Energy Efficiency Utility Schemes and the Role of Trading

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8th IETA-IEA-EPRI Annual Workshop on Greenhouse Gas Emission Trading

22 – 23 September 2008, Paris

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Should utilities support end-use energy efficiency?

- **Pros…**
  - Financial and human resources; tariff adjustments
  - Access to the end-use customer
  - Knowledge of energy (how much is sold, to whom and at what time)
  - Competence in marketing and in engineering

- **Cons…**
  - Traditional utility corporate culture has been concerned with the supply & sale of energy for profit
  - Different skills needed to design and deliver EE programmes than for delivery and sale of energy
  - Costs of implementation – viable models exist, but institutional reform & effort needed

Evolution in programme design

	Programme type	Motival programme
1970s	DSM	Cost-efficiency of service delivery
	Integrated Resource Planning	
	Market transformation	Transform markets by addressing barriers
1990s	Liberalisation – energy efficiency progs disbanded	
2000s	New programmes – alignment of utility incentives with energy savings outcomes	Climate change

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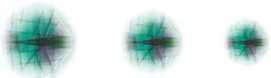
Innovations in programme design

- Tendency to strengthen incentives for utilities to design & deliver effective low-cost energy savings
- Tendency to combine
  - regulatory requirement to meet energy saving target
  - market-based instruments to enable utilities to trade savings obligations and to allow competition in the delivery of energy services

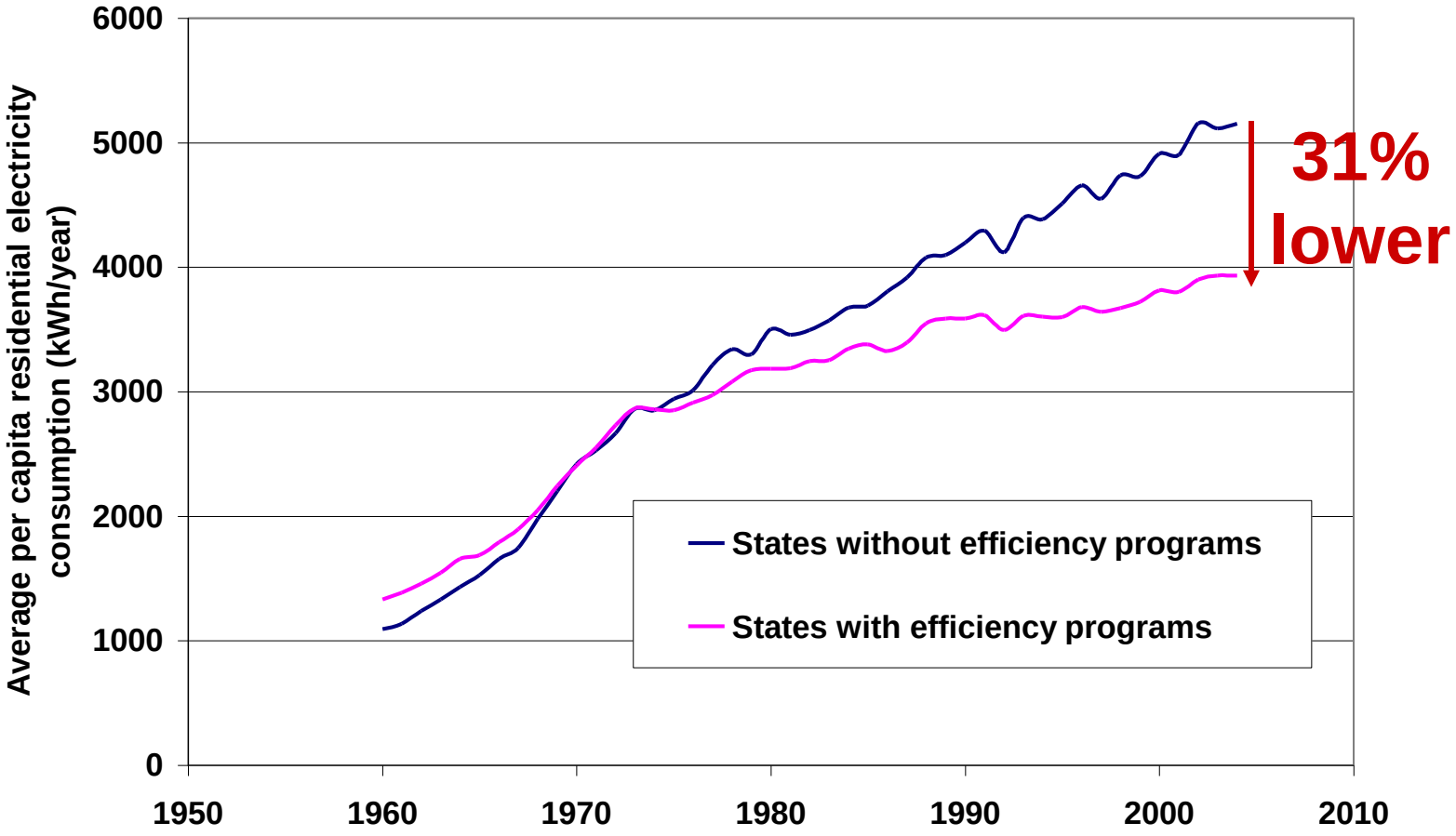
⇨ These schemes are relatively simple to design and administer & create an incentive for utilities to produce energy savings at least cost

Who is implementing utility energy savings obligation schemes?

