RAP | Energy solutions for a changing world

Energy Efficiency Obligations: the UK experience

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The Regulatory Assistance Project

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Regulatory Assistance Project (RAP)

- Non-profit organization providing technical and policy assistance to government officials on energy and environmental issues
- Principals and senior associates are all former regulators or energy officials with deep experience in energy efficiency and other clean energy alternatives
- Funded by several foundations, US DOE & EPA and international agencies & philanthropic organisations
- RAP has advised governments in over 18 nations and 40 US states; European office in Brussels.

Contents

Energy efficiency obligations/ White Certificates

GB experience of Energy Efficiency Obligations (EEOs)

Recent developments in EU-27

Do EEOs work i.e. do they actually turn down demand?

EEOs & Openly Tradable WCs

All such activities in EU whether called EEOs or WCs operate the same principle – obligation requires energy provider to prove their activities have resulted in energy efficiency improvements by eligible end use customers - awarded a White Certificate accrediting the extent of the energy savings achieved

Openly tradable WCs are when parties other than the obligated energy providers can earn WCs in their own right and trade them in the market place – really only in Italy, with limited trading in France

GB & Energy Efficiency Obligations

Been on electricity retailers since 1994, gas since 2000

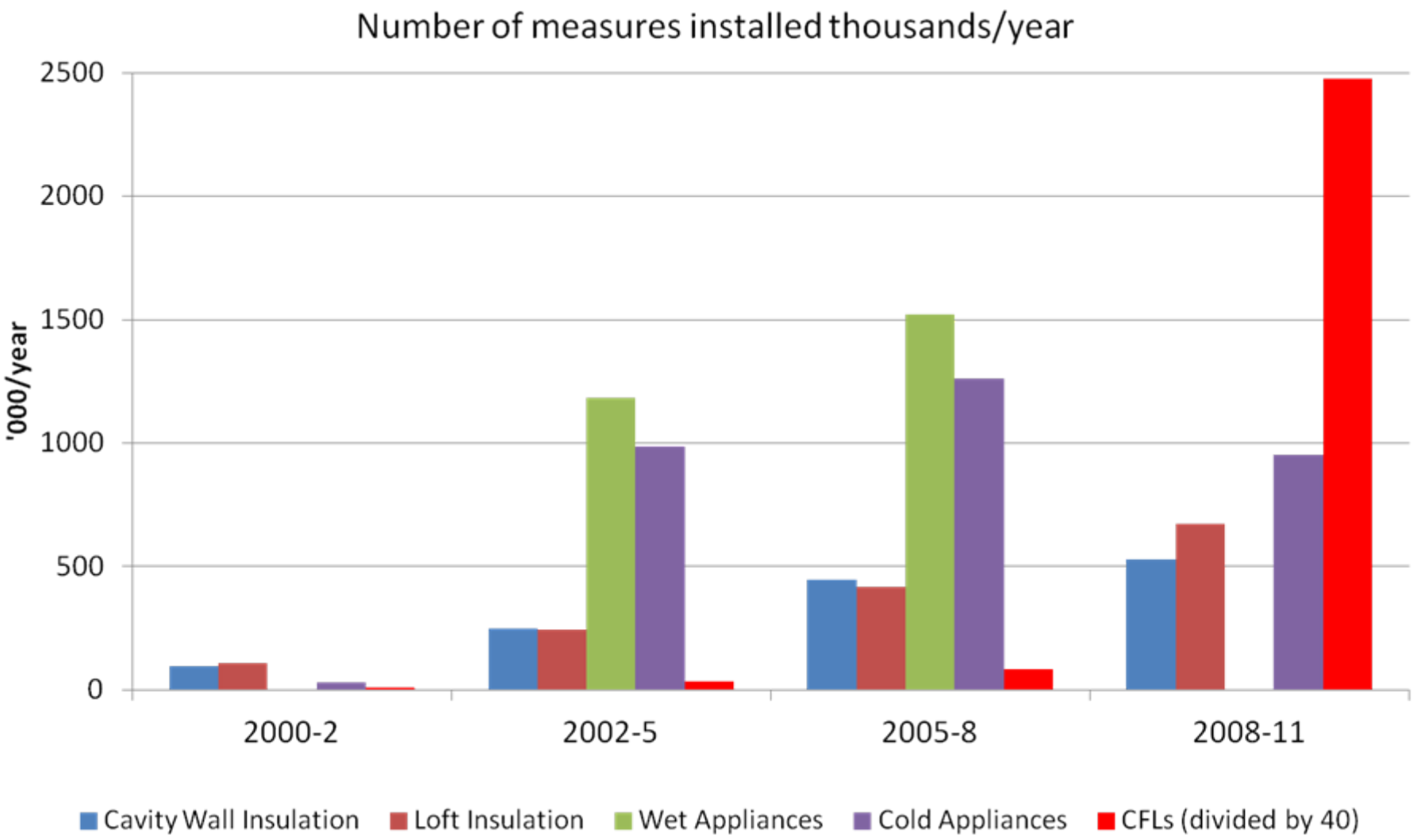
Been steadily growing in terms of energy retailer spend and activity – now only residential sector

