



UNECE



Workshop in the framework of the project UN4Kharkiv

18. November 2022

Workshop “Energy-efficient buildings and progress towards carbon neutrality in Ukrainian cities”

Relevant German experience for increasing energy efficiency in buildings in Ukraine

*Knut Höller, Housing Initiative for Eastern Europe (IWO e.V.), Berlin
hoeller@iwoev.org*

Possible fields of cooperation in the area of energy efficiency in buildings - some theses and suggestions



- > Use of the experiences and knowledge of the transformation of the housing sector in East Germany - renovation of the industrially manufactured housing stock of the former GDR
- > Know-how transfer on the current political instruments in Germany - legal framework, financial support, development of powerful actors, such as energy consultants
- > Training and further education, if possible, in concrete renovation projects from joint planning to structural implementation and in parallel:
 - >> Development of cooperation between companies (not only in the building materials sector, but also in planning and construction)
 - >>> Joint market development team for the establishment of serial refurbishment solutions



Refurbished typical building in East-Berlin

- Berlin's refurbishment story 1993 - 2003
- 60% comprehensively
- 25% partially refurbished
- 6,2 bn. Euros were invested



The approach

Early 90s: Berlin Senate ordered extensive structural studies, to determine the renovation and modernisation need of the different buildings types.

- „**Measure/cost-matrix**“: relating 17 building series with 21 renovation measures,
- stating an average price for the measure and the overall sum per flat.
- **Prices varied** from 7,000 €/flat (newer buildings) to 34,000 €/flat (QP 59). The matrix was the basis for the Berlin support guidelines.

Abb. 1. Maßnahmen/Kosten-Matrix

Sanierungsgebiete Wohnungsbau- Serie	Maßnahmen-/Kosten-Matrix nach dem Berliner "Platten"- Fördermodell 1)																					Summe
	1	2	3	4	5	6	9	10	11	12	14	15	16	17	18	19	20	21				
	Loggia	Dach	Sanitär	Lüftung	Heizung	Elektro	Haus- Eingang	Däm- mung	Keller- Türen	Fenster- Räume	Treppen- Räume	Rela- den/EG	WE- Türen	Gestalt- turtg	behind- gerecht	Ab- falls	Brand- schutz					
Q3A	4.900	8.500	10.200	1.500	10.500	7.600	700	9.800	250	4.850	1.900	700	0	5.000	50	50	0	0	66.900 DM			
QX	5.100	4.000	10.200	1.500	6.600	7.500	1.500	12.400	350	5.750	2.900	900	100	5.000	100	100	0	0	64.000 DM			
P2/5,10	8.000	2.200	11.700	1.500	6.500	7.750	1.000	9.500	250	5.650	4.900	800	100	5.000	50	50	0	0	65.000 DM			
P2/11	8.000	2.000	12.200	1.500	2.500	7.750	1.000	2.500	150	0	4.800	0	0	5.000	50	50	0	0	47.600 DM			
QP59-64	4.500	2.200	12.200	1.500	6.900	7.500	1.500	13.150	200	7.750	5.700	800	0	5.000	50	50	0	0	69.000 DM			
QP71 A	2.500	1.500	9.500	1.500	6.600	7.500	800	11.000	200	6.700	4.700	800	100	5.000	50	50	0	0	58.500 DM			
QP71 B	2.500	1.500	9.500	1.500	0	7.500	800	0	200	0	2.000	0	0	5.000	50	50	2.400	0	33.000 DM			
WBS 70/11 a. 1973-1979	7.500	1.800	10.200	1.500	6.500	7.500	1.000	14.400	0	5.800	6.200	500	0	5.000	50	50	0	0	68.000 DM			
WBS 70/11 m. 1980-1982	5.500	1.800	10.200	1.500	0	7.500	1.000	0	0	100	2.800	0	0	5.000	50	50	2.500	0	38.800 DM			
WBS 70/11 j. 1980-1981	4.500	1.800	3.500	0	0	0	1.000	0	0	100	2.500	0	0	5.000	50	50	1.500	0	20.000 DM			
WBS 70/ 5,6 a. 1973-1977	7.500	2.800	10.200	1.500	6.500	7.500	800	13.700	0	5.800	2.200	800	100	5.000	50	50	0	0	64.500 DM			
WBS 70/ 5,6 m 1973-1982	7.500	2.800	10.200	1.500	0	7.500	800	0	200	200	2.200	0	0	5.000	50	50	2.500	0	40.800 DM			
WBS 70/ 5,6 j. 1973-1981	4.500	1.500	3.500	0	0	0	800	0	200	200	2.200	0	0	5.000	50	50	1.500	0	19.500 DM			
WHH-GT	2.000	1.500	16.700	1.500	0	4.300	300	0	0	6.700	1.200	0	100	5.000	50	50	4.500	3.600	47.500 DM			
WHH-GT85	1.500	500	1.300	0	0	0	300	0	0	0	0	0	0	5.000	50	50	4.500	800	14.000 DM			
WHH-SK	2.000	4.500	16.700	1.500	0	5.500	100	0	100	0	3.500	0	100	5.000	50	50	3.500	1.400	44.000 DM			
SK-Scheib.	2.000	2.500	16.700	1.500	0	6.500	1.200	0	200	0	3.500	0	100	5.000	50	50	4.000	1.200	44.500 DM			

