AUSTRIAN ENERGY AGENCY

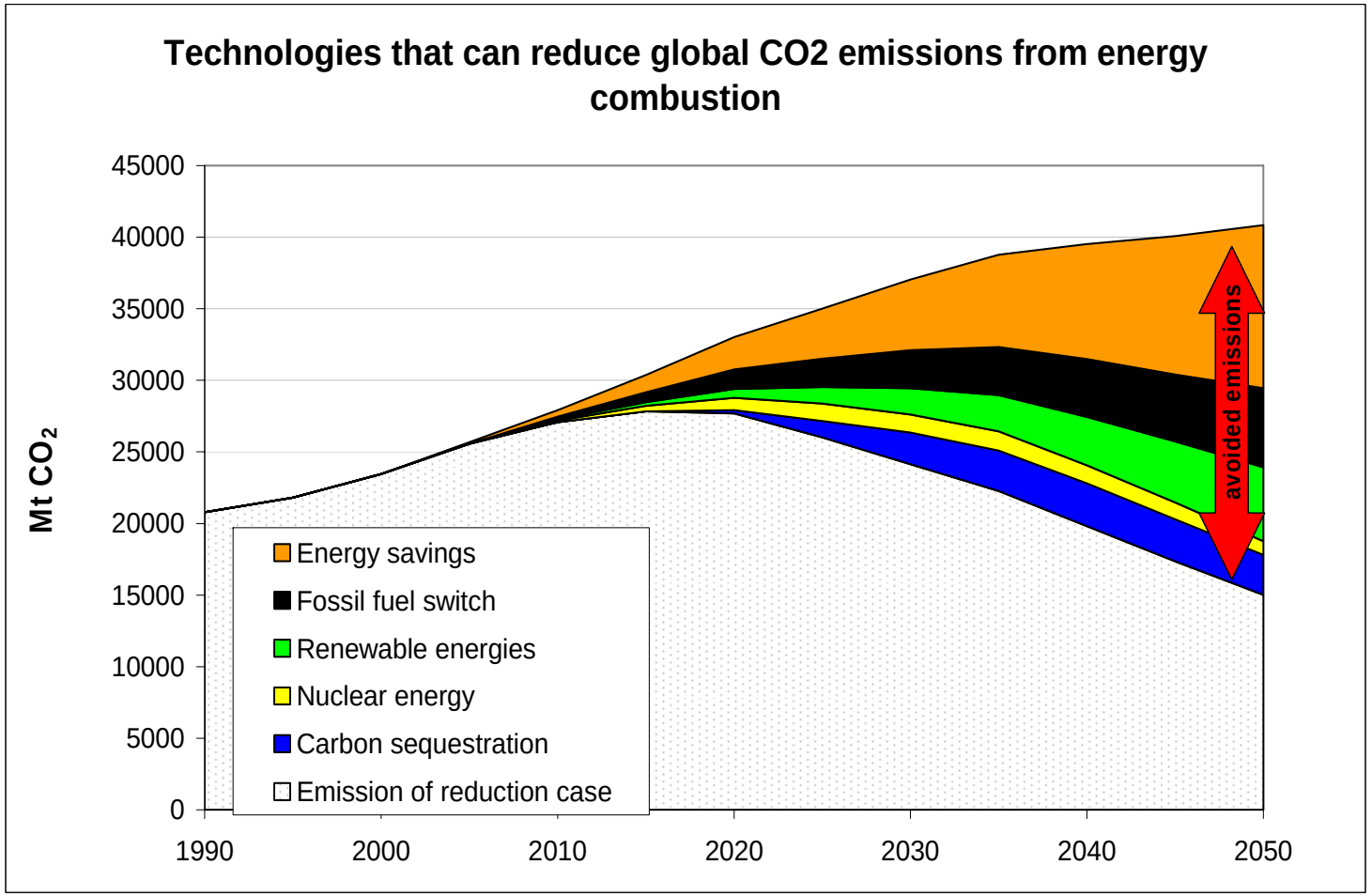
Austrian Energy Agency

Austria‘s efforts to increase energy efficiency

Guenter Pauritsch

Kiew, 17th March 2010

EU: Rationale for energy efficiency



EU Directive on Energy end-use efficiency and energy savings

- Need to increase end-use energy efficiency:
  - reduction of primary energy use
  - reduction of CO_2 emissions
  - link to the 20/20/20 goals of the EU
- Purpose
  - provide framework that favors efficient use of energy
  - create the conditions for the development of a market for energy services and other energy efficiency improvement measures

Directive 2006/32/EC 82

- Scope:
  - providers of energy efficiency improvements
  - distributors
  - distribution system operators
  - retail energy sales companies
  - final customers (exceptions)

