Walter Hüttler
e7 Energie Markt Analyse GmbH

How to finance energy efficiency? Promotion schemes in Austria

Nearly Zero Energy Challenge
International Workshop Milan, June 11-12, 2013

Housing stock – Basic data

- **8,1 mio inhabitants**
- **3,4 mio households**
- **2,4 persons/household (main residences)**
- **3,8 mio dwellings**
  - single family 42%
  - condominiums 11%
  - coop. housing 13%
  - *municipal rental* *9%*
  - *private rental* *18%*
  - others 7%

„social housing“ 22% / 735.000 dwellings

Source: Statistics Austria, 2001

Legal and institutional framework

- **Federal State: housing laws, tax laws**
  - tenancy law
  - condominium law
  - limited-profit housing law
  - civil code
- **Federal Provinces („Länder“)**
  - 9 different building codes
  - 9 different subsidy schemes

Housing subsidy schemes in Austria: General remarks

- **Extended understanding of „social housing“**
- **-> fairly generous income limits**
- **-> 80% of new housing construction is co-financed by the public**
- **Austrian provinces spend appr. 2,9 bn €/year on housing subsidy**
- **Where does the money come from?**
  - 1,78 bn €/year: federal taxes (appr. 60% comes from the federal state! - fixed earmarked part of the income tax -> a secure financial base)
  - Rest: returns of outstanding loans and provincial budgets
- **Practically no tax incentives for refurbishments**

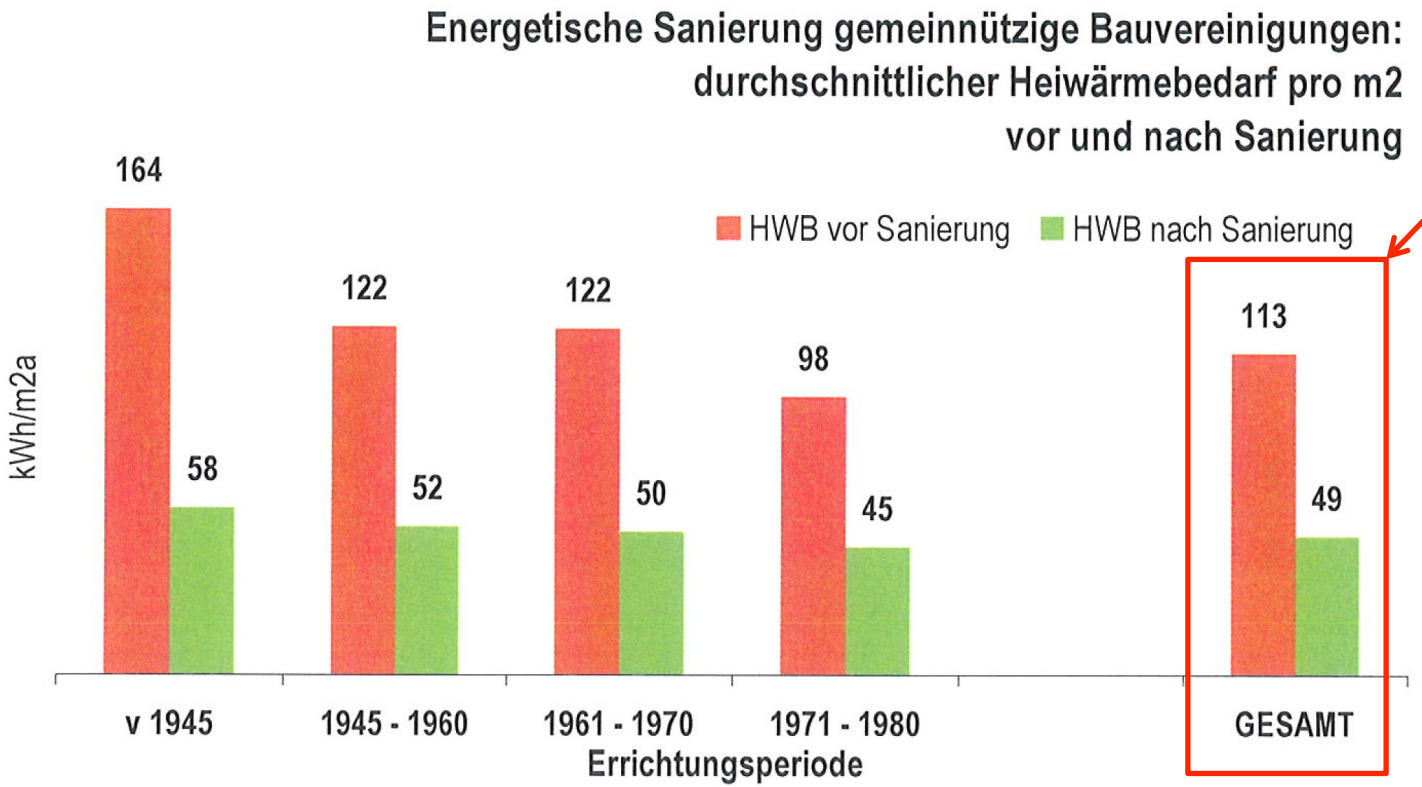
Housing subsidy expenditures: new build and refurbishment

