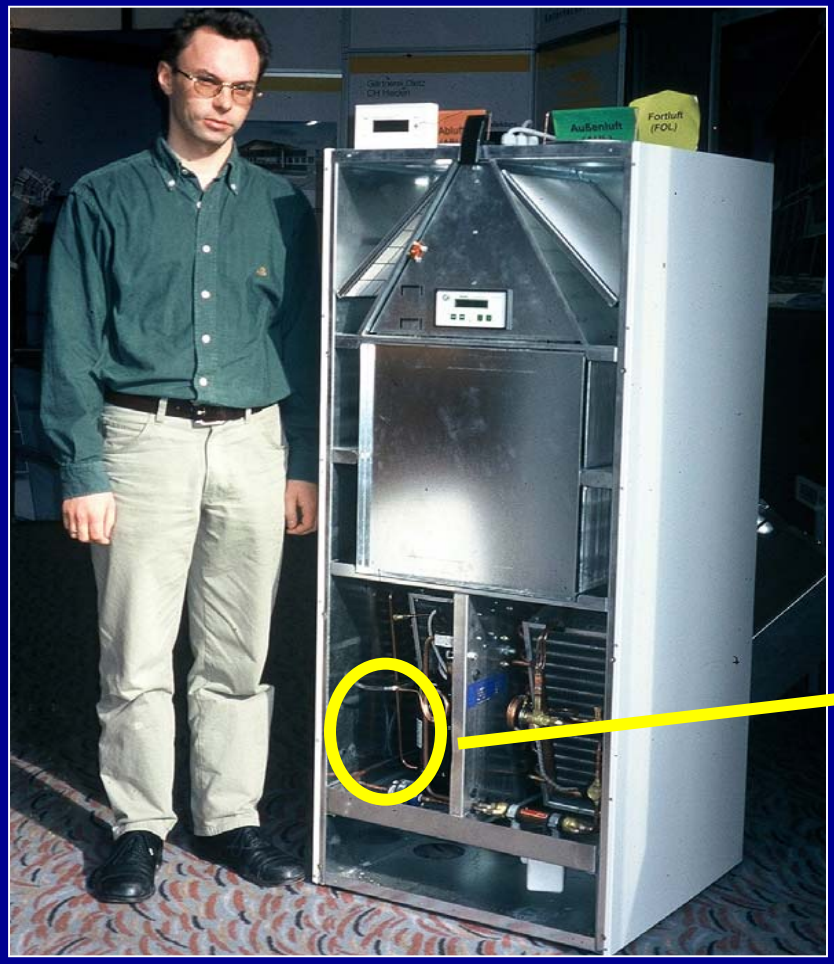



Frankfurt Fair
2009 April 17th / 18th with exhibition
and guided tours to passive houses in Frankfurt.

