

# NZE Challenge

**WP2 Task Force Meeting  
Vienna Feb 27th/28th 2013**

**Presentation Eva Bauer/GBV**

# **AGENDA Taskforce meeting WP 2, VIENNA**

- A. Overview : Results Needs Analysis and Work Programme (Deliverable 1) (eb)**
- B. News: National Strategies 2020 (eb + participants)**
- C. Discussion: Energy Labels +**
- D. Presentation: First Results Monitoring GBV**
- E. (E7: Models of Calculation Cost Optimality)**
- F. Input of Participants: Calculations**
- G. Site Visits – Background Information**

## MODELS of NATIONAL STRATEGIES of ENERGY-EFFICIENT BUILDING

### Interaction between regulation and financial incentives, NATIONAL PLANS 1

- A. Stepwise Adaption (Tightening) of General Building Regulations  
+ Financial Incentive (subsidy) for better standards in extra scheme („non-social“)

#### GERMANY

National Plan: No regulation for existing stock since solutions are not cost efficient  
For new built buildings: Requirements will be presented after further analysis

- B. Stepwise Adaption (Tightening) of General Building Regulations  
+ indirect incentives via higher standards in existing (social) promotion scheme + direct incentives by extra financial assistance for lowest energy level integrated in these schemes,

eg: 40% public soft loan for costs of construction + non-repayable grant to cover 50 – 100% of extra costs for passive house

#### AUSTRIA

National Plan: Draft existent, public available requirements:

**NEW CONSTRUCTION**: from today's heating demand 35kWh to 22kWh in 2020  
(today's requirements in subsidised housing: 25kWh)

**REFURBISHMENT**: requirements remain at the actual level of 50kWh  
(today's requirements in subsidised housing: 50kWh)



## MODELS of NATIONAL STRATEGIES of ENERGY-EFFICIENT BUILDING Interaction between regulation and financial incentives, NATIONAL PLANS

C. Stepwise Adaption (Tightening) of General Building Regulations  
without extra incentives but general schemes available for Social Housing (extra subsidies  
under discussion)

FRANCE and BELGIUM-FI

National Plan Belgium: under elaboration, at present: max. heating demand 70kWh + other  
requirements ; from 2014: renewables mandatory OR lower level

National Plan France: 0-energy bulidings from 2020,  
at present in NEW CONSTRUCTION 50kWh primary energy demand (!)

D. SWEDEN no funding schemes available;  
current state: end energy demand: 90 – 130 depending on climate zone

E. Little impact from building regulations and financial incentives  
(voluntary schemes, financing for test cases ...)

UK, ITALY

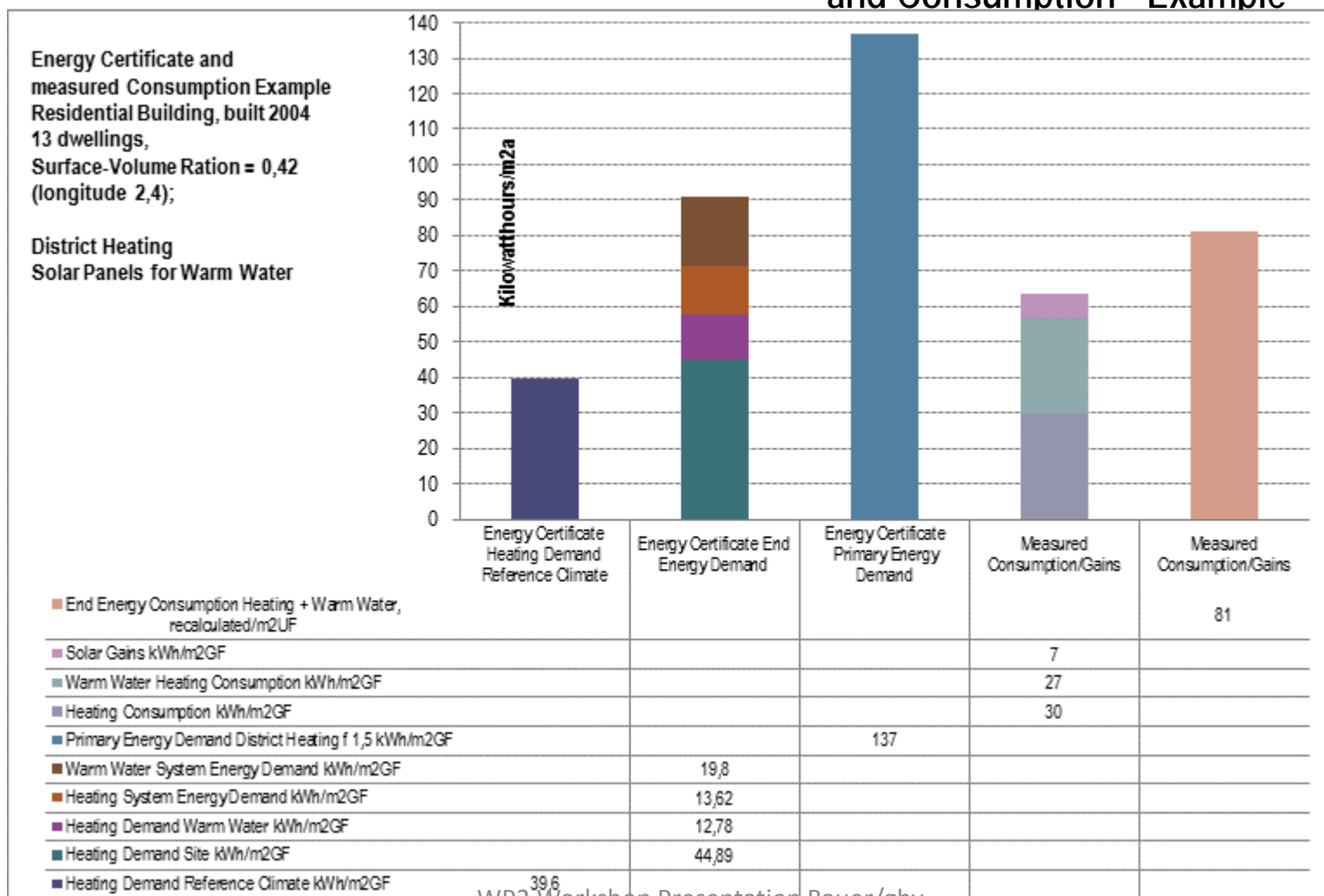
UK: „Carbon Plan“ instead of energy demand