- **Expenditures 2010**
  - new multi-family residential 47%
  - new single family 11%
  - refurbishment 28%
  - suject subsidies 14%

- **Refurbishment rates in Austria**
  - Political target: 3%
  - Reality: 1% on average, 3% in cooperative housing sector

Refurbishment in the cooperative housing sector: Quality aspects

Energy heating demand before and after refurbishment



500 mio €/year, 15.000 dwellings

Subsidy schemes for refurbishment

- **2010: 850 mio € subsidies for refurbishment (about 1/3 of total subsidies)**
- **Target groups of different schemes**
  - individual home owners
  - limited-profit housing associations
  - municipalities
  - commercial housing developers
  - tenants
- **Focus on ecological improvements (energy efficiency)**
  - share of subsidy depending on energy standard or energy reduction
  - additional incentives for e.g. mechanical ventilation (improvement of comfort)

Thermal-energy renovation scheme in Vienna: „Thewosan“

- **Thewosan-Scheme: introduced in 2000**
- **Focus on apartment blocks built between the 1950s and the 1970s**
- **Comprehensive refurbishment mandatory: whole building shell (facade, windows, roof) in order to essentially reduce energy consumption**
- **Non-repayable subsidy up to one third of total costs, depending on energy performance after refurbishment (4 levels – max. subsidy when low energy standard after refurbishment)**
- **2000-2010: 800 buildings, 60.000 flats, 200 mio € subsidy -> 600 mio € investments**
- **energy calculation mandatory: average insulation 12 cm, double glazing windows**

Federal program since 2009: „Refubishment Check“

- 100 mio €/year ... for residential and non-residential buildings
- in order to give additional incentives during the real estate and financial crisis and stimulate labour market
- energy-certificate for quality-check of minimum requirements
- max. 20% of eligible costs or 5.000 € (non-repayable contribution per dwelling)
- max. 30% or 7.000 € “Konjunktur-Bonus” (application till end of June 2013 and completion till end of March 2014)
- federal program is additional to the existing subsidy of the provinces -> quite sucessful

Refurbishment to passive house standard Makartstraße, Linz

multi-storey-building from the 1950s, use of prefabricated wall units, central element of the facade system is a special solar comb, which is mounted on the outside wall in form of a panel (gapsolar), controlled ventilation with single room ventilators

Fotos: gap-Solar/GIWOG

Walter Hüttler,
e7 Energie M

Attaching the prefabricated wall units without scaffolding

Factor-10 Renovation in Vorarlberg minus 70% Energy consumption

Rankeil-Schleipfweg (18 flats, built 1978; insulation 25-30 cm, central mech. ventilation with heat recovery, therm. solar collectors, EHD before 175 after renovation 15 kWh/m².a, completed 2007 (VOGEWOSI)

Fotos: VOGEWOSI

Renewable Energy: thermal solar systems

Refurbishment and integration
of thermal solar collectors

Integration of thermal solar collectors on a historical residential building (+/- 1900) in Vienna, 2nd district, vertical pipes to the flats through chimneys, that are out of use

Innovative Refurbishment of historical buildings – R&D pilot projects

Wißgrillgasse | Demo-Project Haus der Zukunft [completed]

- Factor-8-refurbishment with high-efficient new attic

David‘s Corner | Demo-Project Haus der Zukunft [under construction]

- Refurbishment of a „Gründerzeit“ ensemble of 3 buildings

Kaiserstraße | Demo-Project Haus der Zukunft [under construction]

- Refurbishment of a listed building to lowest-energy standard

Molkereistraße | Demo-Project Haus der Zukunft [concept]

- „Gründerzeit“ building with active solar components (thermal solar / PV)