EEC2 results (April 2005-March 2008) very positive

From April 2008 called CERT with a lifetime CO2 saving target (undiscounted); financial savings discounted at 3.5%; 40% savings target for low income households

My current estimate of expenditure in CERT by energy retailers is ~€1.4 billion/year or per fuel bill increase per year ~€34 equivalent to ~4% of average GB residential dual fuel bill.

GB EE Obligations - History



Source – Ofgem 2011

EEC2 (2005-8) Headlines – 1

Over 120 million measures actually installed in 3 years; appliances & lighting dominate in numbers but insulation dominates the energy savings (75%)

Target met 23% cheaper than Government estimate; free-riders ~ 20%; suppliers spent ~ €360M/year

NPV/tCO2 net of deadweight = €54

Cost of saving a unit of electricity is 2.2p/kWh; for gas 0.6 p/kWh; cf ex VAT residential price 9.6 & 2.5 p/kWh

2 out of 3 low income households benefited (mainly CFLs); also 1.1million low income homes insulated

EEC2 (2005-8) Headlines– 2

Cost on fuel bills – for all consumers ~€8.3 per fuel per year (); for low income ~€6 per fuel per year

Every €1 raised from low income households, their group has long term benefits of €18 incl. comfort

All households consumer benefits €4.4 billion; consumer benefit per €1 supplier spend = €8

National cost effectiveness (including comfort, excluding deadweight) = £2.8 billion

Impacts on fuel poverty comparable with WarmFront (the Government's fuel poverty programme)