## Main Obstacles and Barriers

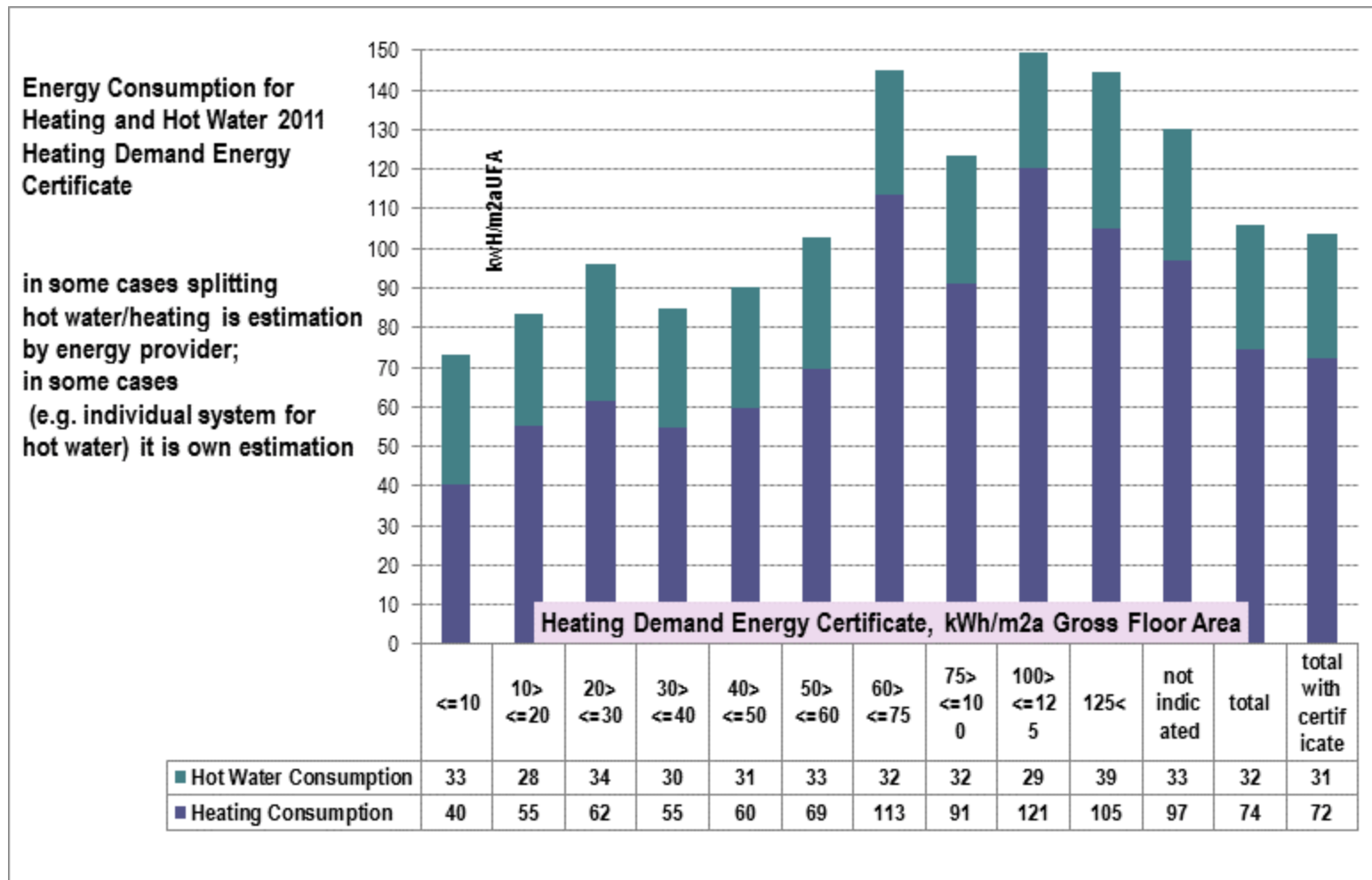
There are

- Problems related to the **introduction of the new technologies**, directly in form of weak technical performance of some technical devices plus the lack of knowhow of technicians/planners/building trade and the lack of experience/education in proper use and maintenance of new technologies.
- **Economic and financial problems** are serious barriers as housing construction requires huge investments and low energy buildings are even more expensive; not only is the