- Targets:
  - by 2016: 9 % indicative energy savings target

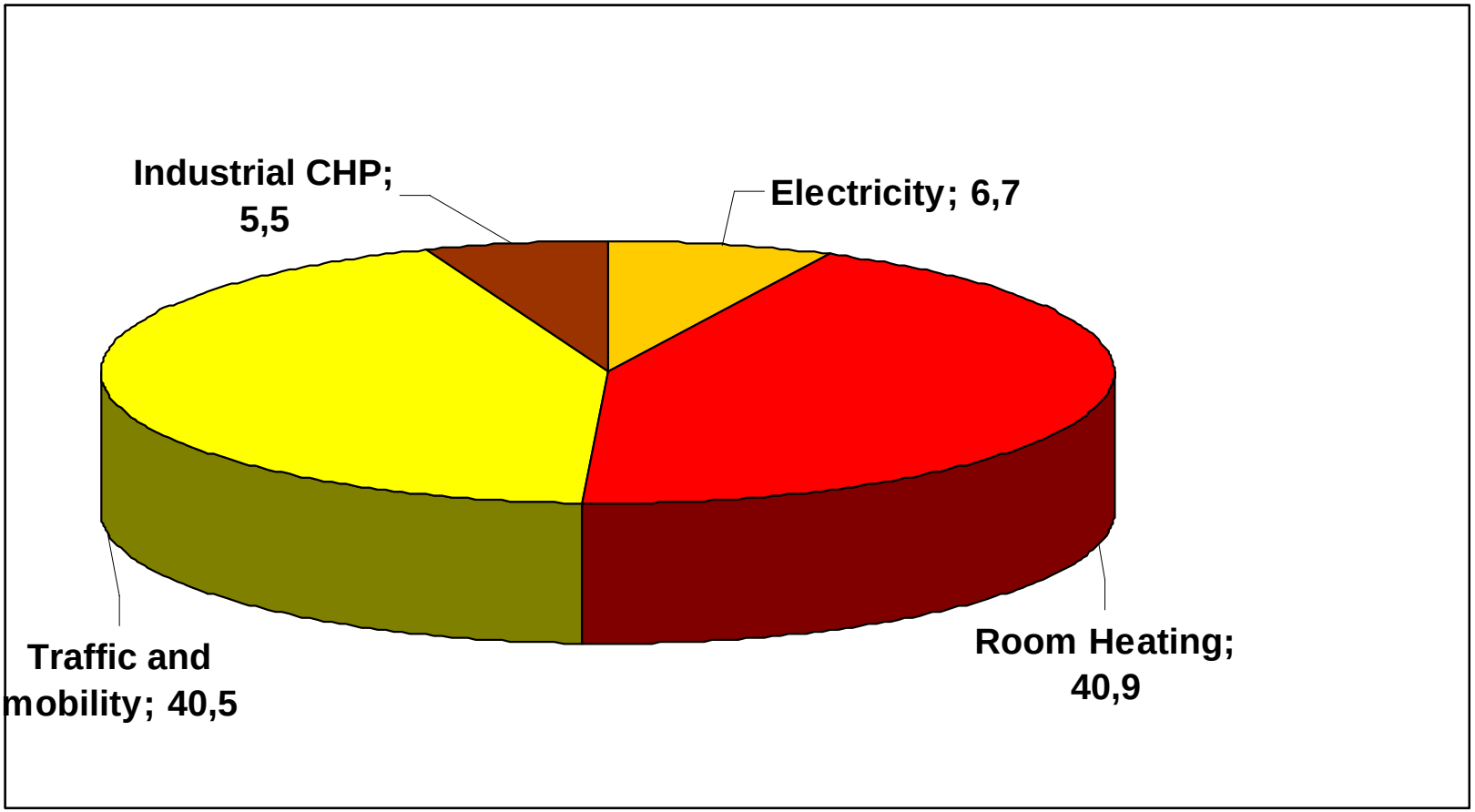
First National Action Plan for Energy Efficiency

- **Determination of the indicative targets:**
  - **80,4 PJ or 22,34 TWh (2016)**
  - **17,9 PJ (intermediate target 2010)**
- **Energy saving strategy and measures**
  - government program
  - Energy-concepts, -program and guidelines of the Austrian regions
  - Promotion schemes for residential buildings
  - domestic Environmental promotion schemes
  - Austrian Energy Strategy
- **Public sector as role model**
- **Information and consulting service**

Energy Efficiency- Competences of the Austrian Energy Agency

- **Development of the 1st National Action Plan for Energy Efficiency**
- **Monitoring body (Dir. 2006/32 EC Art. 4)**
  - Verification of the energy savings as a result of energy services and other energy efficiency improvement measures
  - Development of bottom-up methods
- **Coordination of the energy action program according to the governmental program**
  - Estimation of potential for energy saving measures
  - Framework for voluntary measures

