The KfW Experience in the Reduction of Energy Use in and CO_2 emissions from Buildings: Operation, Impacts and Lessons for the UK

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Outline of presentation

- KfW the institution
- KfW and German climate policy
- KfW housing programmes
- KfW housing programme results
- UK retrofit policy
- Lessons for the UK from the KfW experience

KfW the institution

- Established 1948 (Kreditanstalt fuer Wiederaufbau) as part of the Marshall Plan to facilitate the rebuilding of Germany after WW2
- First housing energy efficiency legislation and investments in the 1970s
- Major focus on construction to counter recession in the 1980s
- Major focus on rebuilding the former German Democratic Republic in the 1990s
- Retrofit as a major part of German climate policy in the 2000s
- By 2008 KfW had a balance sheet of €354bn and loan commitments of €87bn, and around 4,000 employees

KfW and German climate policy

Three Pillars

- Regulation: Energy Conservation Act (new and existing buildings, updated since 1976); Heating Costs Act (rented buildings, updated since 1981); Renewable Energy and Heat Act (2009)
- Financial incentives and investment: Renewable Energy Sources Act (from 2000, the FiT legislation); KfW programmes; Federal, regional, local programmes
- Information, advice and training: German Energy Agency (DENA, from 2000), Federal Energy Efficiency Office

KfW housing programmes

- Efficiency standards
- Approved packages of measures
- Capital grants for energy-efficient new homes
- Capital grants for energy-efficient refurbishments
- Loans arranged through commercial banks
- Federal subsidies to reduce the interest rates on the loans

KfW housing programme results (1)

Table 1: Results for CO_2-Reduction-Programme (96) and CO_2-Building-Rehabilitation-Programme (01) unit = dwelling
NB savings performance takes no account of cost of energy saved

	loans	annual savings	annual savings	interest rate	maturity	annuity	savings performance	
	€/unit	kWh/ unit	t CO_2/unit	%	years	€/unit	€/kWh	€/t CO_2
Program96	8,743	10,505	2.81	4.96	10	1,130	0.108	402
Program01	16,555	19,788	5.22	2.93	10	1,934	0.098	371

KfW housing programme results (2)

Table 4: Take-up of KfW programmes – energy-efficient new building and refurbishments, 2006-2009

Year	2006	2007	2008	2009	Total since 2006
Loan commitments (in €m)	6,998	4,782	6,343	8,863[a]	26,986
Housing units (in 1,000s)	328	204	280	617	1,430
CO_2 reduction (in 1,000 tons p.a.)	1,038	568	837	1,452	3,897
Jobs (in 1,000s)[b]	217	177	208	292	894
Investments (in €m)	11,845	10,682	13,248	18,335[a]	54,110

[a] €2 bn in public investment leveraged loans of €3,094 m for energy-efficient new building plus €5,769 m for energy-efficient refurbishment.. With further private investment , total investment was €18.3 bn

[b] Jobs lasting for at least one year

UK Retrofit Policy

- Green Deal
  - Loans against the energy bill
  - Assurance schemes for advisers and installers
  - Golden Rule
  - Independent Green Deal providers
  - No public subsidy or explicit training/skills programme
- Energy Company Obligation (ECO)
  - For vulnerable households (replaces fuel poverty schemes)
  - For hard-to-treat homes (e.g. solid wall insulation) and measures that do not pass the Golden Rule
- Green Investment Bank
  - £3 bn initial capitalisation, no borrowing before 2015/16
  - Waste infrastructure, offshore wind, commercial buildings, perhaps also homes

Lessons for the UK from the KfW experience (1)

- Tthe German ‘three-pillar’ approach of integrating energy efficiency provisions into a clear framework of regulation, information and support for renewables has served it well, creating a strong, enforceable legal standard to underpin change and generating a clear, consistent message about the direction and required radical nature of change.
- KfW provides repayable loans on favourable terms, or performance-linked investment subsidies, rather than unconditional subsidies or tax concessions, as a more reliable and sustainable funding mechanism. The UK too is moving towards loans, but without subsidised interest rates and, at present, no provisions for subsidies for more expensive energy efficiency measures. This may not deliver adequate take up of these measures to achieve the large energy efficiency improvements that are required.

Lessons for the UK from the KfW experience (2)

- The German schemes provide qualified expert advice and installation so that appropriate work is carried out to a high standard. As a result, the promised energy gains and a positive customer experience have been achieved, and over time the German construction industry has acquired great expertise in this area. The UK has much still to prove in this respect.
- German policy requires investments in energy efficiency to be made *before* subsidies for renewable energy are paid. This increases the proportionate contribution renewable energy can make to meeting overall demand, saves money, makes a bigger contribution to the wider goal of climate protection, and provides a more coherent overall message to the public about the need to reduce CO_2 emissions.

Lessons for the UK from the KfW experience (3)

- German policy assumes it is better to adopt a ‘whole house approach’ to energy saving, even if measures are applied sequentially, and high energy efficiency measures only implemented bit by bit as people work on different parts of their houses. This enables the overall ambition for energy efficiency improvement to become clear for energy suppliers and builders, while giving some assurance to government that the required emission reductions will be achieved.
- German policy aims to support experimentation and innovation, to build awareness and familiarity for new approaches to energy efficiency, and to identify successful approaches that can be taken to scale.

Lessons for the UK from the KfW experience (4)

- Public buildings (especially schools, nurseries and children's centres) have an important role to play, to provide examples to the public of what can be achieved by ambitious retrofit measures.
- Conserving attitudes and behaviour towards energy use, and awareness of the need to reduce greenhouse gas emissions, are going to be required if the necessary step changes in home energy efficiency are to be achieved. In this respect the German public is significantly ahead of the UK. There has so far been widespread public support in Germany of the government's energy saving and green initiatives. This is at least partly because of a perception in Germany that energy saving and climate policy can create energy security and economic benefits for the future. The UK has tried to project similar messages, but so far with less intensity, consistency and supporting policy, and less success.

Conclusions

- The Green Deal, Energy Company Obligation (ECO) and the Green Investment Bank are all welcome new policies in the right direction. But on the basis of the KfW experience, they do not go far enough on any of the key dimensions: the regulatory framework, the level of the financial incentive or the clarity of the message about integrating home energy efficiency and micro-generation using renewables for both electricity and heat.
- More will need to be done.
- Much can be learnt from what the KfW bank has achieved, how it has achieved it, and the overall policy framework that has supported these achievements.


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