rent level affected by higher costs of construction, there are also problems related to financing and rent setting. Also the lack of data (documentation) of in-use projects is mentioned as well as the uncertainty about the proper methods of analysis.
- **prejudices**
- Institutional framework: there are some reservations concerning the **legislation being too much in advance** of development

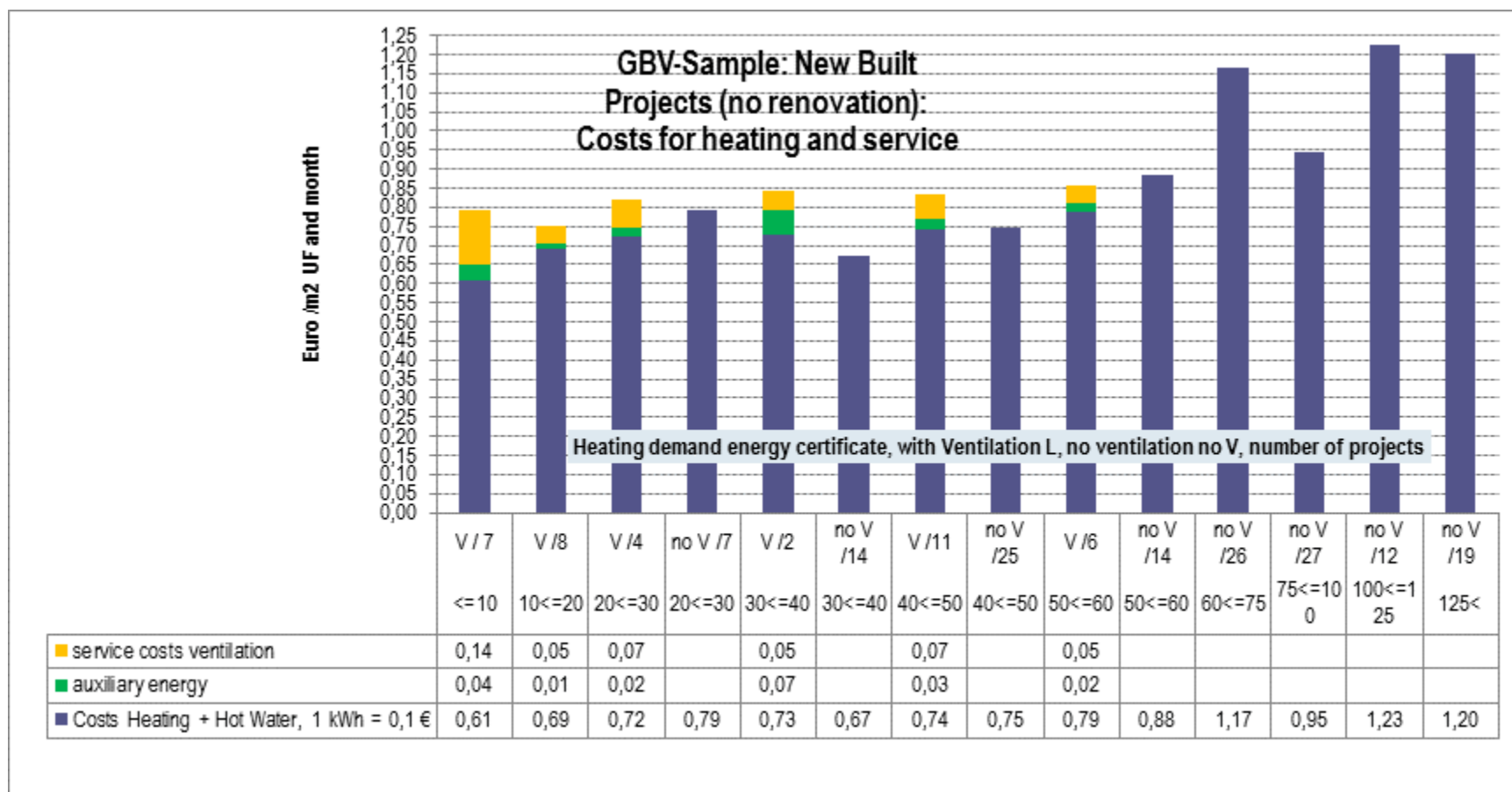
## Energy Efficiency Indicators + Monitoring GBV – First Results: Energy Certificate and Consumption - Example