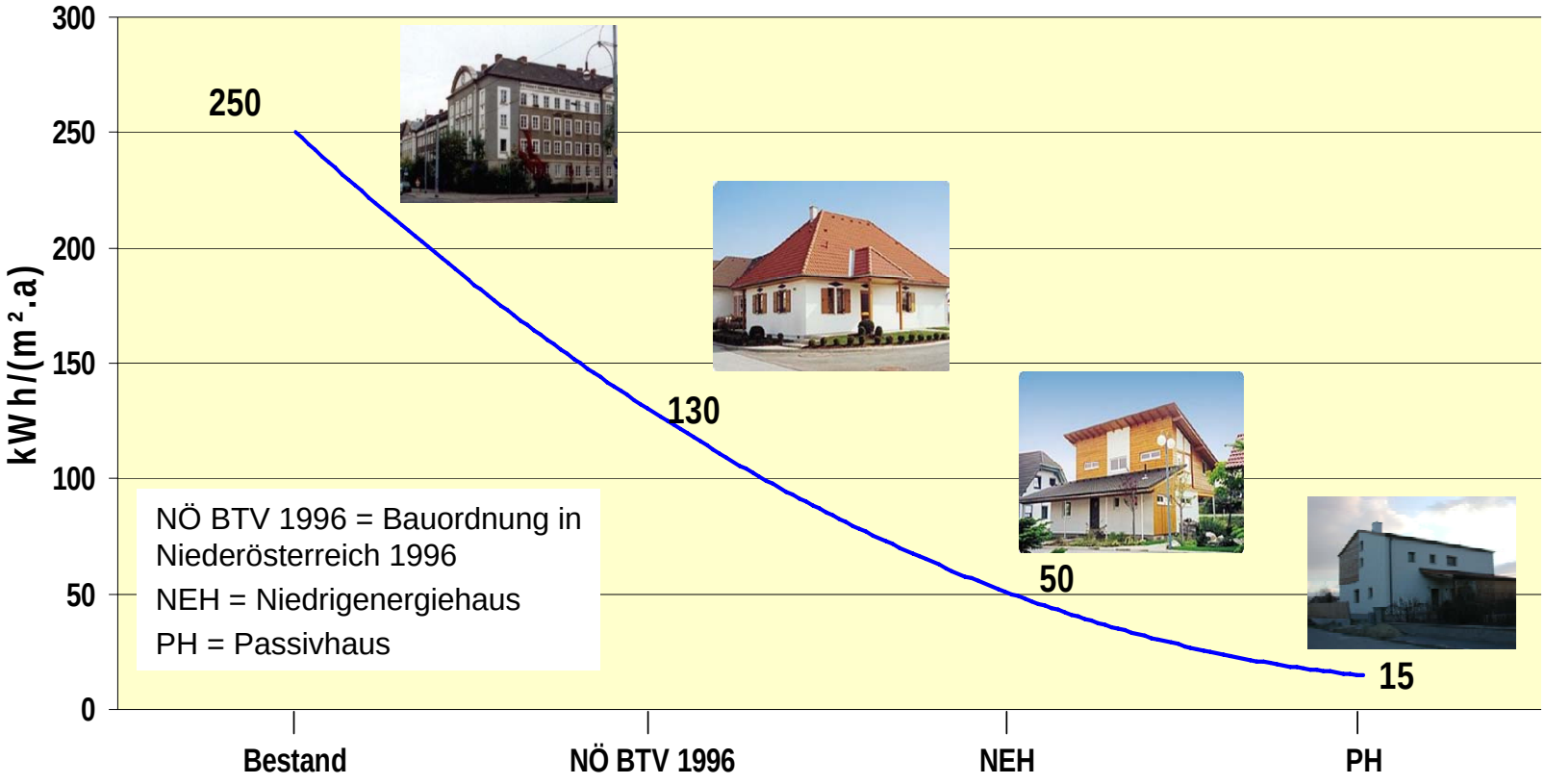
Potential for Energy Savings until 2020: 93,55 PJ



Energy efficiency for Buildings

- Building code requires minimum standard
- subsidy schemes for residential buildings (2,4 billion € per year) support construction of low energy buildings and passive houses
- „klima:aktiv“-standard promotes ecological construction (including building materials)
- Energy certification show up the quality of buildings
- **Target 1:** only passive buildings until 2015 at the latest
- **Target 2:** significant increase of renovation
  - rehabilitation/modernisation of all buildings from 1950 to 1980 until 2020
  - modernisation of Federal buildings via contracting

Energy conservation in buildings - reduction of energy demand for room heating in private houses

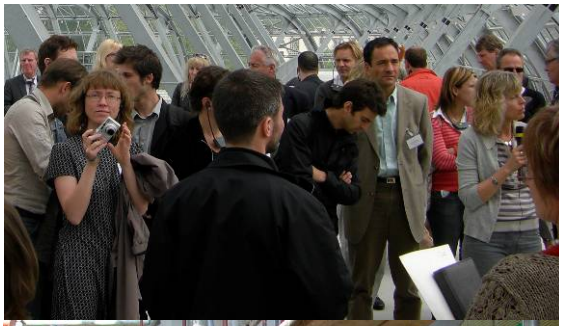


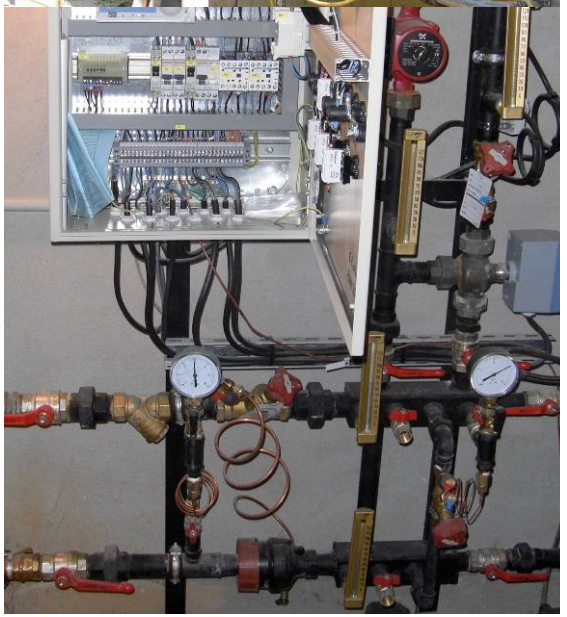
Top-Standard of residential buildings, ...

... but also of commercial buildings

Austrian building stock

- 2.05 million buildings
- 75% are single family houses and detached houses
- 14% non-residential buildings
- 21% of residential buildings constructed before 1919
- 47% of residential buildings constructed 1945-1981