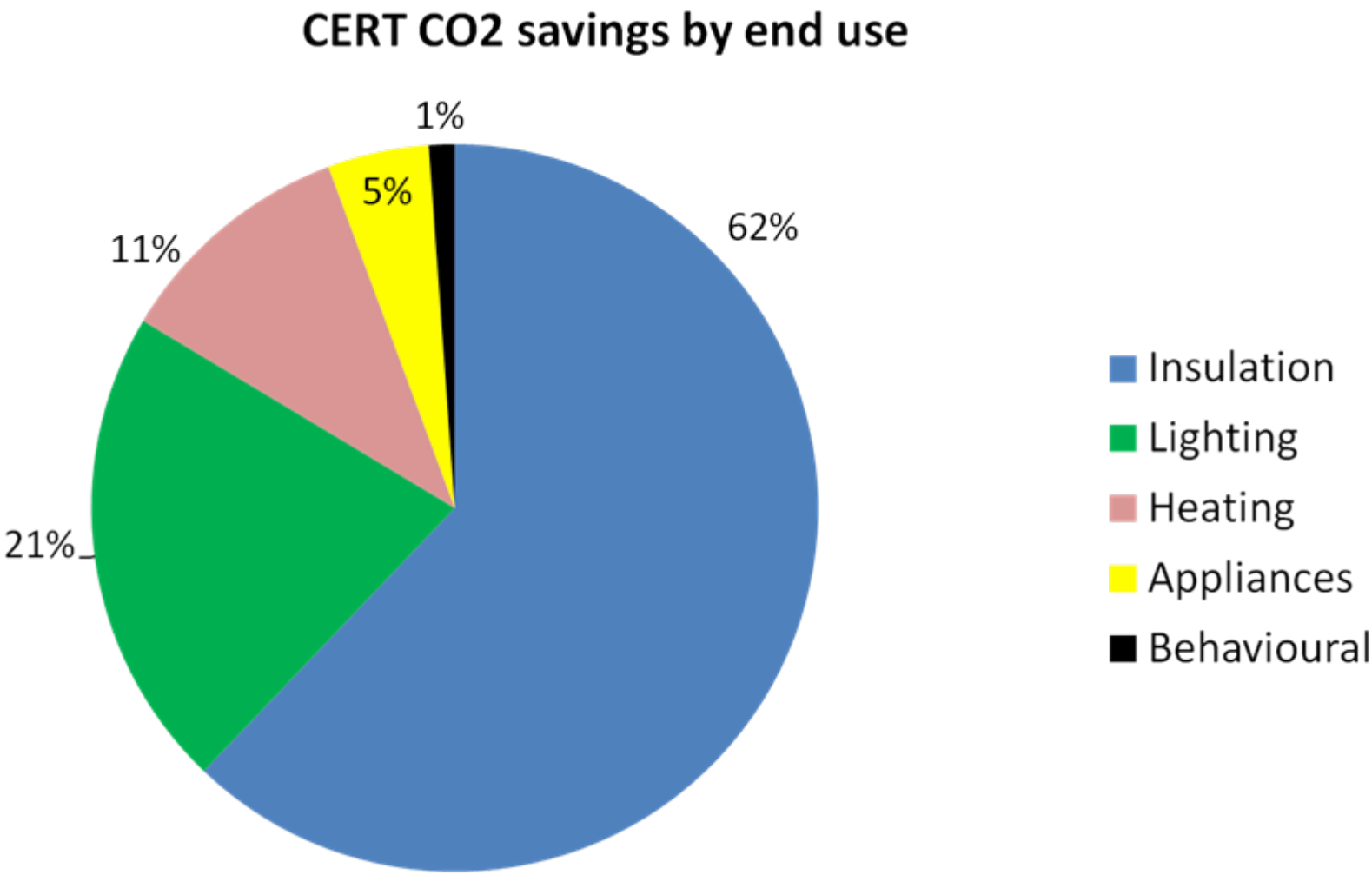
Carbon Emissions Reduction Target (CERT)

- The original 3 year target of 154 MtCO2 lifetime savings was increased by 20% by Government to 185 MtCO2 lifetime savings & then extended the same CO2 saving rate 21 months till end 2012 – now 293 MtCO2
- At end of first 4 year period, energy retailers had met 83% of the increased 293 MtCO2 lifetime savings
- CFLs “give away” banned in April 2010 and completely since April 2011; extension target has 68% “ring fenced” for professionally installed insulation
- Expected energy retailer spend now ~€1.4 billion/year
- Measures installed in first 3 years of CERT in approx. order of individual contribution to CO2 savings –next slide:

CERT installations –the top 10 in 4 years

Energy Efficiency Measure	Total number of measures installed	% of total CO2
Cavity wall insulation	2,103,150	26.4%
Professional Loft Insulation	2,915,389	22.4%
CFLs	303,555,479	21.4%
DIY Loft Insulation	524,651	10.3%
Shower regulators	5,171,654	4.3%
Communal heating - number of heating systems	397	2.7%
Fuel switching	90,476	2.5%
Window glazing over Building Regulations	1,506,930	1.9%
TVs	30,324,293	1.9%
Standby savers	5,442,049	1.8%