## Monitoring GBV – First Results: Energy Consumption for Sample of Buildings without Retrofitting (130 cases)



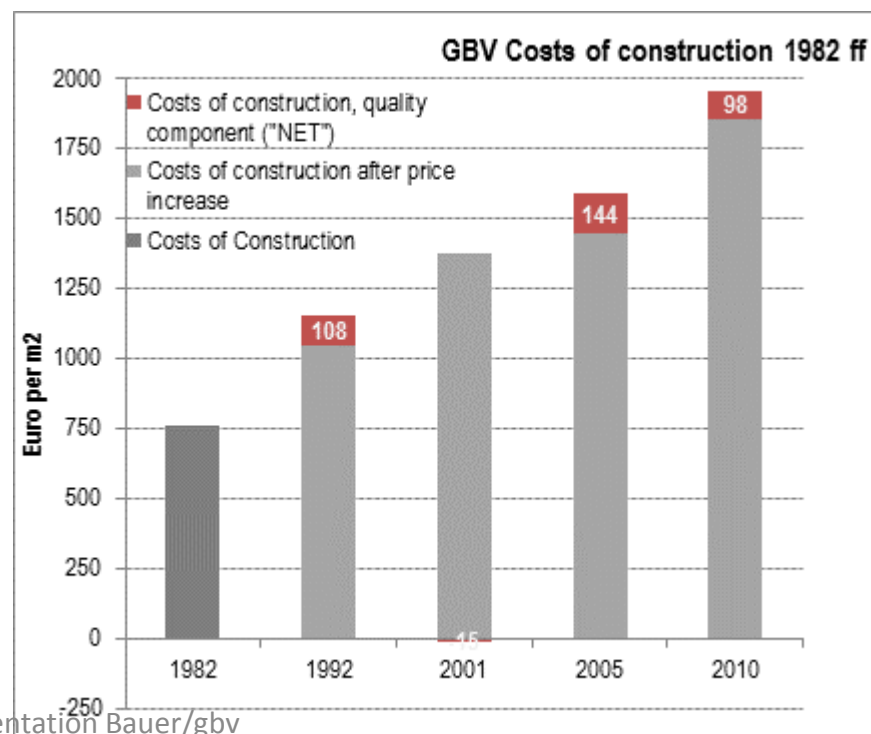
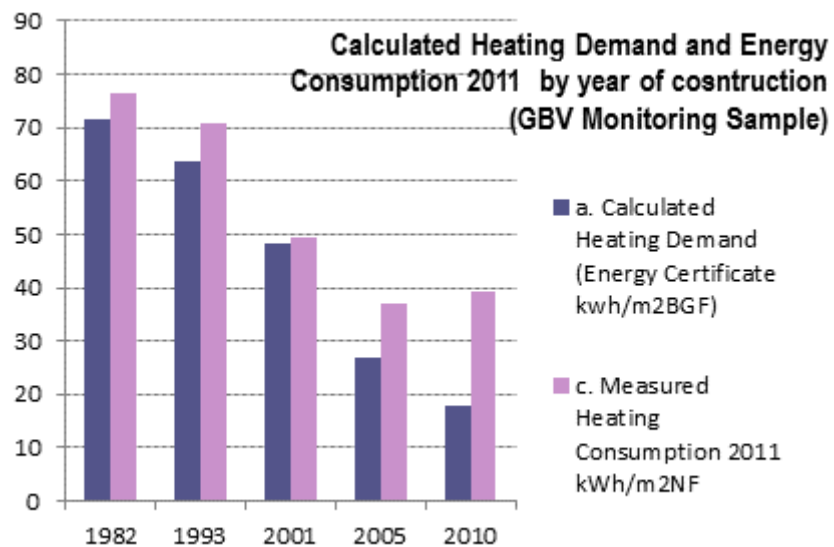
## Monitoring GBV – First Results: Energy + Service Costs for sample of non-retrofitted buildings (130)