1) Mittlerer Sanierungsbedarf in DM/WE für den typischen Schadenszustand der Wohnungsbauserien

beginning in 1994 large scale rollout for about a decade





Refurbishment of typical buildings in East-Berlin

Dena (German Energy Agency) / IWO Projects in Ukraine 2016-2020



Україна
Руководство для проектировщиков
Енергетическа модернізація
многоквартирних домов



Рекомендації для власників житла з проведення термомодернізації

Energy-efficient renovation manual for homeowners

to get this book contact IWO: info@iwoev.org

Handbook for planner:

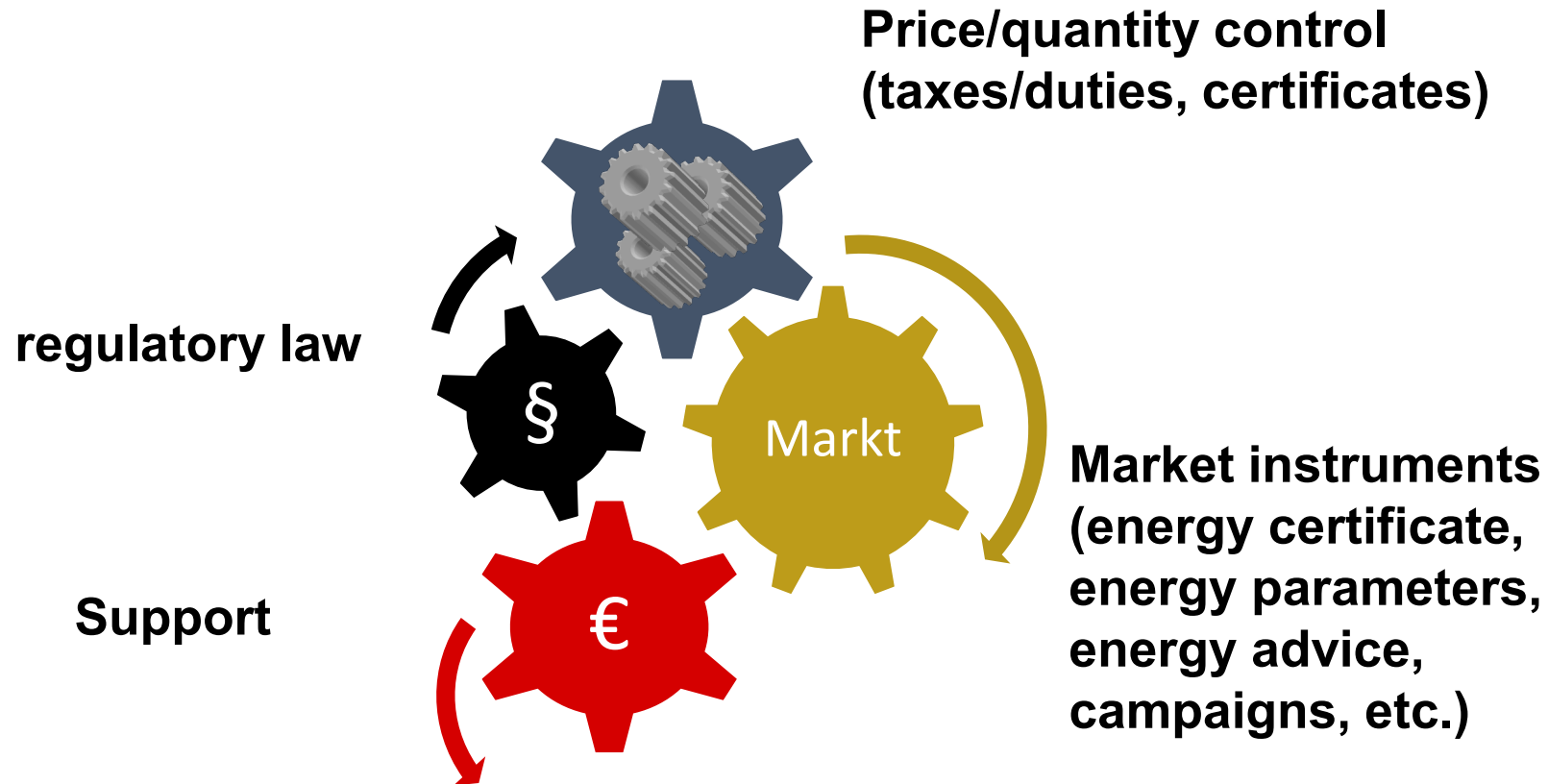
https://www.dena.de/fileadmin/dena/Publikationen/PDFs/2020/Handlungsempfehlungen_fuer_Planer_russisch.pdf