CERT CO2 Savings by End March 2012



Source – Ofgem 2012

EEOs in the EU (2011)

Country	Obligated Company	Eligible Customers	Administrator
Belgium - Flanders	electricity distributors	residential and non energy intensive industry and service	Flemish Government
France	retailers of non-transport energy + importers of road transport fuel	All (including transport) except EU ETS	Government
Italy	electricity & gas distributors	All including transport	Regulator (AEEG)
GB	electricity & gas retailers	Residential only	Regulator (Ofgem)
Denmark	electricity, gas, fuel oil & heat distributors	All except transport	Danish Energy Authority

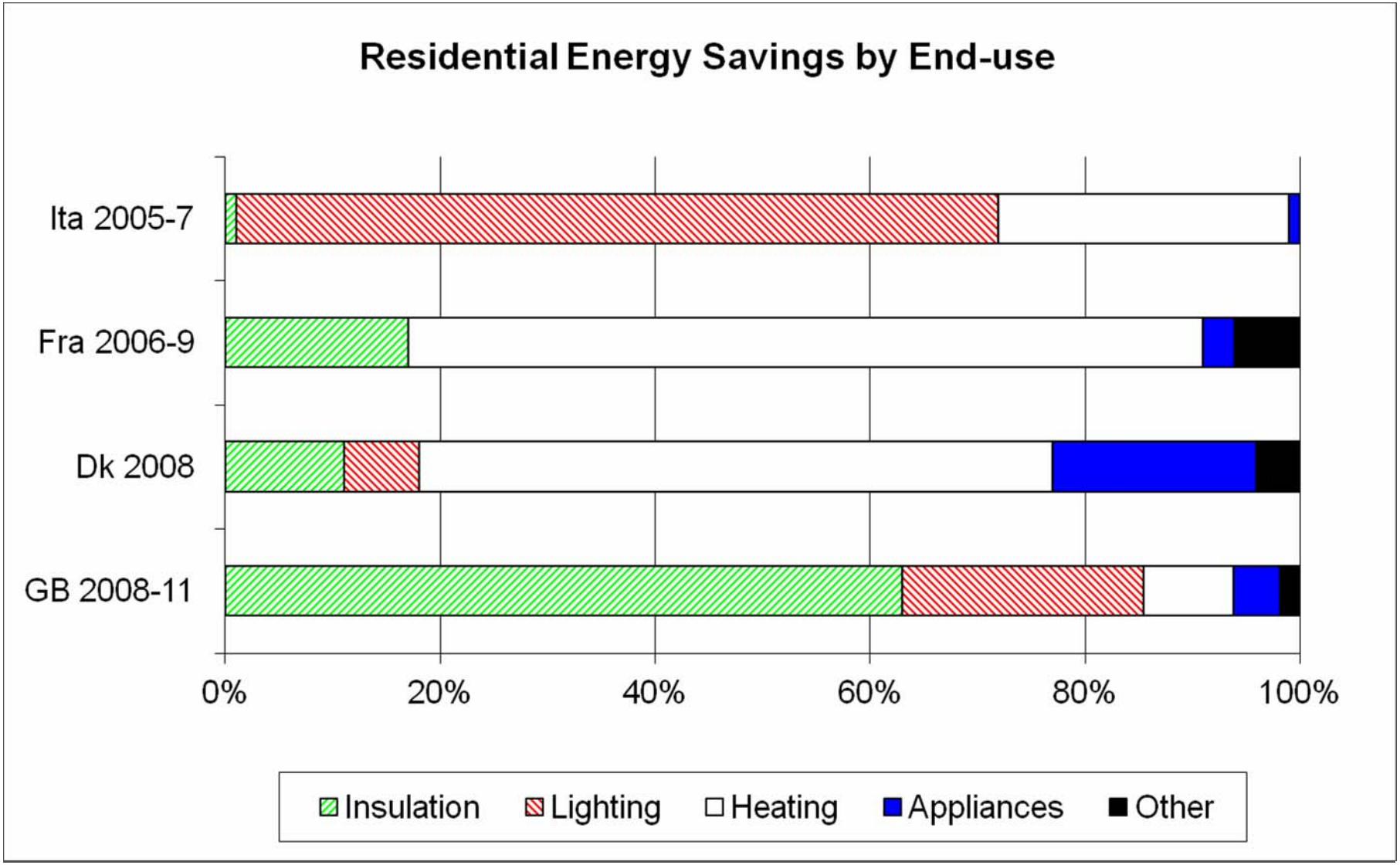
EEOs in the EU (2011)