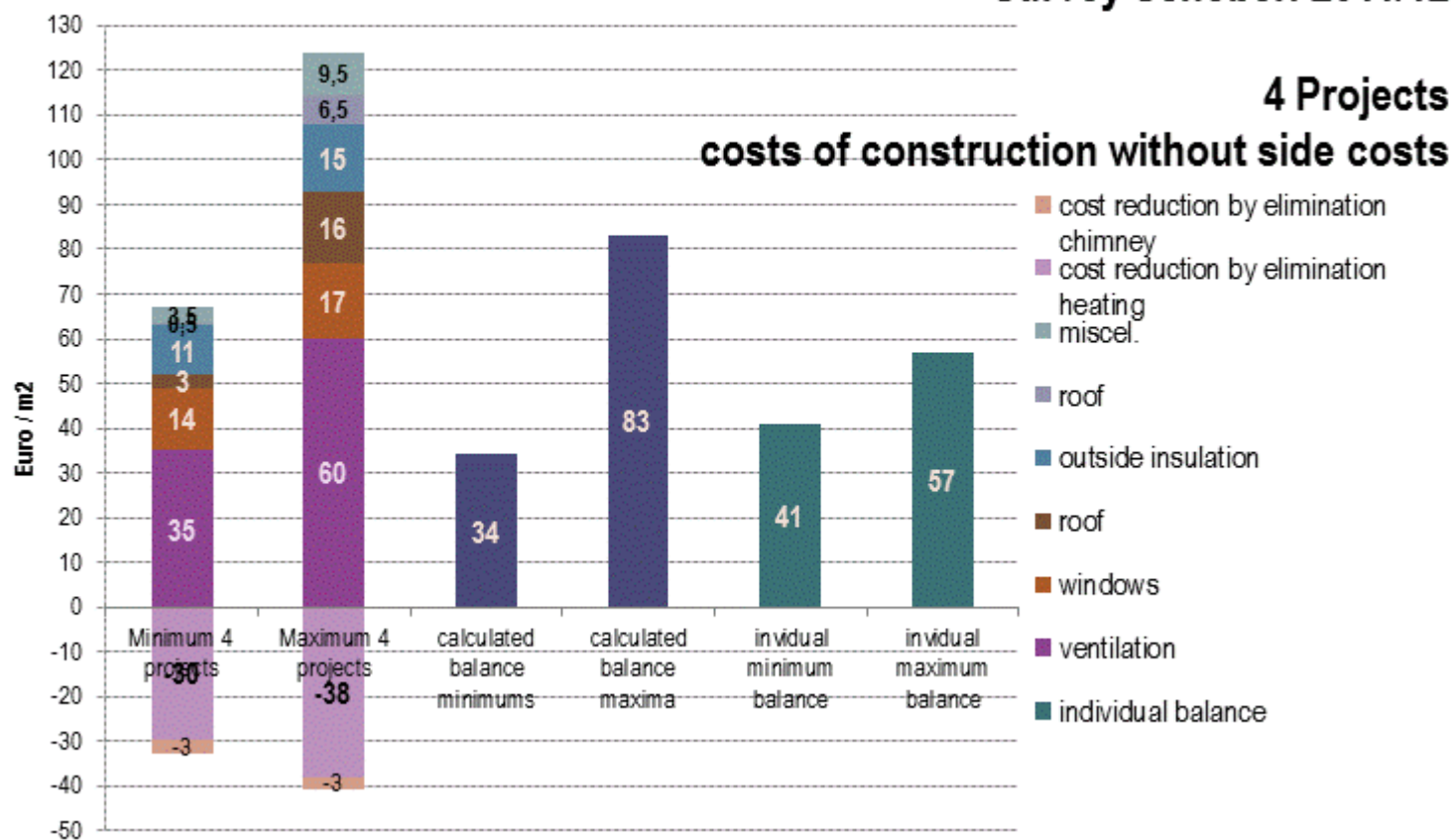


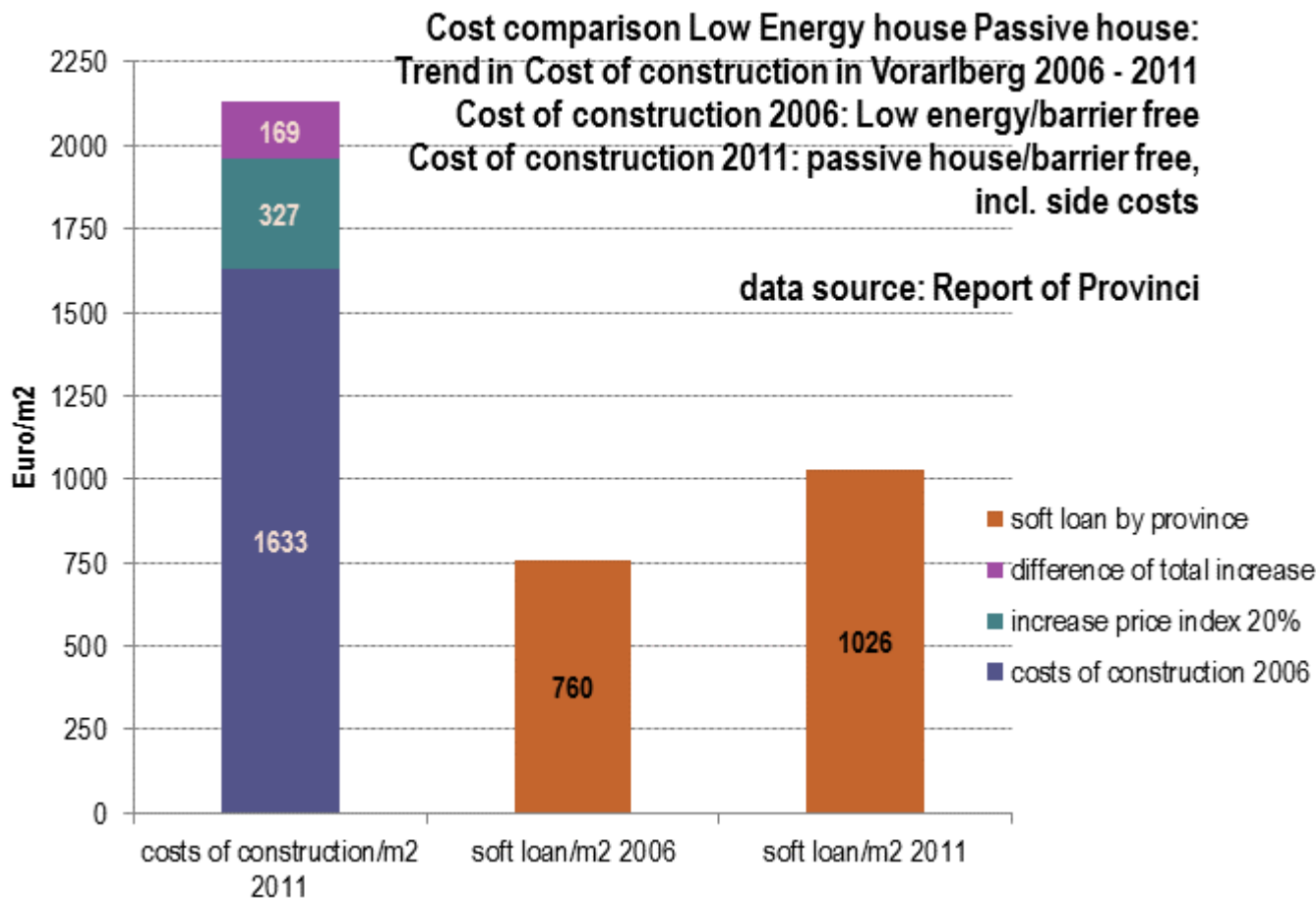
## Costs of Construction and Energy Efficiency 1982ff:

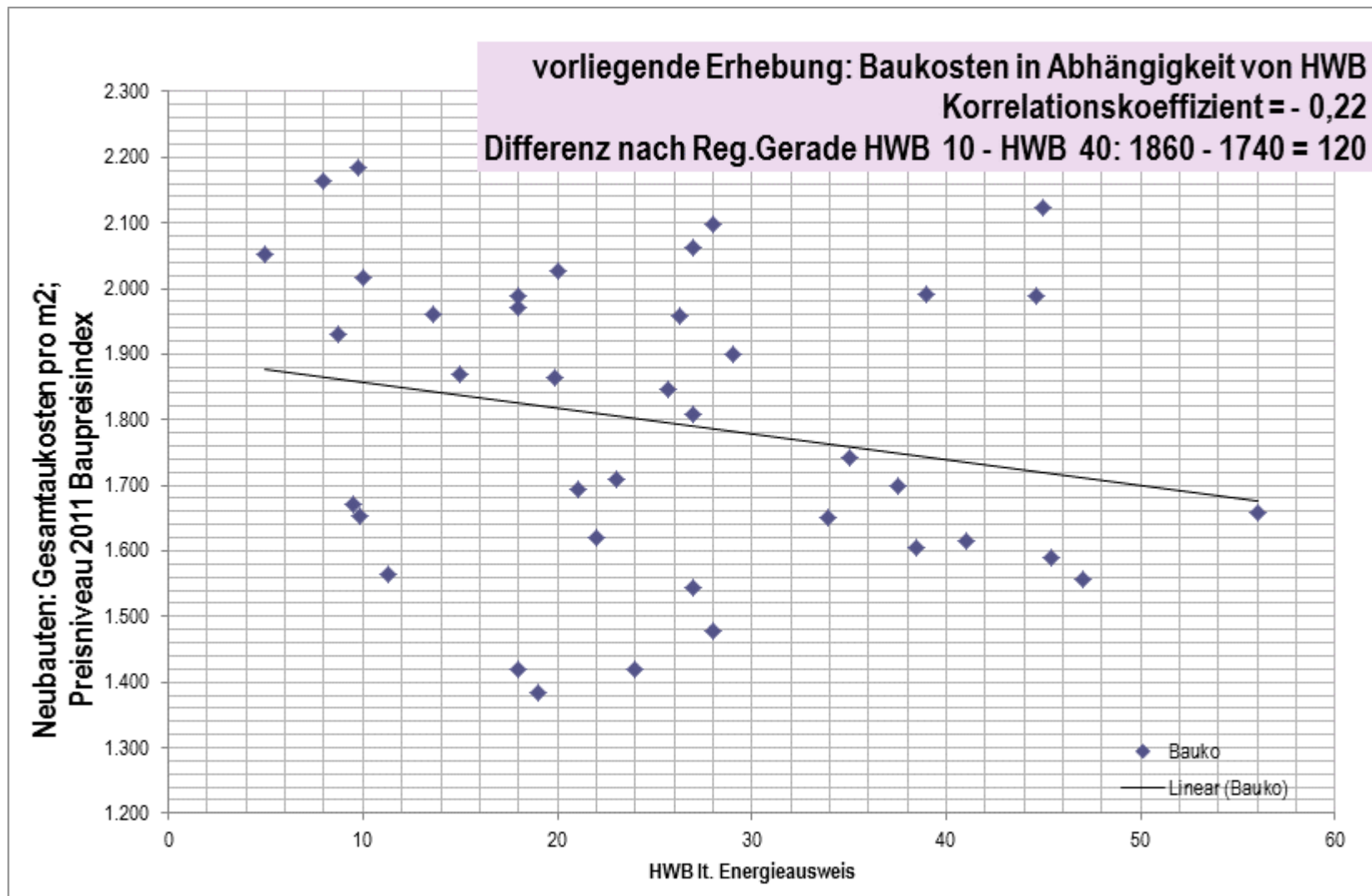
Different data sources: Heating Demand/Consumption: GBV-Sample,  
Costs of Construction: statistical data, total cases