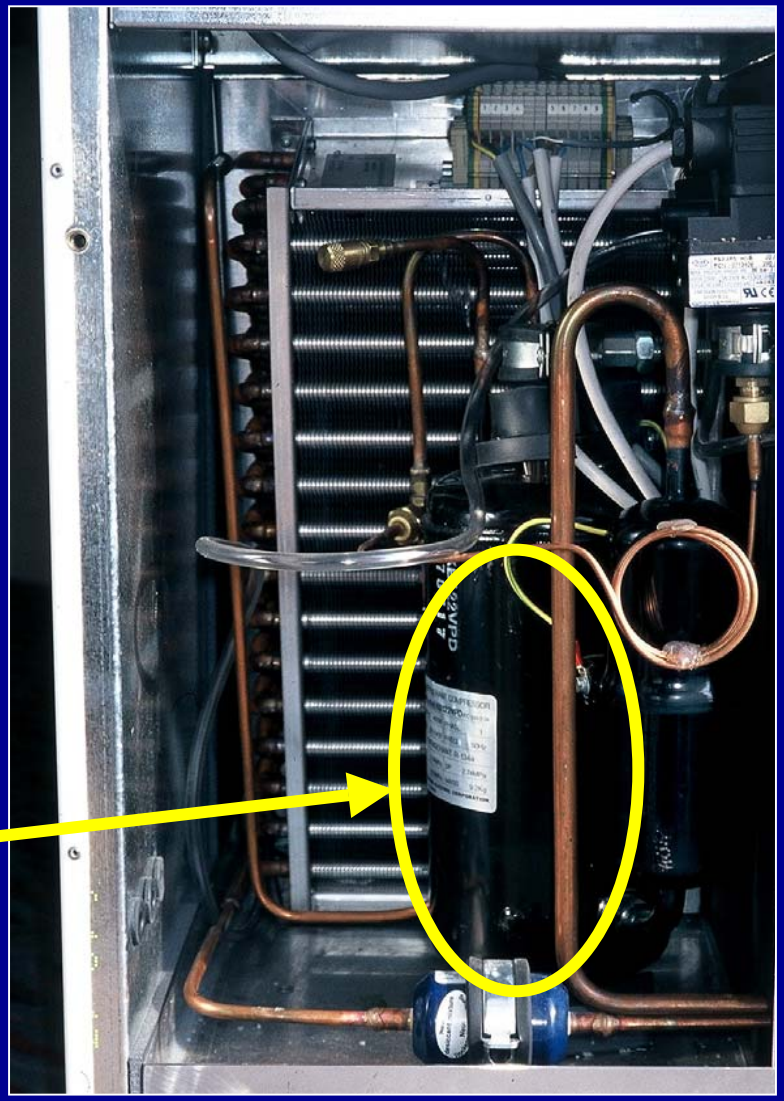
www.passivhaustagung.de

Compact building services system, *developed by C. Drexel.*

Heating, domestic hot water and ventilation in one system.



The small heat pump in the compact system.



Innovative approaches in the renovation of existing buildings

The Austrian Research Programme
HAUS DER ZUKUNFT
(Building of Tomorrow)

Herbert Greisberger, ÖGUT

Brussels, February 16, 2009

Building of Tomorrow

user and service aspects

low energy solar house

passive house

ecological building materials and systems

renewable energy sources

energy efficiency

renewable raw materials, building ecology

Haus der Zukunft

comparable costs

new buildings

1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

retrofitting

A comprehensive strategy from R&D in buildings to new standards

Step 1: technological and socio-economic research

Step 2: new technologies and demonstration

Step 3: standards and declaration of Best practice

Step 4: subsidies for sustainable renovation

Step 5: legal standards

And: information, training, (international) know-how exchange…

The strategy towards new standards

technologica and socio-economic research

New technologies and demonstration of sustainable buildings and renovation

Standards and declaration of Best Practice

Subsidies for sustainable renovation

Legal standards

Information, trainging, (international) know-how exhange, new business models ….

2000 2002 2004 2006 2008 2010

Building of Tomorrow – results

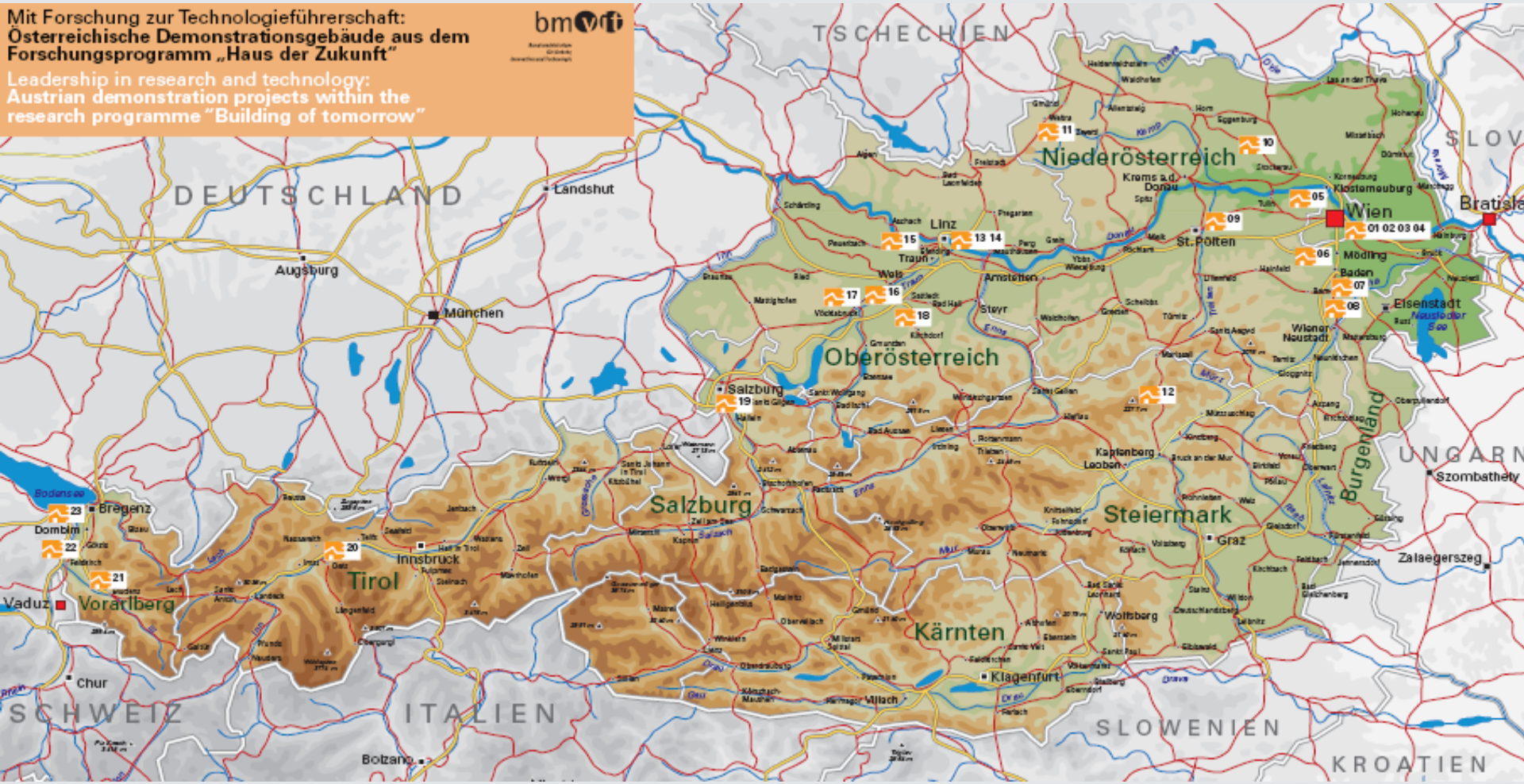
From 1999 to 2007:

- ☑ 25 Million Euro funding for R&D
- ☑ 750 proposals
- ☑ 250 R&D projects funded
- ☑ 25 demonstration projects
- ☑ more than 1000 passive houses in Austria

Demonstration buildings

Mit Forschung zur Technologieführerschaft:
Österreichische Demonstrationsgebäude aus dem Forschungsprogramm „Haus der Zukunft"

Leadership in research and technology:
Austrian demonstration projects within the research programme "Building of tomorrow"



Passive house renovation, Makartstraße, Linz

- renovation of a multi-storey-building from the 1950s
- no increase of rents for tenants
- use of prefabricated wall units; special solar comb, which is mounted on the outside wall in form of a panel (gapsolar)
- controlled ventilation with single room ventilators
- Winner of the Austrian award for architecture and sustainability

Passive house renovation, Klosterneuburg

- (planned) renovation of a multi-storey-building from the 1970s
- no net increase of rents for residents
- insulation of facades, roof and cellar, glazed balconies
- passive house suitable windows
- mechanical ventilation with heat recovery and air heating
- solar collectors for domestic hot water preparation

Renovation „Tschechenring“, Felixdorf

- renovation of a historical workers‘ development from 1880
- extension of housing space by attic development
- thermal optimization of the envelope with interior insulation due to the protected facade
- comparable costs to conventional building methods
- use of renewable energy (central wood chips heating)

Renovation Haus Zeggele in Silz, Tirol

- energy restoration of a historical building (600 years)
- maintaining original facade and construction (listed building)
- exploring the use of energy saving features
- interior insulation on the first floor in the range of the half timbered construction
- solar collectors on the roof of the oven for warm water

Renovation detached house Pettenbach

- renovation of a single family detached house in Austria to passive house standard, reduction of energy consumption 95 %
- use of prefabricated timber wall elements
- thermal bridges of the existing rising brickwalls were compensated by a circumferential umbrella-shaped insulation
- insulation of the floor by using vacuum insulation

VIP – use of vacuum insulation panels, Salzburg

- renovation of a semidetached house to passive house standard using vacuum insulation panels
- mechanical mounting system for the facade
- insulation system of only 5 cm thickness
- optical appearance of the facade was not disturbed

Information:

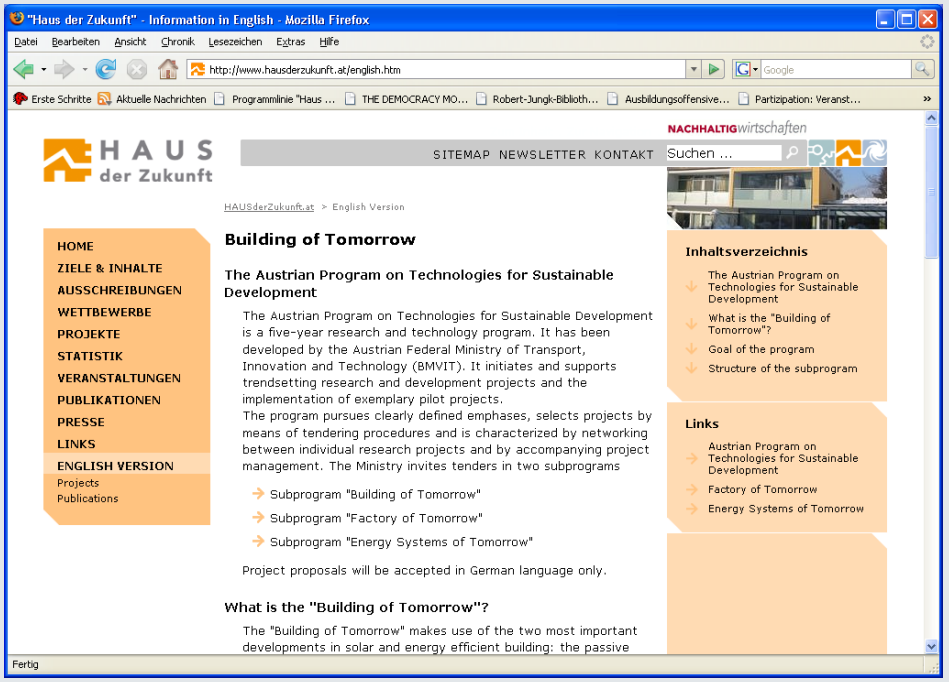
All reports available at: www.HAUSderZukunft.at

Regular bus tours to demonstration sites

monthly newsletter

Open days

....



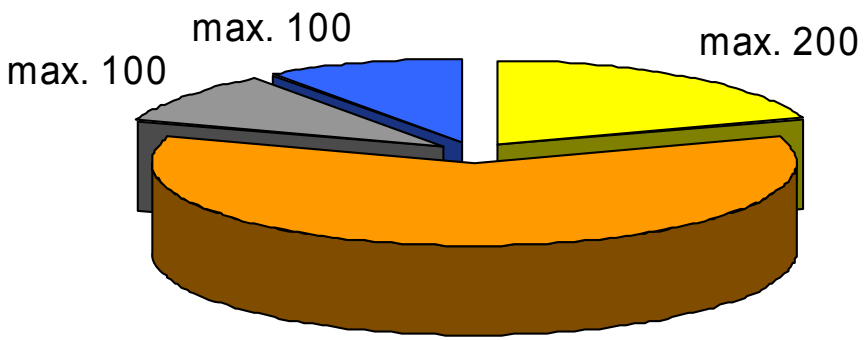
Innovative buildings become normal - the standard