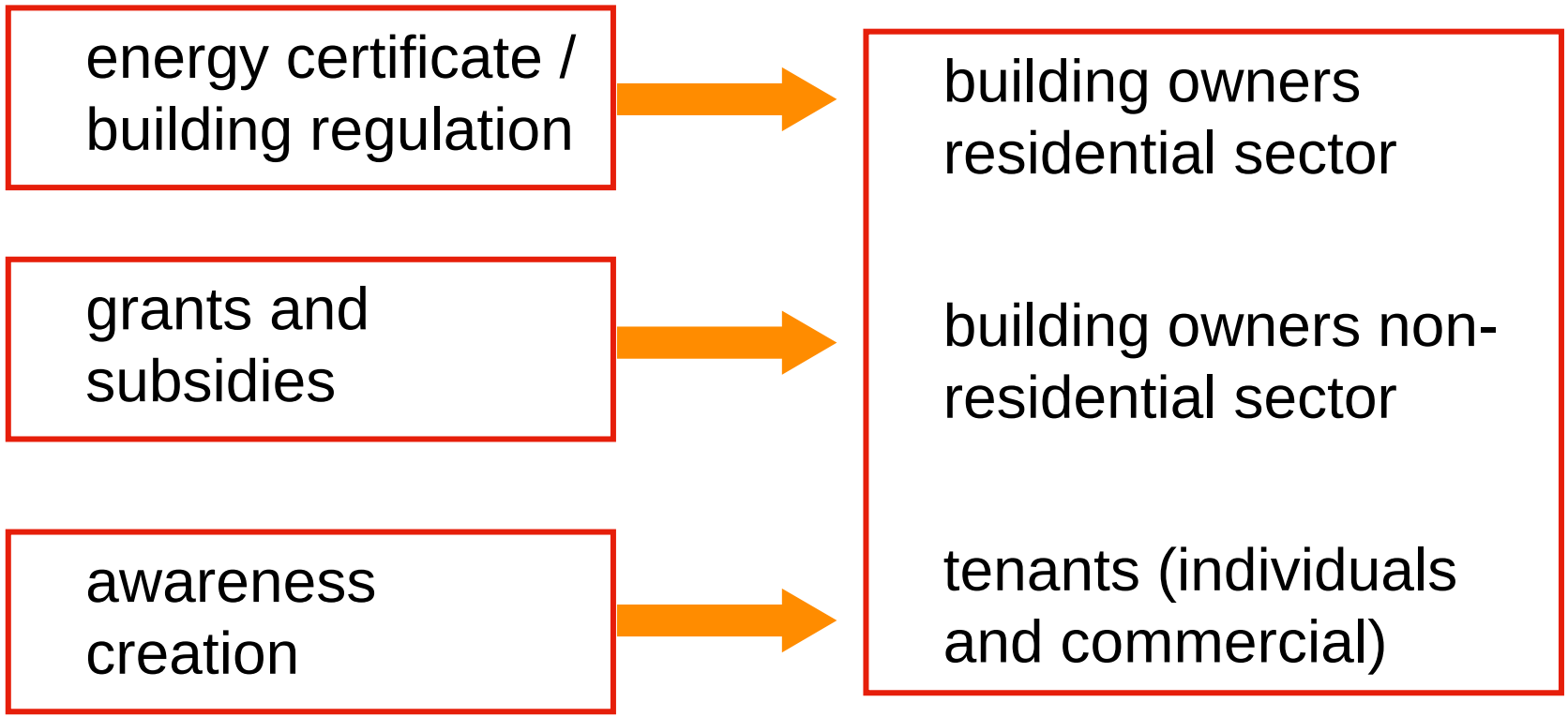


Austrian building stock

- 2.05 million buildings
- 75% are **single family** houses and detached houses → **Main issue: heating energy consumption**
- 14% **non-residential** buildings (main share: tourism and offices) → **Main issue: electricity consumption, cooling**

Energy consumption for electric appliances and cooling is increasing!

Policy instruments and target groups



Subsidy for energy efficiency measures and renewable energy use

- Most important indicator for energy efficiency performance: heating energy demand [kWh/m2a]
- Usually, requirements depend on the surface to volume ratio
  - lower requirements for single family buildings
  - higher requirements for multifamily buildings
- In addition, grants are available for renewable energy technologies, e.g. biomass, solar thermal plants, heat pumps.

New construction

- New construction = additional buildings, causing additional energy consumption and CO2 emissions
- Therefore energy consumption and CO2 emissions should be reduced as much as possible
- Subsidy schemes:
  - Defined energy efficiency categories represented by heating energy demand values [kWh/m2a] with funds allocated to them
  - In addition, there are subventions available for the use of renewable energy technologies

New building construction: mandatory energy performance requirements

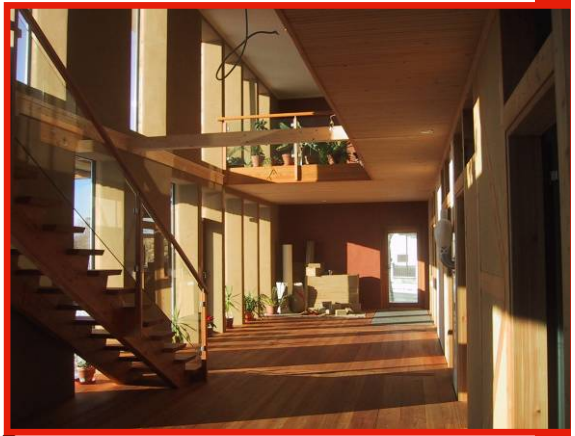
- **Example Province of Styria:**
- Single family houses must achieve the minimum requirement 65 kWh/m²a as a condition to receive social housing subsidy
- In addition, the following subsidies are offered depending on the energy efficiency performance:
  - Category low energy house:
    maximum 52 kWh/m²a
    → additional € 10.000
  - Category super low energy house:
    maximum 39 kWh/m²a
    → additional € 15.000
  - Category passive house:
    maximum 15 kWh/m²a
    → additional € 25.000

New construction: more ambitious mandatory requirements

- Burgenland: 40 kWh/m2a heating energy demand for single family houses; additional grant (up to € 28.000) for passive house standard
- Vienna implements the following conditions since 2009:
  - 45 kWh/m2a heating energy demand for single family houses without controlled ventilation
  - 33 kWh/m2a for single family houses with controlled ventilation

Building renovation to increase energy efficiency of building stock

- The Austrian building stock (residential buildings) implies a significant energy saving potential
  - Average heating energy demand of multifamily buildings is estimated **90 kWh/m²a**
  - Average heating energy demand of single family houses and detached houses is estimated **200 kWh/m²a**



- Ambitious targets: increase energy related renovation rate from < 1% to 3% p.a.
- Shifting subsidies from new construction to renovation necessary (negotiations Federal state – Länder)

Which strategy is best to tap the full savings potential?