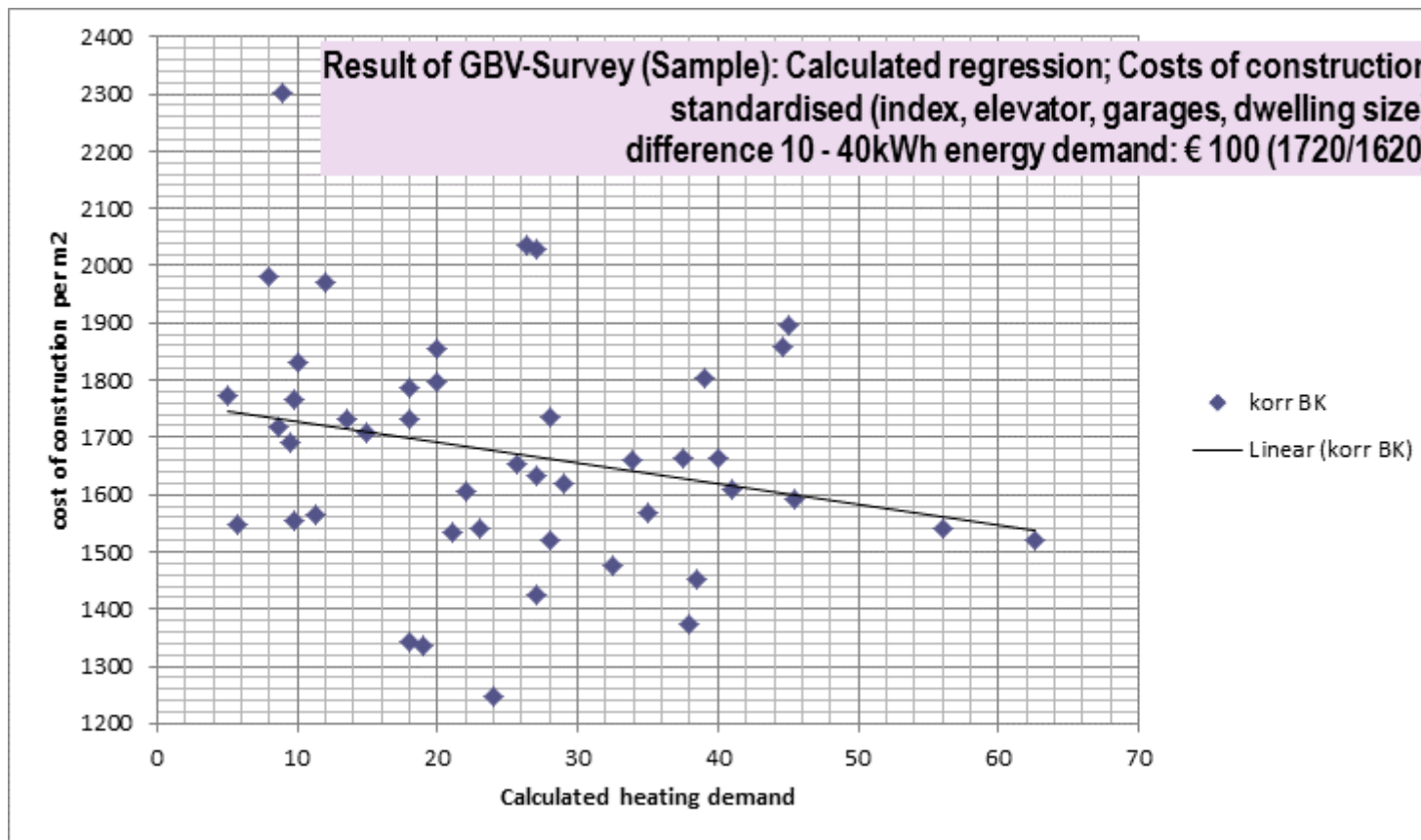


## Cost Comparison Low Energy - Passive House: Survey Schöberl 2011/12









### Calculation of Cost Efficiency "Cost-Rent Method"

	Investment €/m2							
	25	50	75	100	125	150	175	180
interest rate	<b>annuity, monthly payment per m2 (30y)</b>							
2%	0,09	0,19	0,28	0,37	0,47	0,56	0,65	0,67
2,50%	0,10	0,20	0,30	0,40	0,50	0,60	0,70	0,72
3%	0,11	0,21	0,32	0,43	0,53	0,64	0,74	0,77
3,50%	0,11	0,23	0,34	0,45	0,57	0,68	0,79	0,82
4%	0,12	0,24	0,36	0,48	0,60	0,72	0,84	0,87
	<b>Energy Saving kWh/m2 and year</b>							
	10	15	20	25	35	40	45	50
€ per kWh	<b>monthly saving/m2</b>							
0,08	0,07	0,10	0,13	0,17	0,23	0,27	0,30	0,33
0,09	0,08	0,11	0,15	0,19	0,26	0,30	0,34	0,38
0,10	0,08	0,13	0,17	0,21	0,29	0,33	0,38	0,42
0,11	0,09	0,14	0,18	0,23	0,32	0,37	0,41	0,46
0,12	0,10	0,15	0,20	0,25	0,35	0,40	0,45	0,50
0,13	0,11	0,16	0,22	0,27	0,38	0,43	0,49	0,54
0,14	0,12	0,18	0,23	0,29	0,41	0,47	0,53	0,58
0,15	0,13	0,19	0,25	0,31	0,44	0,50	0,56	0,63

## Site Visits Vienna Feb 28th, 2013

- A. Renovation Project 1020, Zirkusgasse 47 (Cooperative BWS)  
Built: 1951, 13.292m<sup>2</sup> (roof: 2724), dwellings: 217 (32)  
\* built in elevators + adaption of staircases  
\* connection to district heating /general piping, 65 dwellings  
\* thermal insulation; heating demand before/after: 121/33,7 kWh  
\* new balconies  
\* new roof dwellings  
total costs: 17,73 Mio Euro (1.330/m<sup>2</sup>)
- B. Passive House under construction BUWOG Nordbahnhof 1020  
Vorgartenstrasse/Rabensburgerstrasse  