Design and Execution
max. 200 Points

Energy and Supply
max. 600 Points

Materials and Construction
max. 100 Points

Comfort and Indoor Air-quality
max. 100 Points

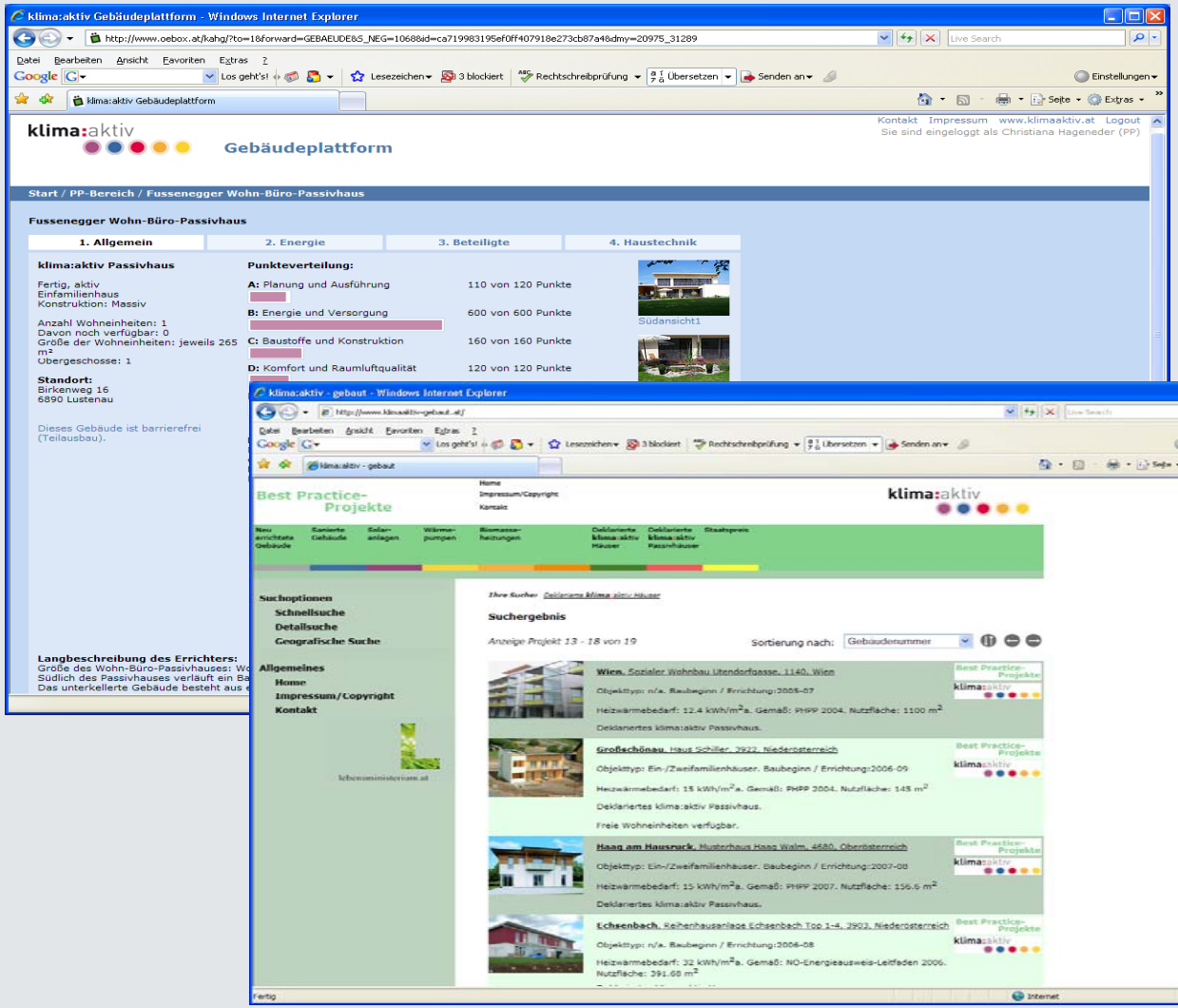


klima:aktiv Standard: max. 1.000 Points

klima:aktiv **Haus** ≥ 700 Points **klima:**aktiv **Passivhaus** ≥ 900 Points

More than 700 declared buildings online

An instrument to avoid the “valley of death” for innovations



governmental statement

- **50% klima:aktiv Standard for Residential Buildings in Austria**
- **from 2015 on Funding of Residential Buildings only for klima:aktiv passive houses**




Lessons learnt about renovation

- **Superficial renovations are a lost opportunity for decades**
- **Comprehensive renovations needs integrative planning and cooperation**
- **Comprehensive renovations offer new business opportunities**
- **Non technical aspects are highly relevant for energy efficient renovation**

Future never stops!

R&D program „Building of Tomorrow PLUS“

35 mio. Euro for 3 years

Focus on:

- **Renovation of settlements**
- **Energy Plus settlements**
- **Energy Plus buildings**

Program owner: DI Michael Paula, bmvit

Program management: ÖGUT, FFG, AWS

Thank you for your attention!

Herbert Greisberger, ÖGUT
Austrian Society for Environment and Technology
Herbert.greisberger@oegut.at
0043-1-315 63 93 - 13

EuroACE position on revision of the EPBD

1. All building codes must include a critical path culminating in only "Very Low Energy Buildings"
2. Removal of all 1000m² thresholds, with no lower limit
3. Mandatory requirement that refurbishment must result in increased energy efficiency, matching best contemporary standards (Best rated component replacement where appropriate)
4. Requirements on Member States to introduce financial instruments, with links to implementing Energy Certificate Scheme recommendations to be strengthened
5. Stricter enforcement oversight within Member States

EuroACE position on revision of the EPBD

6. Mutual recognition across the EU of training programmes and of certified installation personnel and inspectors; harmonisation of training programme for inspectors
7. Harmonisation of certification process for non-residential buildings
8. Inspections to cover entire systems, not just components of a system
9. Energy Performance Certificates to be permanently displayed in all buildings visited by the public
10. Mandatory requirement to inform building tenant of the refurbishment improvements necessary as well as certificate rating