- The UK (from 2002; the EEC1+2 and now called the CERT, using tradable savings obligations)
- Flanders (since 2003, tradable savings obligations)
- Italy (full white-certificate scheme from 2005)
- France (full white-certificate scheme from 2007)
- Denmark (since 2008, savings obligations but not tradable)
- New South Wales (from 2003 carbon reduction obligation now suspended pending national ETS)
- Range of US States



But do efficiency policies work?



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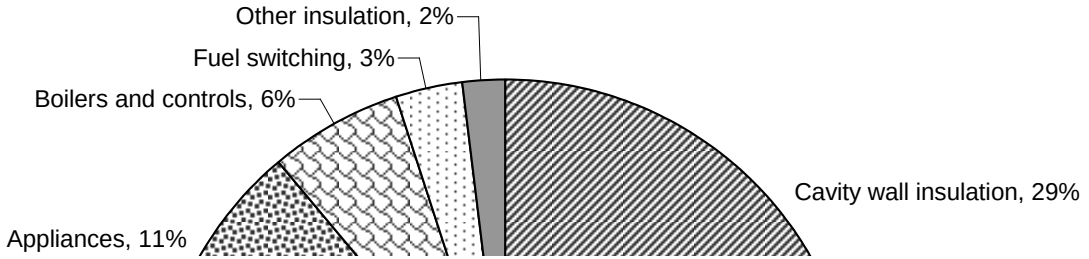
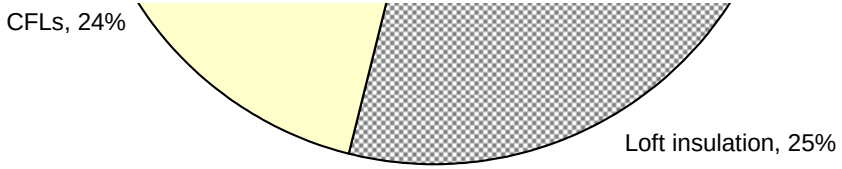
Energy savings by measure UK - EEC1



Now revised as the Carbon Emissions Reduction Target (CERT)

Will deliver 17% of national carbon abatement by 2010



Source: www.EuroWhiteCert.org

Factors that influence the program success

- Mandated savings obligations
  - Work against typical utility disincentives by decoupling savings outcome from resource allocation
- The top-down setting of savings targets
  - Simplify previous approach of using utility and expert assessments of programmatic savings opportunities
- Simplified accounting and M&V
  - Deemed savings methodology, i.e. ex-ante prediction of the savings yielded by standardised measures within a given implementation period
- To trade or not to trade?

The role of trading

	UK	France	Italy
Type of trading allowed	No certificate trade; Obligations can be traded; Savings can be traded after own obligation met*	Certificate trade, only OTC trading	Certificate trade; bilateral and spot exchanges
Market	No spot market	No formal market	Spot market; OTC market
Trading	Virtually non-existent (only banking or some direct trades between suppliers and project developers)	Virtually non-existent (only some direct trades between suppliers and project developers)	High frequency (but mainly bilateral)
Liquidity	Virtually non-existent	Virtually non-existent	Low (mainly bilateral)

*One-way trade in national emission trading scheme (but never formalised)

Why isn't there more trading?

- Missing market infrastructure
  - high transaction costs
- Low compliance incentives
  - cost recovery mechanism only in Italy
- Institutional structure
  - Lack of market operation and transparency
- Potential for market manipulation
  - High concentration of electricity distributors
- Aspects of electricity market regulation
  - E.g., cost recovery components cannot be applied in liberalised markets

Interactions between utility EE schemes & ETS

- Partially overlapping policy goals
  - ETS: cost-effective reduction of GHG emissions
  - EE utility schemes: work in same direction, but additional local benefits and co-benefits
- Impact on costs
  - Lower allowance price: EE reduces electricity demand and needed allowances by electricity generators
  - Ambiguous impact on overall costs of meeting cap: depending on costs of 'other' abatement options
- Impact on emissions
  - No immediate reduction benefit given fixed ETS cap
  - Additional reductions if EE schemes (i) reduced emissions below ETS cap, (ii) led to an additional reduction of ETS cap, or (iii) included emissions outside of ETS sectors.

Interactions between complementary measures: some more thoughts

- Concerns of double-counting
  - provision of CO_2 credits for green / white certificates could represent double-counting, undermining thus the ETS cap
- Questions of fungibility
  - two-way fungibility may compromise the environmental soundness of energy saving targets
  - one-way fungibility would create two separate markets without real linkage
- The choice and design of instruments to achieve multiple targets is essential

Bottom line

- Utility savings schemes based on savings obligations seem to be highly cost effective
  - Benefit to Cost ratios (BCRs) of between 3 and 5.5
  - Continuous efficiency improvements
- No empirical evidence on cost- or savings-effectiveness from trading
  - Targets are still being achieved quite easily and the trading component is still quite new ?
- Complementary measures can be important in the intermediate to make the price signal (e.g. CO_2) effective