

***“GB Experience of Energy Efficiency  
Obligations (White Certificates)”***

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- Brief explanation of White Certificates/ Energy Efficiency Obligations
- Why energy efficiency obligations/white certificates can make such a major contribution to energy/CO2 saving and energy security by improving end use energy efficiency
- New promoters and new routes to market for energy efficiency
- Use case studies for UK as this is the largest EU obligations in money terms and plenty of publically available information

# White Certificates/Energy Efficiency Obligations

- Renewable Energy/CO2 Certificates exist because of Government intervention in the market place – an obligation
- White Certificates are no different – need an energy efficiency obligation
- All significant EU activities with energy utilities & small energy users on energy efficiency are linked to an obligation on some part of the energy utility to save energy in their customers premises
- White Certificates are usually taken to represent the final stage i.e. any party (not just obligated party) can obtain (verified) certificate of energy saving which can be traded on the open market

# How do Energy Efficiency Obligations Work?

- Energy retailer/distributor has obligation to save energy in customers' premises; target related to “volume” supplied/distributed/residential numbers
- Projects with large energy users can “afford” to have energy saving measures monitored for actual saving
- For small energy users – need simple approach to keep M&V costs down – use “approved” measures for which there are well established energy saving values (deemed or ex ante savings);
- Monitoring and verification then is a “measure count” + random “dip check”

# Who Decides on Size & Scope of EE Obligations?

- Best if Government - social & environmental aspects (UK obligations currently ~€0.9bn/yr or 3-4% fuel bill)
- Can address equity issues by ring fencing share of energy saving target for low income consumers
- All end use sectors have had EE Obligations
- Personal view – best suited to traditionally “high transaction cost” sectors – residential and small organisations
- Need to address deadweight/free riders/additionality issues – those that would have done it anyway and this is linked to the size of the target

# What Costs are Involved and Who Pays?

- Cost of energy efficiency measures (energy companies, customers, landlords (especially social), charities, manufacturers etc)
- Cost of energy company marketing, sales, reporting, planning etc (in GB estimate ~18% of energy supplier direct costs on EE measures)
- Auditing & verifying of energy saving projects and if target met (in GB carried out by Ofgem and <0.1% of energy supplier costs)
- Government resource to set target every few years (in GB <<Ofgem costs)

N.B. All transaction costs other than auditing, verifying and authentication are included in what follows

# Current Ofgem Resource Levels (€0.75 M/year)

- Dedicated section of 7 staff + part of EE/renewable obligation manager
- Includes consultancy budget to cover:
  - Technical advice from Building Research Establishment
  - Technical advice from Energy Saving Trust
  - Occasional research (often with DECC) to update deemed energy savings or validate innovative products
  - Audit and reporting activities

# Energy Efficiency Obligations in the EU (2008)

<b>Country</b>	<b>Obligated Company</b>	<b>Eligible Customers</b>	<b>Target set by</b>	<b>Administrator</b>
Belgium - Flanders	electricity distributors	residential and non energy intensive industry and service	Flemish Government	Flemish Government
France	all suppliers of energy	All (including transport) except EU ETS	Government	Government
Italy	electricity & gas distributors	All including transport	Government	Regulator (AEEG)
UK	electricity & gas suppliers	Residential only	Government	Regulator (Ofgem)
Denmark	electricity, gas & heat distributors	all except transport	Government	Danish Energy Authority