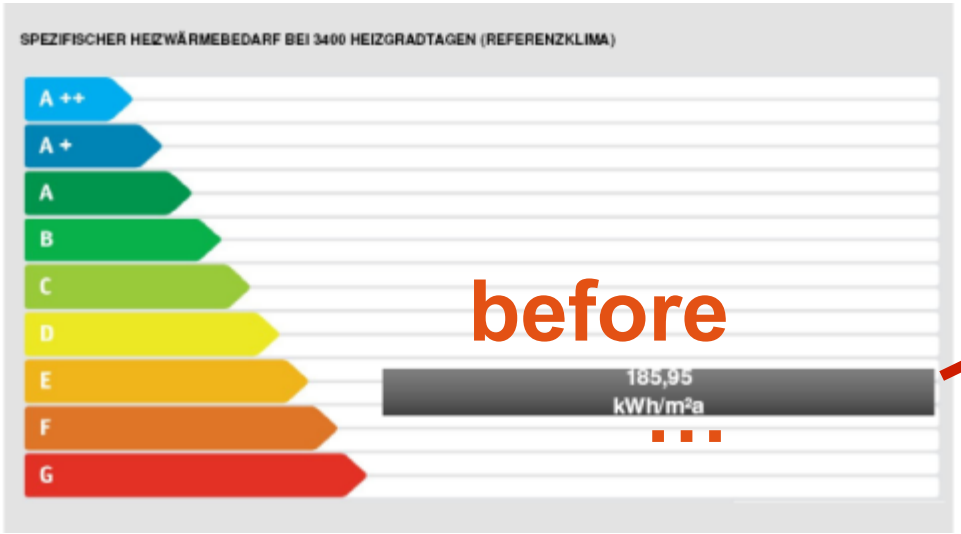
Eberlgasse | Demo-Project Haus der Zukunft [under construction]

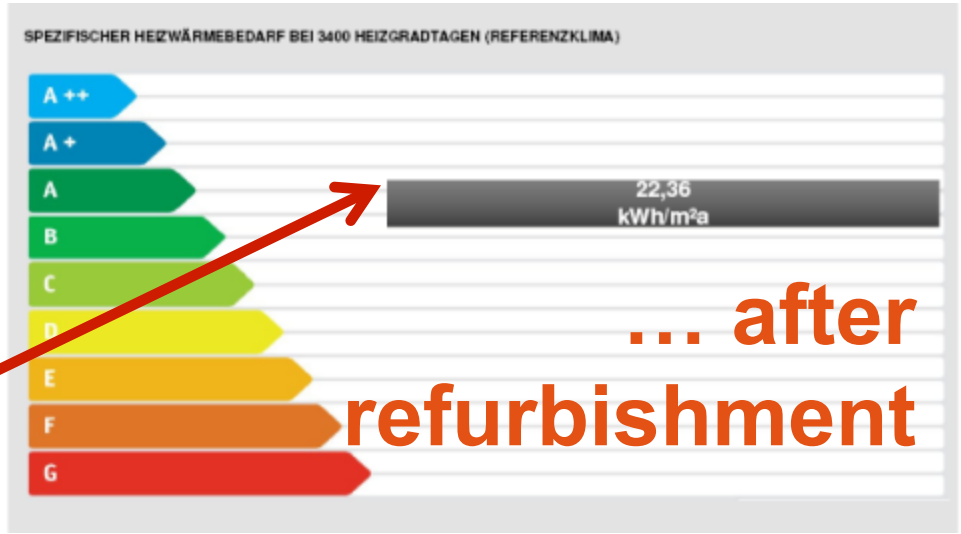
- First refurbishment to passive house standard in Vienna – completed in Sept. 2013

Pilot project „Wißgrillgasse“ Vienna

Foto: Gassner & Partner Baumanagement GmbH

Energy Certificate Historical Building
(Built 1900 – Refurbishment 2010)