200 subsidised + 16 non-subsidised dwellings  
Rent non subsidised: € 13,45 /m<sup>2</sup> total  
Rent subsidised: € 8,60 /m<sup>2</sup> total + € 57,-/m<sup>2</sup> financial contribution tenant  
Integrated ventilation + heating system, heat supply district heating
- C. Passive House Project Heimbau, Eurogate, 1030, Aspangstr.2  
Built: 2010 - 2012; 71 subsidised rental dwellings  
rent subsidised: € 6,20/m<sup>2</sup> total + €500/m<sup>2</sup> financial contribution tenant;  
Integrated ventilation + heating system, heat supply district heating

## Needs and Workplan

- A. Sharing Knowledge on Framework  
on nZEB-Strategies in member states (legislation, financing, subsidies)  
**DELIVERABLE: 2.2 Basic Report (WP-Leader) 9-2012**
  
- B. Sharing Knowledge on Costs, Practice and methodological approach  
- common data base by demonstration sites (5 – 10 per partner; **DELIVERABLE 2.3 4-2013**)  
  
- exchange of methodologies, existing documentation/analysis  
**WORKSHOP 2-2013 in Vienna**  
Sharing Knowledge on (operating) Costs, usability and cost-effectiveness  
- 2-years- monitoring of 10 sites of WP-leader (plus voluntary others ...)  
**DELIVERABLES 2.4 2.5 2.6 4-2014** (with interim reports 6 months previously)  
questionnaire to be tested with other partners' „test sites“ (2 out of 5)
  
- C. Development on Guidelines/Recommendations /Lessons learned“  
"Core elements for national NZE 2020 road maps“  
**DELIVERABLE 2.7 4-2014**  
**WORKSHOP 2. Semester 2014: Agreement on „Recommandations + Guidelines“**