About the project:

<https://www.dena.de/themen-projekte/projekte/gebaeude/modellvorhaben-deutsch-ukrainische-effizienzhaeuser/>

POLITICAL INSTRUMENTS IN GERMANY

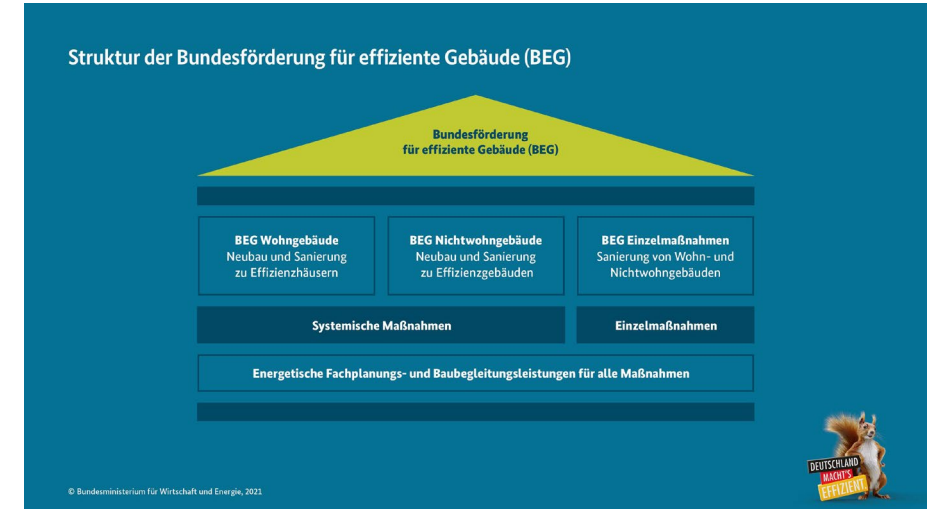
SOURCE: DENA



‘Federal Funding for Efficient Buildings’ (BEG)

The three sub-programs of the BEG are:

- "Residential building (BEG WG) - renovation or new construction of residential buildings",
- “Non-residential buildings (BEG NWG) – renovation or new construction of non-residential buildings” and
- "Individual measures (BEG EM) - Renovation with individual measures on residential or non-residential buildings".



Source:
Federal Ministry of
Economic Affairs and Climate
Action

Energiesprong: NetZero retrofitting as an attractive product.

energie
sprong
de



Powered by

dena
Deutsche Energie-Agentur

Getördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages

Interreg 
North-West Europe
Mustbe0
Partnership for Sustainable Future

We cannot double our skilled workers

- **Shortage of skilled labour = limiting factor!**
- Few young people in construction jobs
- Qualifications takes a lot of time

➔ **Price increase** with growing demand

➔ **Retrofit as a luxury product?**



Solution: Disruption



Prefab facades



Prefab roofs



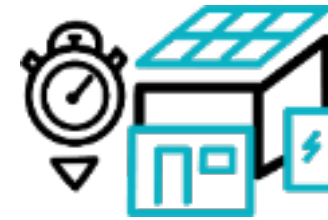
Prefab energy modules

Energiesprong: retrofit as an attractive product

Easy



Fast



Scalable

Good

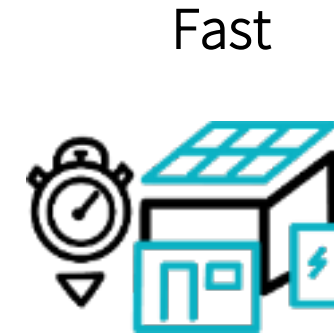
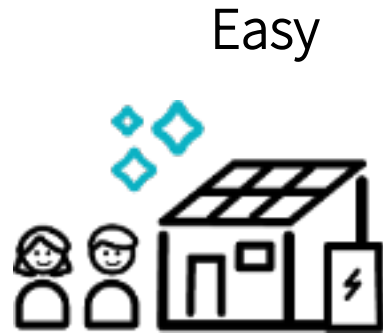


Affordable



Energiesprong: retrofit as an attractive product

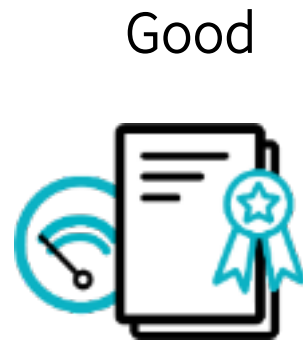
Configurator



Few weeks
instead of many months
Gigafactories to produce

Scalable

Climate neutral,
durable



Affordable



Savings pay for
investment

The idea works



NL: >5.000 homes



FR: >1.000 homes



UK: >15 homes



DE: >100 homes



EE: >100 homes



Cooperation works:
First delivery of prefab-facades from an
Estonian company to a
German Energiesprung project in 2022