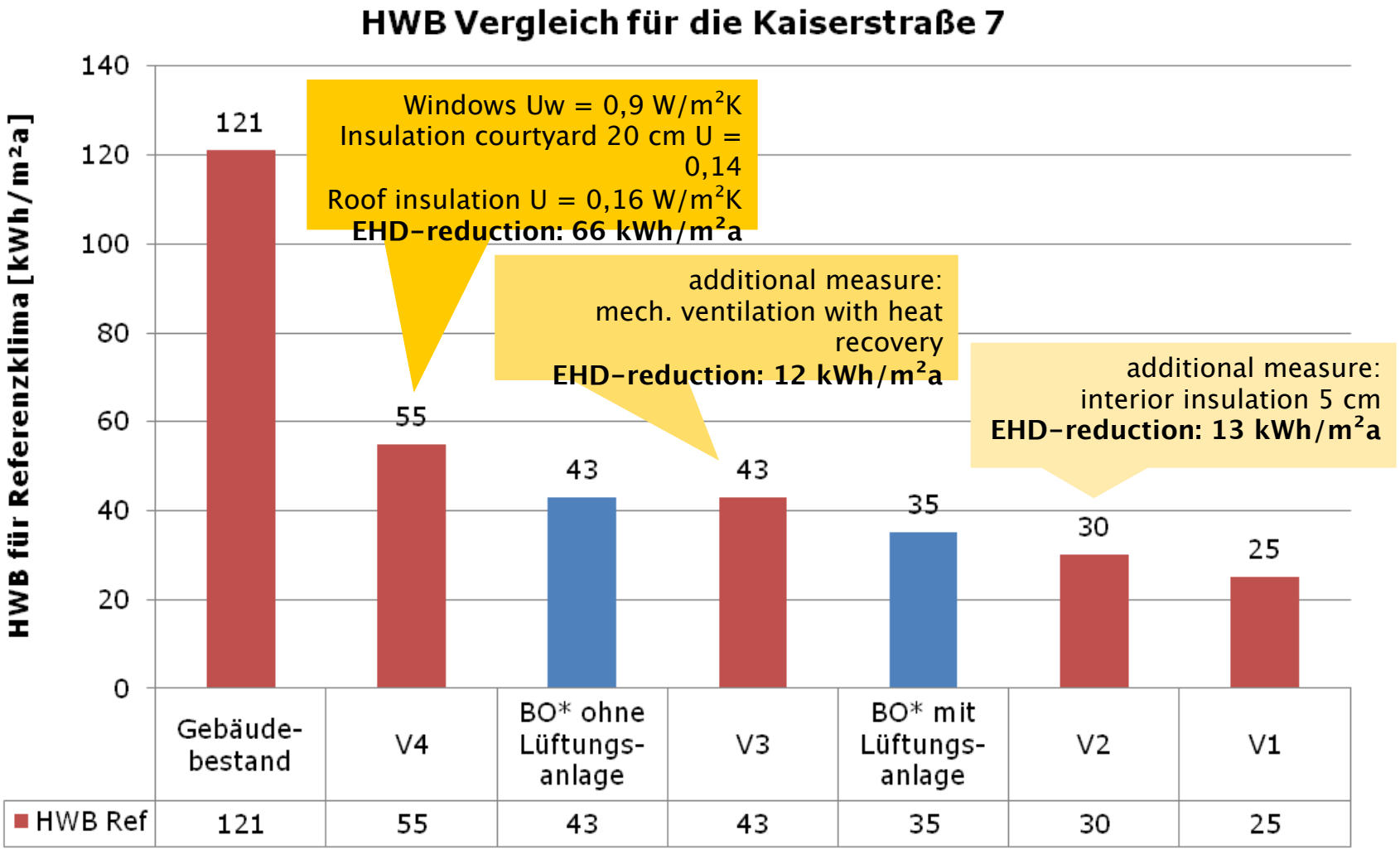


- EPBD 2010 -> national implementation 2012:
  - **no exemptions for historical and/or listed buildings**
  - **energy indicator mandatory in real estate advertisings**
    - **in force since December 1st 2012**