# Energy Efficiency Obligations in the EU (2008)

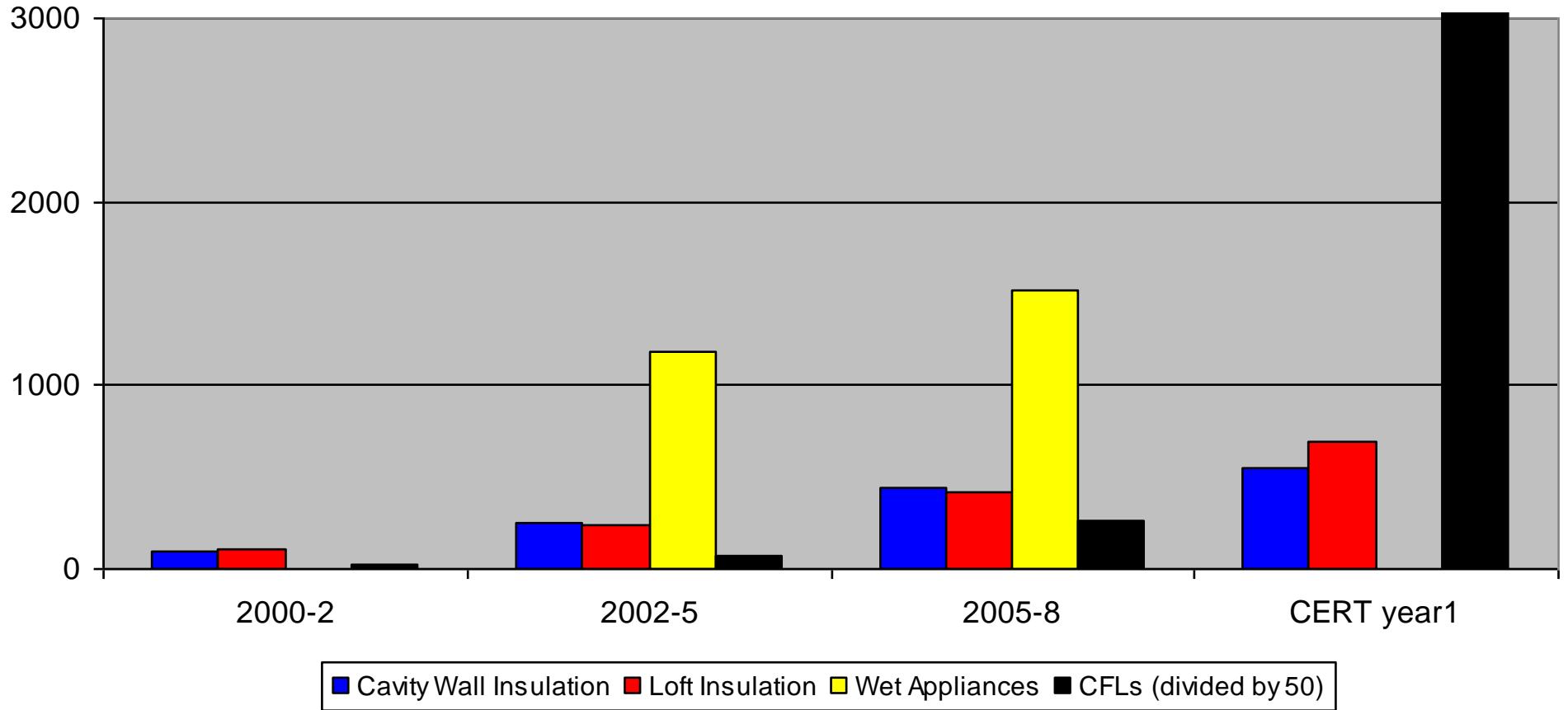
Country	Nature of saving target	Current size of target	Discount rate
Belgium - Flanders	Annual primary energy	0.6 TWh annual	n/a
France	lifetime delivered energy	54 TWh over 3 years	4%
Italy	cumulative primary energy	23 TWh in 2009	0%
UK	lifetime delivered CO2	185 MtCO2 in 3 years to 2011	0%
Denmark	Annual delivered energy	0.8 TWh annual	n/a

# GB and Energy Efficiency Obligations

- Been on energy suppliers since 1994
- Been steadily growing in terms of energy supplier spend and activity – only residential sector
- EEC2 results (April 2005-March 2008) –very positive & show shortly
- From April 2008 called CERT and with a lifetime CO2 saving target (undiscounted); Government announced continue to 2020 in some form
- My estimate is annual expenditure in CERT by energy suppliers on energy saving measures will be ~€900 million or per fuel bill increase per year ~€19 equivalent to 3-4% of average residential fuel bill.

# Growth in EE Measures Installed

Annual Installation rates ('000)