- **Ambitious targets (low heating energy demand)**

OR

- **Moderate threshold and amount of funding depending on the energy performance**

Which strategy ist best?

- Ambitious targets:
  - no obligation for energy related renovations
  - less investment in energy related building renovation if requirements set by the subsidy scheme are too strict
- Therefore the subsidy schemes of the Austrian provinces offer:
  - **Defined energy efficiency categories** represented by heating energy demand values [kWh/m2a] **with funds allocated** to them. **Moderate threshold to encourage** potentially interested building owners to aim also for energy related improvement
  - Subventions available for renewable energy use connected with subsidies for the renovation of the heating system
  - Subsidies for the renovation of single components (e.g. windows, insulation of top ceiling)

Energy conservation in buildings

new constructions

efficiency class	kWh/m2a
A++	up to 10
A+	> 10 - 15
A	> 15 - 25
B	> 25 - 50
C	> 50 - 100
D	> 100 - 150
E	> 150 - 200
F	> 200 - 250
G	> 250

BAU today

in the future

building stock

efficiency class	kWh/m2a
A++	up to 10
A+	> 10 - 15
A	> 15 - 25
B	> 25 - 50
C	> 50 - 100
D	> 100 - 150
E	> 150 - 200
F	> 200 - 250
G	> 250

BAU renovation today

in the future

existing quality

Advantages of a stepwise energy efficiency related subsidy scheme

- Attracts as many building owners as possible and rewards energy related measures
  - The highest subsidy is available for a renovation according to passive house standard
- Takes into account technical and economical challenges in the renovation sector:
  - **Technical barriers** connected with the structure of the existing building may not allow passive house renovation
  - **Financial barriers**: a highly ambitious renovation might not be affordable

A barrier for optimised renovation and a solution

- The renovation of the building envelope and the heating system might not be due at the same time
- In practical terms: building owner carries out isolated measures without holistic renovation concept → no optimisation of energy performance
- Vorarlberg funds the elaboration of a **comprehensive renovation concept** with € 600, in order to give an incentive for optimised major renovations
- Even if all measures are not implemented at the same time due to financial reasons, the building owner is provided with a **renovation plan**:
  - recommending **appropriate measures** and
  - scheduling them in the **correct sequence**

Subsidies to address the non-residential sector (renovation)

Subsidies to improve energy efficiency of building envelope and windows of buildings constructed before 1.1.1990

- Target group: commercial
- Amount:
  - max. 30 % of total energy related investment cost, energy indicator is max. 50 kWh/m²a
  - max. 20% of total energy related investment cost, energy indicator is between 50 und 70 kWh/m²a

Summary

- Energy related social housing subsidy schemes are important instruments to activate energy savings and renewable energy gains in the residential building sector.
- They reward energy performance better than the minimum requirements set by the respective legislation.
- Energy efficiency standards have been improving constantly in new construction as well as in building renovation.
- In new construction there is the intention to limit social housing subsidies to passive house standard in the near future.
- Regarding building stock there are still technical and economical limitations regarding the broad realisation of passive house renovations; however, super low energy houses seem to be a realistic standard in the near future.