Country	Nature of saving target	Current size of target	Estimated annual spend by companies €M {€/person}
Belgium – Flanders	1st year primary energy	0.6 TWh annual	60 {14}
France	lifetime delivered energy	345 cumac TWh over 3 years to end 2013	340 {5}
Italy	cumulative 5 year primary energy	5.3 Mtoe in 2011	530 {9}
GB	lifetime CO2	293 MtCO2 in 4.75 years to end 2012	1440 {24}
Denmark	1st year delivered energy	6.1 PJ annual	100 {18}

Most EEO Activity is in Residential Sector

Country	**Period**	**% energy savings from residential sector**
Belgium - Flanders	2010	58% (mandated)
Denmark	2008	42%
France	2006-9	87%
Italy	2009	81%
GB	2008-12	100% (mandated)

EU EEOs – Where do the savings come from?



Recent Trends in EEOs in the EU

Recognition that only counting first year energy savings towards the target undervalues energy savings from those measures with longer lifetimes; Denmark introduced in 2011 weighting factors dependent on the life of the EE measure; Italy looking at similar options to value longer lived measures such as insulation & industrial projects

France pioneering EEO on oil importers involved with road transport fuels;

Ireland introduced “voluntary” EEO this year on energy suppliers and oil importers of road transport fuel;

