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PEPDEE Regional Policy Dialogue

20 Years of Energy Provider Delivered Energy Efficiency in Europe

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How do EU EE Obligations Work?

- Energy retailer/distributor has obligation to save energy in customers' premises/homes; target related to “volume” of energy supplied/distributed + financial penalties if fail to meet energy savings target
- Projects with large energy users can “afford” to have energy saving measures monitored for actual savings achieved
- For small energy users – need simple approach to keep M&V costs down – use “approved” measures with independently established energy saving values (known as deemed or ex ante savings)
- Monitoring and verification is a “measure count” + random audit of submitted claims for energy savings

How are they delivered?

- Mainly by bilateral contracts between obligated energy provider and an energy efficiency market actor e.g. insulation company, retailer of appliances, manufacturers, heating installers
- However, in GB energy providers are establishing heating companies, insulation subsidiaries & microgen (RE); similar developments in Italy
- In Italian & French White Certificate schemes, accredited parties (not just the obliged energy providers) can earn WCs and these can be subsequently traded
- Only in Italy has there been significant generation and trading of WCs generated by non obligated parties

Brief History of EU EEOs

- Started in GB in 1994 on electricity companies with responsibilities for distribution and retail
- Started in natural gas in 2000
- Danish extended to district heating in 2000
- From 2002, increasingly operating in a liberalised market with retail and distribution functions separated
- Around 2006 extended to oil & LPG used for heating
- Evaluations of 4 countries showed cost of saving energy <25% of residential retail price (ex taxes)
- France in 2011 pioneering EEOs on the importers of road transport fuel

EEOs in the EU (2011)

| Country | Obligated Energy Provider | 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 energy providers €M {€/person} |
|--------------------|-------------------------------------|-------------------------------------|---|
| Belgium – Flanders | 1 st year primary energy | 0.6 TWh annual | 60 {14} |
| France | lifetime delivered energy | 345 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} |

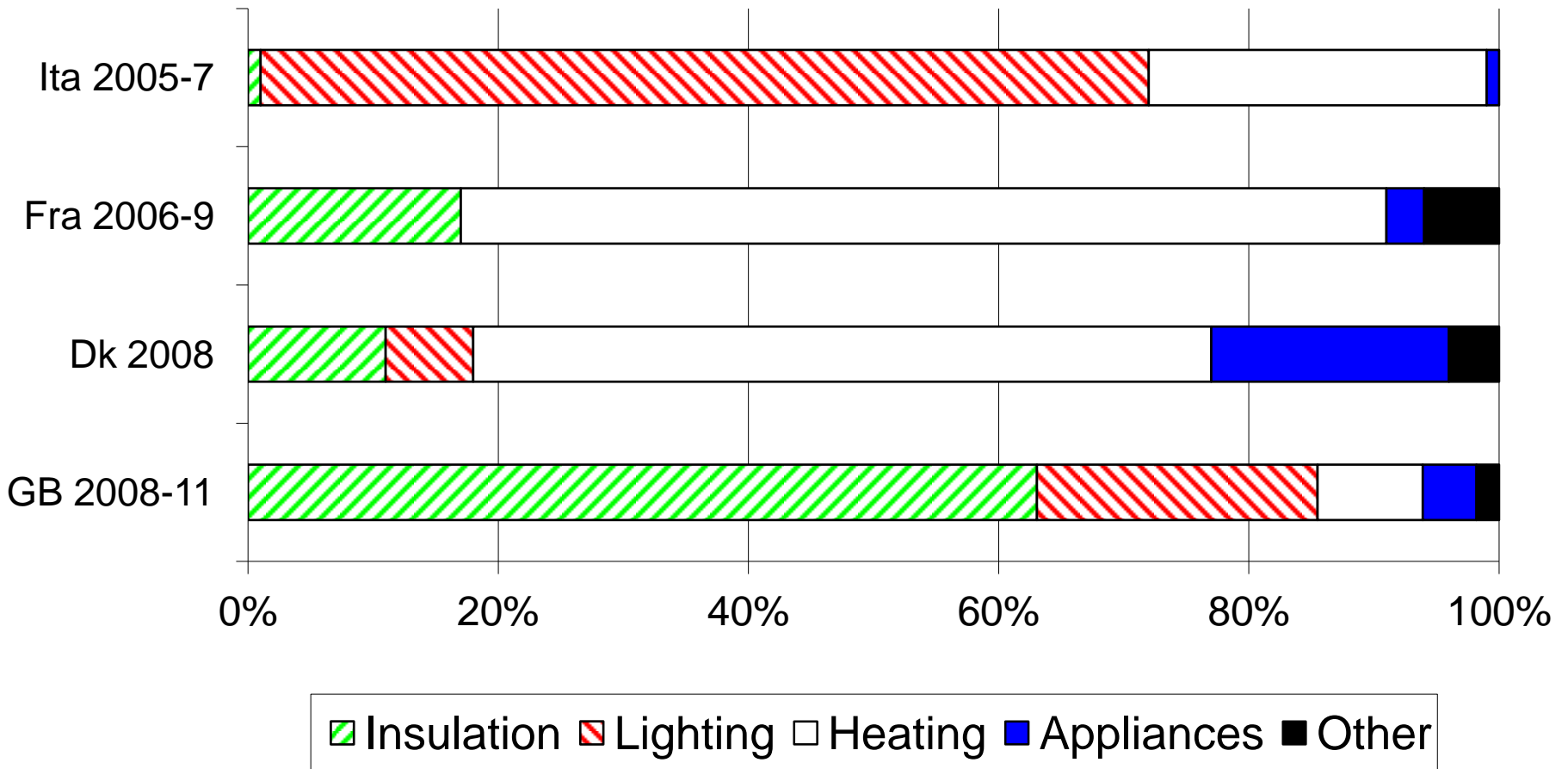
1€ = 1.3 USD

Most EEO Activity 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 savings come from?

Residential Energy Savings by End-use



Observations on EEOs in the EU

- Different targets, different end use sectors covered, different obliged actors - reflect local status of energy market, EE history of the energy providers, climate, energy saving opportunities, culture etc.
- Goals set fairly low, and been achieved at costs below policy makers' expectations; energy providers now spending >\$2.5 billion/year; in over 50 operational years experience of EU EEOs, no energy provider failed to meet it's overall energy saving target
- Function in both liberalised energy markets and also where they target monopolistic segments

Any Impact on Energy Demand?

- Use GB data as largest and longest running EEO
- In GB, natural gas provides 80% of all heating & hot water; prior to 2005 residential gas demand increasing at between 1-2% per year
- But in 2005, 3 important developments which would reduce demand: EEO obligation doubled (72% delivered energy savings from insulation measures in gas households); new regulations on boiler replacement meant condensing boilers quickly moved from 36% of the replacement market to >97%; gas price rises for households

Any evidence that EEOs work? - 1

- British Gas individual annual gas consumption data for 4 million customers for the period 2006-9
- 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.

Any evidence that EEOs work? - 2

- For this 4 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 compound
- Reduction in gas customer demand was 3.3%/year compound 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 policies – adapting to local conditions is key
- MSs with EEOs have evaluated their programmes and expanded them in recent times; new EU EE Directive?
- In the largest & longest running EEO, they are contributing to a significant reduction in residential gas demand (22% reduction in 4 years)
- EEOs avoid Governments having to use public expenditure to stimulate EE – relevant to the current financial problems facing many Governments