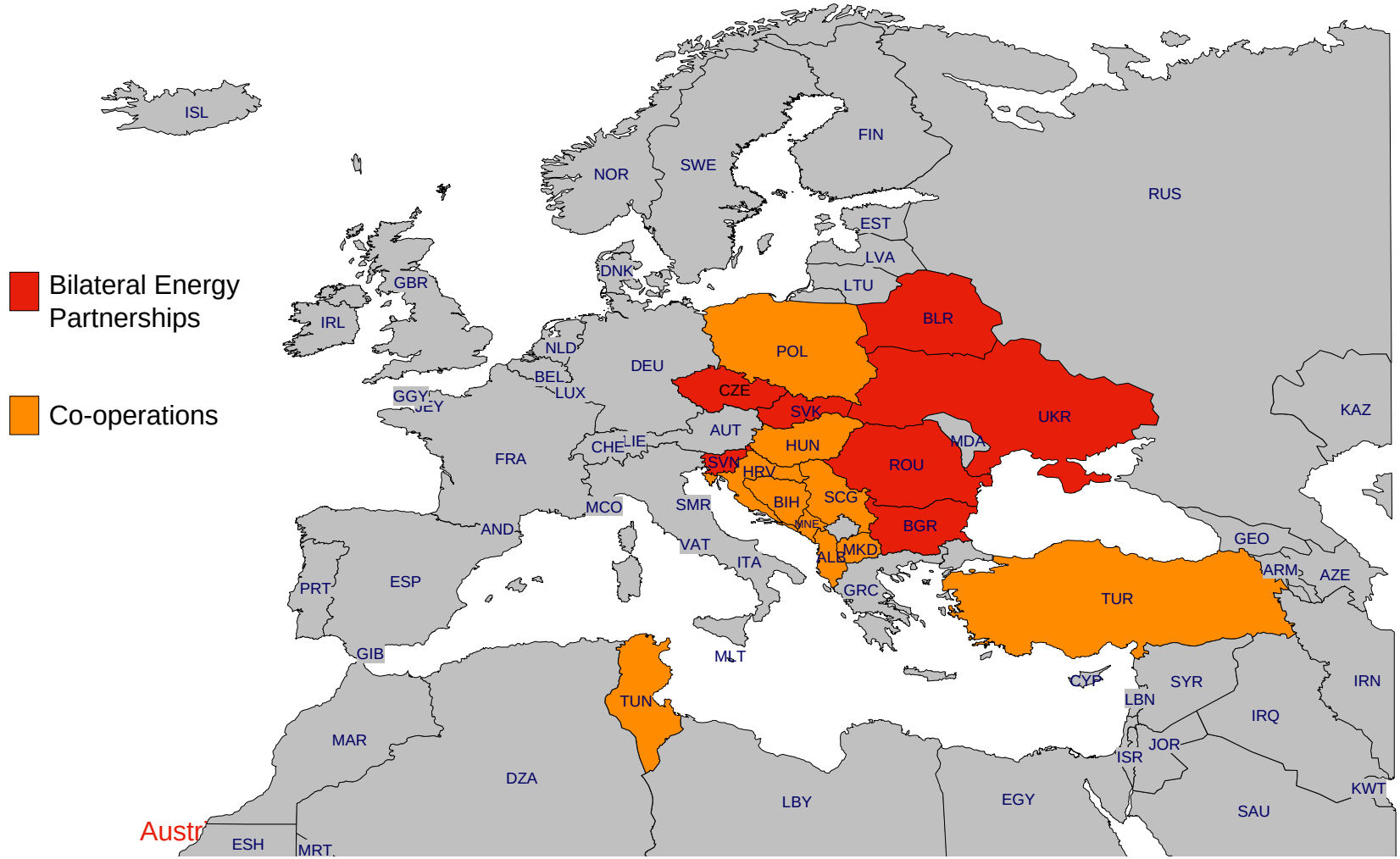
AEA‘s Main working areas

- **sustainable and secure energy systems**
- **efficient and thus environmentally friendly production, conversion and use of energy**
- **renewable energy sources**
- **innovative energy technologies**

Cooperation within projects and networks on national, EU and international level

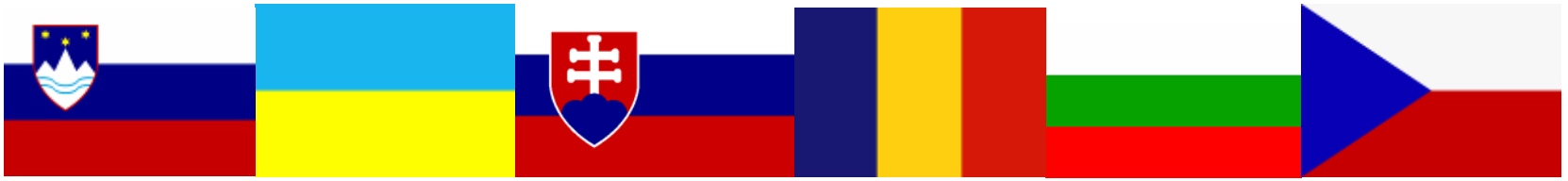
AUSTRIAN ENERGY AGENCY

Austrian Energy Partnerships and Cooperations



Austrian Energy Partnerships – an Overview

- Political Commitment
- Managed by AEA and a selected partner in the partner country
- Promotion of Renewable Energy and Energy Efficiency
- Point of departure for the development of closer co-operations
- Platform for the identification and realisation of concrete investment projects and preperation of „Joint Implementation“ in the framework of Kyoto Protocol
- Austrian Energy partnerships with SK, CZ, BG, RO, UA, BY and SLO



Thank you for your attention!

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International Cooperation
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  - energy policy and legal framework
  - administration
  - facts and figures on supply and demand
  - energy related funds and support mechanisms for electricity from RES
  - Country Profiles (CEE and SEE)

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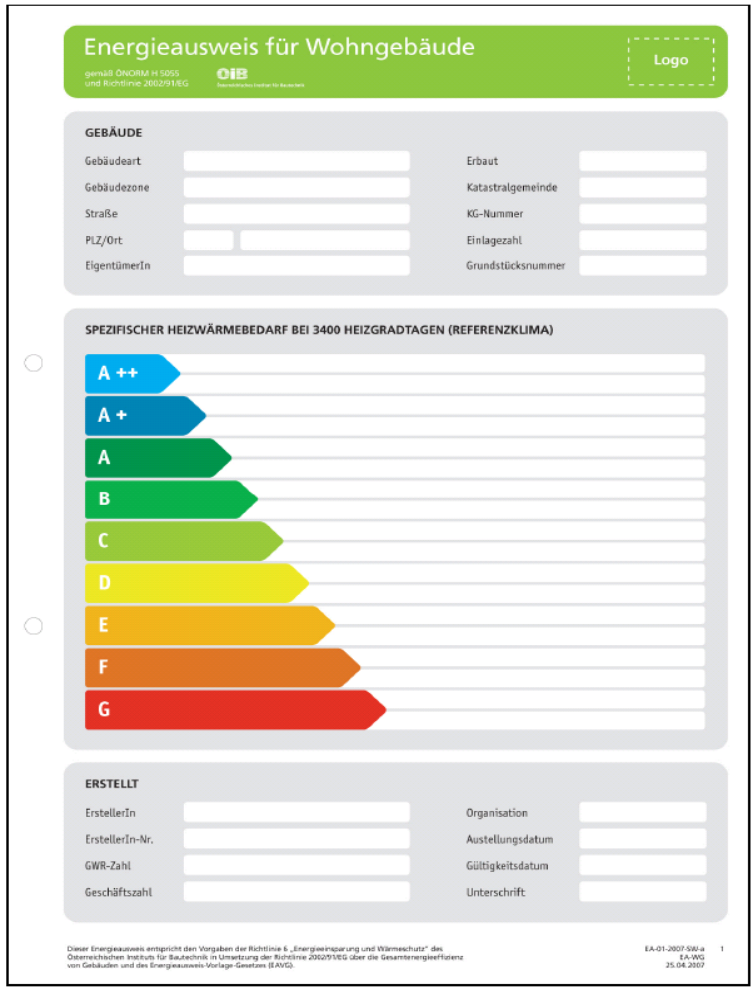
Energy certificate for residential buildings