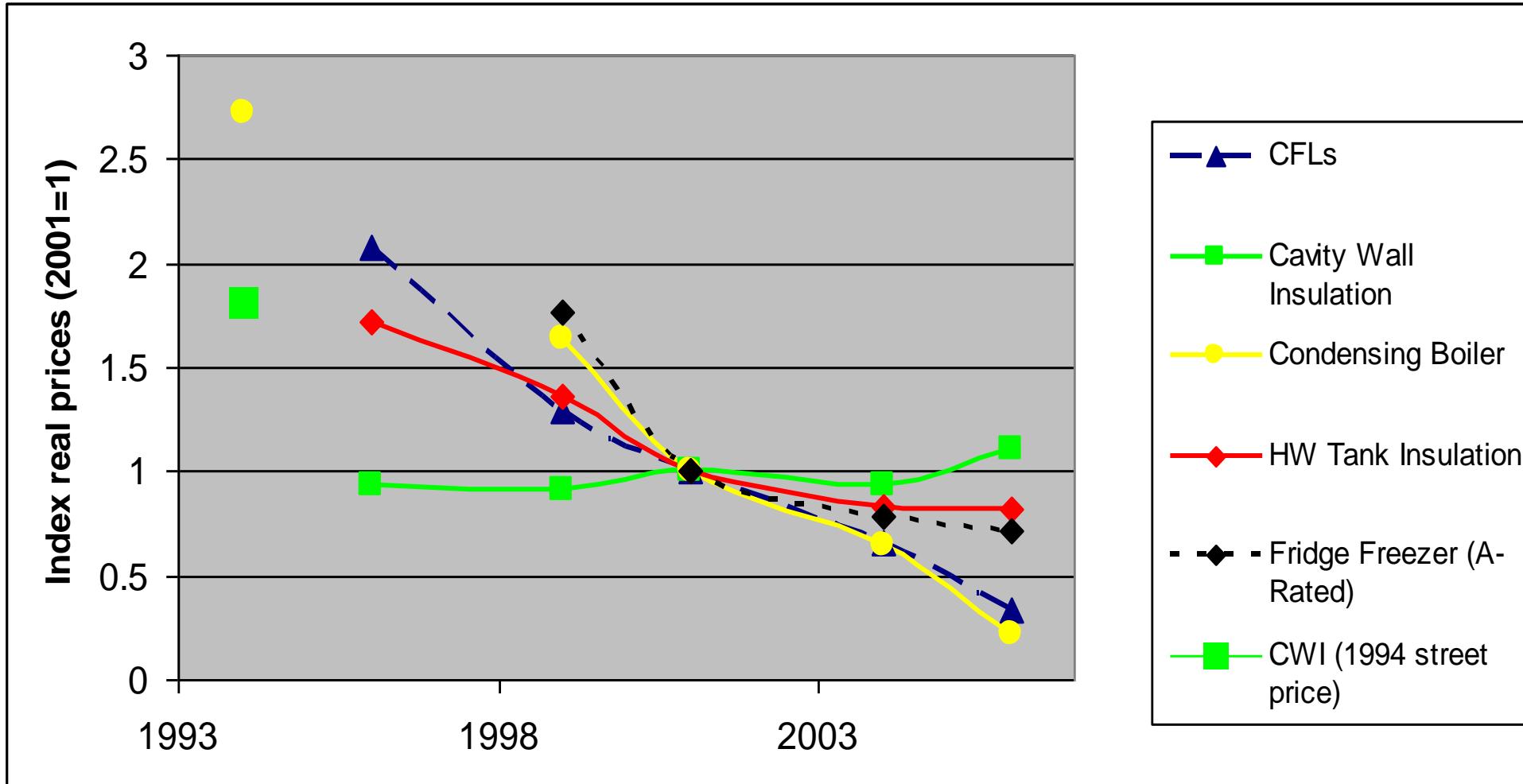
# EEC2 Headlines – positive - 1

- Over 120 million measures actually installed in 3 years; appliances and lighting dominate in numbers but insulation dominates the energy savings
- Target met 23% cheaper than Defra estimate; deadweight ~ 20%
- NPV/tCO<sub>2</sub> net of deadweight = £57
- Cost of saving a unit of electricity is 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 from EEC2 (mainly CFLs); also 1.3 million low income homes insulated

# EEC2 Headlines – positive - 2

- Cost on fuel bills – for consumers ~£7 per fuel per year (cf Government expectation at start of £8.5)
- All households consumer benefits £8.3 billion; consumer benefit per £1 supplier spend = £9
- National cost effectiveness (including comfort & all parties costs, excluding deadweight) = £3.4 billion
- Considerable delivery and technical innovation in EEC2
- Costs of saving energy reduced in real terms but probably flattening
- Costs of energy efficiency measures for improving technologies or those with major volume increases are still declining

# Falling prices of EE Measures over time



# EEC2 Total Expenditure £1.26 billion in 3 years

<b>Stakeholder</b>	<b>Low Income</b>	<b>Non low income</b>	<b>Indirect costs</b>
Customer	1%	17%	
Supplier	38%	24%	11%
Other	5%	3%	

<b>Average % Customer contribution to direct costs</b>	Low income 2%	Non low income 39%
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# EEC2 Headlines - negative

- Contribution from non low income customers declining in percentage terms (~40% of direct measure costs)
- Not seeing significant “whole house” approaches
- Less market transformation in white goods than in EEC1; need to introduce “starting rules”
- Uplift factors at best patchy in encouraging market transformation and development of energy services
- GB lagging EU EE obligations – both in not including business & organisations whose size are below practical trading & no White Certificates

# Conclusions

- In the UK (as in other EU countries with EE obligations) – cost effective and delivered increased rates of installation of EE measures
- Obligations should reflect local status of energy market/history/culture etc. – plenty of EU precedents!
- Need periodic “tweaking” of EE Obligation rules in the light of market development or new technologies or changing prices etc.
- White Certificates are not necessary at the start but probably beneficial in the longer term
- Focus on desired outcome (energy/CO2 savings) and avoid being over prescriptive