Pilot project „Kaiserstraße“ Vienna before refurbishment

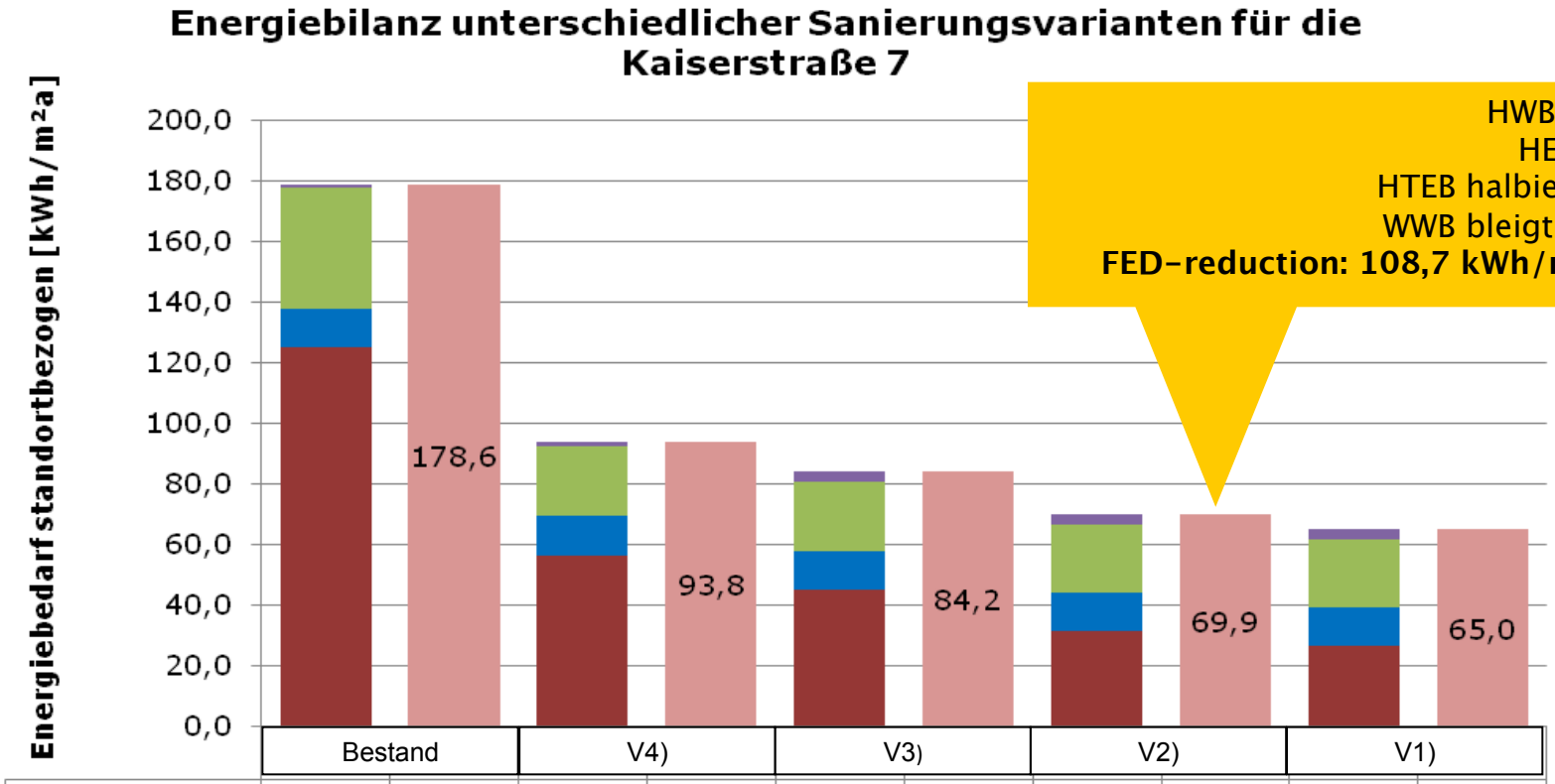
Pilot project „Kaiserstraße“ Vienna
Juni 2013

Energy performance: Energy heating demand



Berechnung : e7

Energy performance: Final energy demand



	Bestand		V4)		V3)		V2)		V1)	
HE	0,7		1,2		3,4		3,2		3,2	
HTEB WW+RH	40,0		23,2		22,9		22,5		22,3	
WWB	12,8		12,8		12,8		12,8		12,8	
HWB standort	125,1		56,6		45,1		31,4		26,7	
EEB		178,6		93,8		84,2		69,9		65,0

EEB HWB standort WWB HTEB WW+RH HE

Berechnung : e7

Demonstration buildings: Continuous R&D (1999-2013)

Haus der Zukunft PLUS

„Technical Guide" (2012 de/en) http://www.nachhaltigwirtschaften.at/publikationen/view.html/id1053

Lessons learned

- Importance of pilot projects with sound documentation and monitoring
- Bridging the gap between R&D and broad application -> incentives for innovation in broad scale programs
- Subsidy schemes and R&D programs need stable financial base
- in order to guarantee continuity and credibility over (at least) several years
- Energy monitoring should be mandatory -> secure that calculated energy savings are actually reached in practice

Kontakt

Dipl.-Ing. Walter Hüttler
e7 Energie Markt Analyse GmbH
Theresianumgasse 7/1/8
1040 Wien
Tel.: 01-907 80 26-54
walter.huettler@e-sieben.at