Energieausweis für Wohngebäude

gemäß ÖNORM H 5055 und Richtlinie 2002/91/EG

OIB

Logo

GEBÄUDE

Gebäudeart		Erbaut	
Gebäudezone		Katastralgemeinde	
Straße		KG-Nummer	
PLZ/Ort		Einlagezahl	
EigentümerIn		Grundstücksnummer	

SPEZIFISCHER HEIZWÄRMEBEDARF BEI 3400 HEIZGRADTAGEN (REFERENZKLIMA)

A ++
A +
A
B
C
D
E
F
G

ERSTELLT

ErstellerIn		Organisation	
ErstellerIn-Nr.		Austellungsdatum	
GWR-Zahl		Gültigkeitsdatum	
Geschäftszahl		Unterschrift	

Dieser Energieausweis entspricht den Vorgaben der Richtlinie 6 „Energieeinsparung und Wärmeschutz" des Österreichischen Instituts für Bautechnik in Umsetzung der Richtlinie 2002/91/EG über die Gesamtenergieeffizienz von Gebäuden und des Energieausweis-Vorlage-Gesetzes (EAVG).

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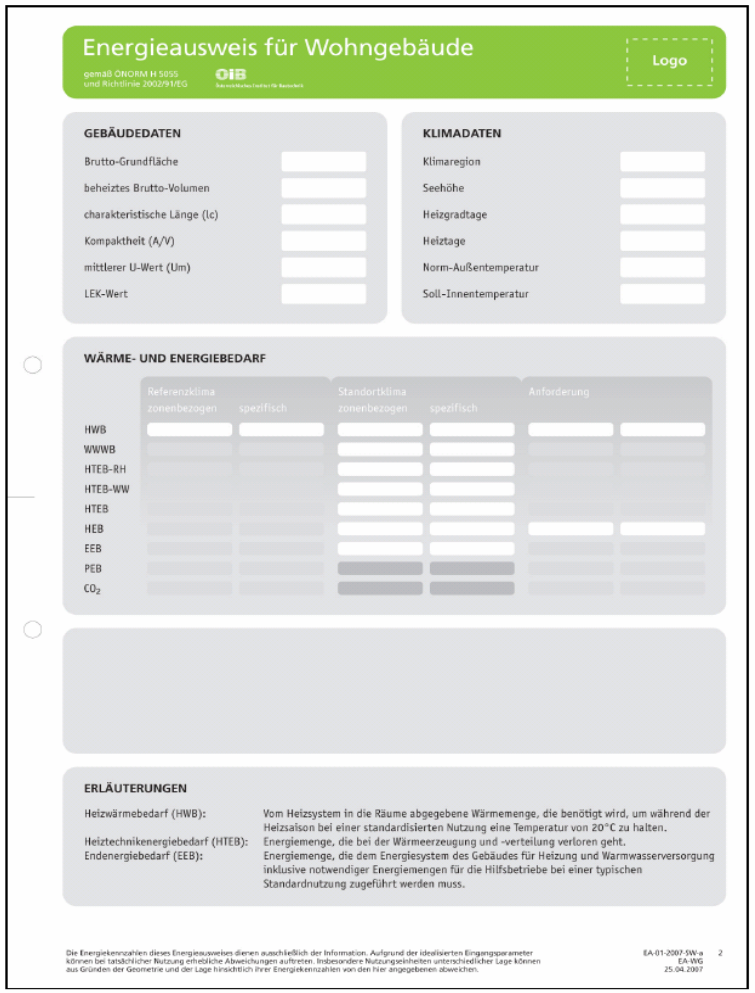
EA-WG
25.04.2007



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GEBÄUDEDATEN

Brutto-Grundfläche	
beheiztes Brutto-Volumen	
charakteristische Länge (lc)	
Kompaktheit (A/V)	
mittlerer U-Wert (Um)	
LEK-Wert	

KLIMADATEN

Klimaregion	
Seehöhe	
Heizgradtage	
Heiztage	
Norm-Außentemperatur	
Soll-Innentemperatur	

WÄRME- UND ENERGIEBEDARF

	Referenzklima zonenbezogen	Referenzklima spezifisch	Standortklima zonenbezogen	Standortklima spezifisch	Anforderung	
HWB						
WWWB						
HTEB-RH						
HTEB-WW						
HTEB						
HEB						
EEB						
PEB						
CO_2						

ERLÄUTERUNGEN

Heizwärmebedarf (HWB):	Vom Heizsystem in die Räume abgegebene Wärmemenge, die benötigt wird, um während der Heizsaison bei einer standardisierten Nutzung eine Temperatur von 20°C zu halten.
Heiztechnikenergiebedarf (HTEB):	Energiemenge, die bei der Wärmeerzeugung und -verteilung verloren geht.
Endenergiebedarf (EEB):	Energiemenge, die dem Energiesystem des Gebäudes für Heizung und Warmwasserversorgung inklusive notwendiger Energiemengen für die Hilfsbetriebe bei einer typischen Standardnutzung zugeführt werden muss.