Observations on EEOs in the EU

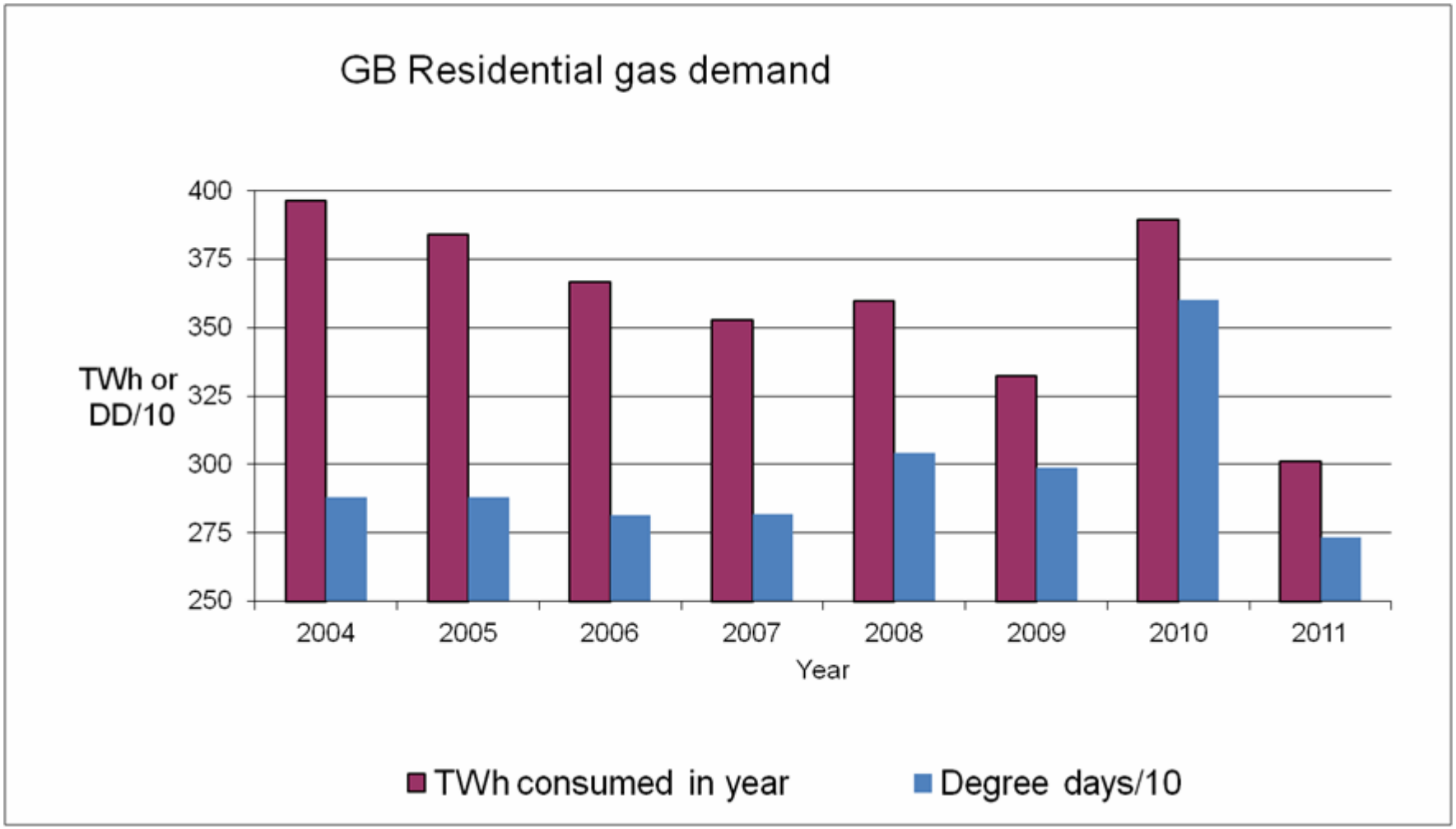
Core element in all: EEO (backed by penalties if target missed);

Relatively few schemes in place (7 + 1 imminent) – they vary quite a lot but all judged to deliver successfully

Different targets, different end use sectors, different obliged actors - reflect local status of energy market, the EE history of the utilities, climate, energy saving opportunities, culture etc.; Perhaps more importantly, different rules for measuring "savings" and for dealing with deadweight/free riders

Initial goals set low and achieved at costs below policy makers' expectations; expanded & energy providers now spending ~€3.2 billion/year; in ~50 operational years of EU EEOs, no energy provider missed it's overall energy saving target

Annual residential gas demand (7% more customers between 2004-11)



Is there any evidence that EEOs work? - 1

British Gas individual annual gas consumption data for 4 million customers for the period 2006-10

Looked at factors affecting demand:
> Households, income & tenure of property
> External and internal temperatures
> Energy efficiency measures installed
> Changes in behaviour, lifestyles, increased climate change awareness, energy efficiency advice etc.

Is there any evidence that EEOs work? - 2

For this 5 year period, conclusions were:

Average household consumption fell by 22% over the period!!

Annual fall was 4.9% compound

Behaviour & lifestyle changes etc. reduced by ~ 2.7%/year

Reduction in gas customer demand was 3.3%/year as a direct result of energy efficiency measures (mainly insulation and heating)

Conclusions on EU EEOs

- Despite wide variation in the implementation of EEOs & energy market liberalisation status, they have been successful policy tools
- MSs with EEOs have evaluated their programmes and expanded them in recent times
- In the largest EEO, over the last 5 years they are contributing to a significant reduction in residential gas demand (22% reduction)
- EEOs avoid MS Government having to use public expenditure to stimulate EE – relevant to the current financial problems facing MSs