Die Energiekennzahlen dieses Energieausweises dienen ausschließlich der Information. Aufgrund der idealisierten Eingangsparameter können bei tatsächlicher Nutzung erhebliche Abweichungen auftreten. Insbesondere Nutzungseinheiten unterschiedlicher Lage können aus Gründen der Geometrie und der Lage hinsichtlich ihrer Energiekennzahlen von den hier angegebenen abweichen.

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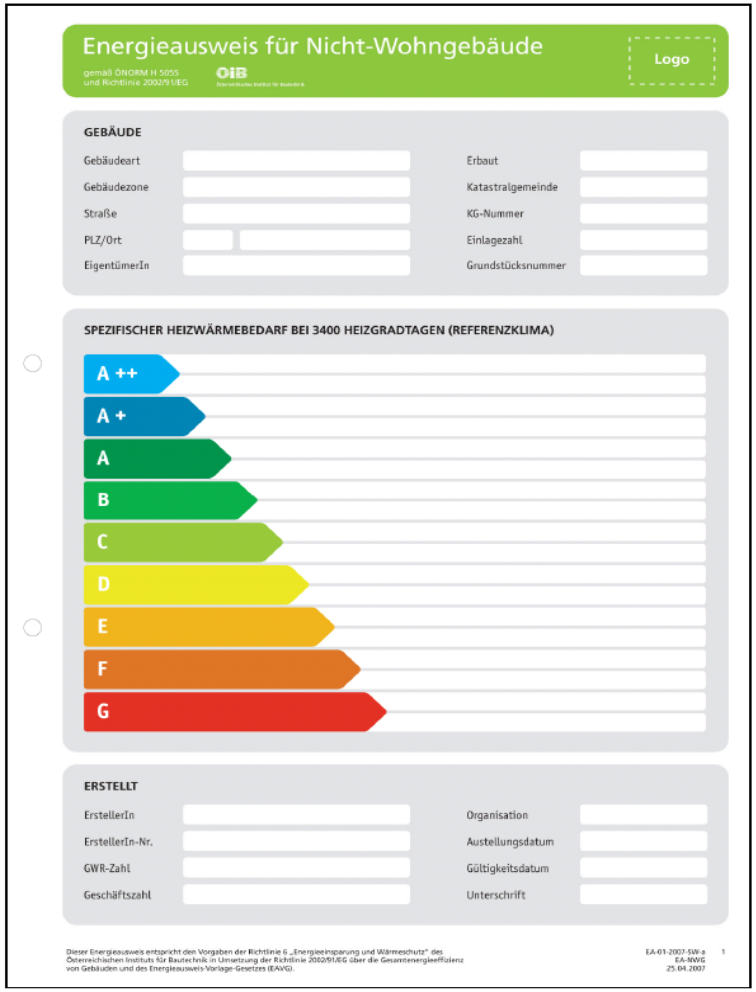
25.04.2007

Energy certificate for non-residential buildings



Energieausweis für Nicht-Wohngebäude

gemäß ÖNORM H 5055 und Richtlinie 2002/91/EG

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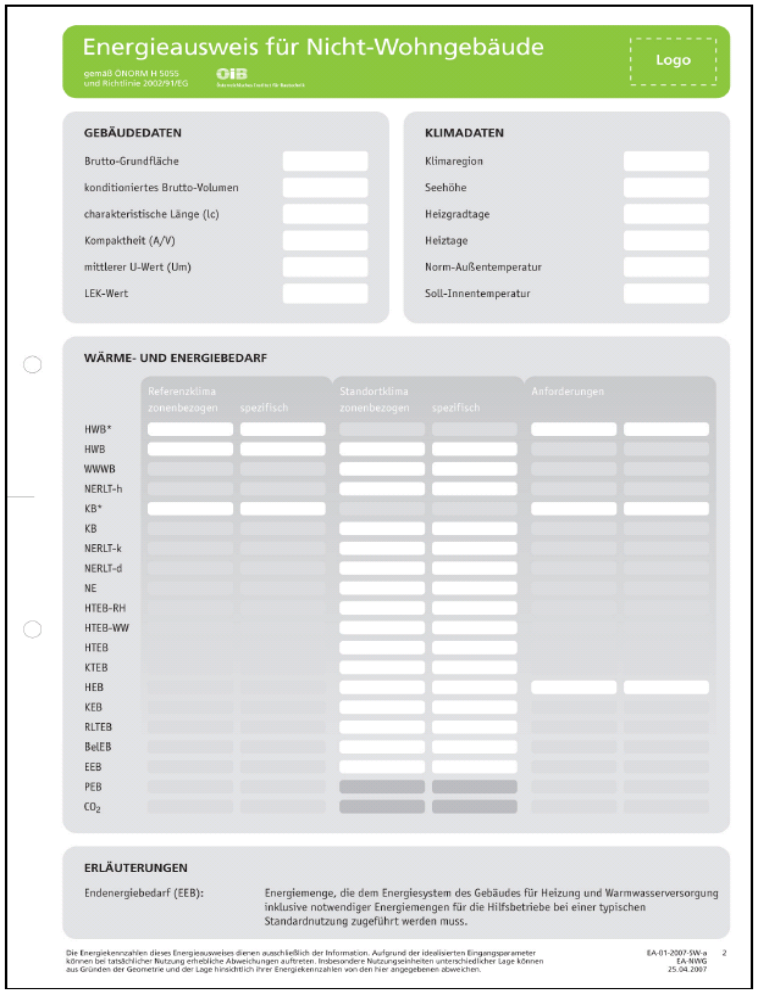

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Soll-Innentemperatur	

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HWB						
WWWB						
NERLT-h						
KB*						
KB						
NERLT-k						
NERLT-d						
NE						
HTEB-RH						
HTEB-WW						
HTEB						
KTEB						
HEB						
KEB						
RLTEB						
BeLEB						
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PEB						
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