A REVIEW ON TASK XIV ACTIVITIES
First experiences and open issues

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Preliminary results

• Review and background of national schemes on White Certificates (F, GB, I, NL, and NSW)
• Comparisons among different national approaches on:
  • EE targets and apportionment
  • obliged and eligible operators (competition issues)
  • eligible technologies and projects
  • procedures for M&V energy savings (additionality)
  • direct and transaction costs
  • role of trading
  • pros/cons of cross-border trading
Preliminary results

FOCUS ON

- Comparisons among different national approaches on:
  - EE targets and apportionment
  - **obliged** and eligible operators (competition issues)
  - eligible technologies and projects
  - procedures for M&V energy savings (additionality)
  - direct and transaction costs
  - role of trading
  - pros/cons of cross-border trading
Preliminary results

Information obtained in the IEA-DSM Task 14 open workshops

Preliminary *(still subject to change!!!)*

Not homogeneous

Not organised yet (flashes)
Obliged operators

Most common choice: energy suppliers

Other less common choices

– Distributors (owners of the grid - I)
– Producers with direct contracts with customers (NSW)
– Large or eligible electricity consumers (NSW)

Involved energy vectors / services

– Electricity - always
– Natural gas - very often (F, GB, I)
– Domestic fuel, cooling, heating - specific of F
Energy Suppliers - pros and cons

- direct contact with end-users
- practice of the energy end-uses world
- competition issues; then cost containment of ES projects:
  - choice of effective versus cheap mix of ES measures (e.g. GB)
  - fostering ESCO involvement (GB, NL)
  - encouragement for consortia of obliged agents (F, UK)
- chance of conflicts between obligation and competition regimes
  - need of long-term contracts

BUT
- highly dynamic market rules: e.g. 28 days’ rule in GB
Obliged operators

Electricity and Gas Distributors - pros and cons

- No conflict between obligation and competition:
  - granted 40 years’ monopoly to DSO against EE obligations and price cap on distribution tariff
  - cost-recovery exists for certified ES projects: a lump sum in Italy (100 Euro/toe) to partially compensate the project costs
- Set up of *virtuous circles* of joint ventures involving DSO, controlled Companies and ESCOs
- DSO are pure grid managers: they do not have direct contacts with large end-users nor experience in end-uses
- At present, DSO are prevented from *beyond the meter* operations
Evaluation of Energy Savings projects

Strong general inclination towards standardised ex-ante procedures

– based on lumped and conservative evaluations
– very simple and not ambiguous in the use
– generally shared with the stakeholders through preliminary consultation processes
– involving very few measurements (or none)
– considering baseline/deadweight
– easily updatable with changes of baseline
Evaluation of Energy Savings projects

Standardised ex-ante procedures
some approaches:

*Illustrative mix (GB)*

– very definite set of measures
– clearly evidenced unit energy savings and costs
– result of a many-sided procedure, based on:
  • historical experiences
  • modelling techniques
Evaluation of Energy Savings projects

Standardised ex-ante procedures
some approaches:

Illustrative mix (GB)
Evaluation of Energy Savings projects

Standardised ex-ante procedures
some approaches:

Default methods (I)

– Based on standard evaluation procedures
– No on field measurements
– Give “ex-ante” the energy savings per physical unit of equipment (e.g. per substituted lamp, per kW of installed motor power, etc)
– A simple equation is provided, together with standard values of the parameters included in the equation
Evaluation of Energy Savings projects

**Default methods (I) - Wall/roofings insulation**

<table>
<thead>
<tr>
<th>Physical reference unit:</th>
<th>Unit of insulated surface (m²)</th>
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</thead>
<tbody>
<tr>
<td>Gross specific savings of primary energy which can be obtained for a single building</td>
<td>RTL = RSL x S  (toe 10⁻³/year/building)</td>
</tr>
<tr>
<td>(S = surface of insulated walls/roofings)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Gross specific savings of primary energy per unit of insulated surface (RSL):</th>
<th>Building sector: residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climatic zone</td>
<td>RSL (toe 10⁻³/year/m² of insulated surface)</td>
</tr>
<tr>
<td>A conventional cluster of municipalities sharing a value of degree-day within a given range.</td>
<td></td>
</tr>
<tr>
<td>K of the structure before the EE measure (W/ m²/ K)</td>
<td>0.7÷0.9</td>
</tr>
<tr>
<td>A, B</td>
<td>0.3</td>
</tr>
<tr>
<td>C</td>
<td>0.7</td>
</tr>
<tr>
<td>D</td>
<td>1.3</td>
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<tr>
<td>E</td>
<td>2.2</td>
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<tr>
<td>F</td>
<td>3.5</td>
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</tbody>
</table>
Evaluation of Energy Savings projects

Standardised ex-ante procedures
some approaches:

Standard procedures (F)

At present, about 71 savings actions were preliminarily pointed out, namely:

• About 54 savings actions in residential/tertiary sectors
• About 14 savings actions in industry
• About 3 savings actions in transport
Additionality - Variety of adopted approaches:

- beyond mandatory standards (ES in buildings - I)
- related to average consumes of equipment (I)
- related to average market share (I-NL)
- non-increase of turnover (only non-obliged - F)
- to be demonstrated (GB)
- not required (NSW)
Costs of WhC Policies

Only spot information are available in this phase of the Task.

Cost data are classified according to different viewpoints (when available):

- end-user (household or industry)
- obliged agent (e.g. supplier, distributor)
- eligible agent (e.g. ESCO)
- Regulatory Agency
Costs of WhC Policies - FRANCE

Viewpoint of an obliged implementer of EE projects

- evaluated average cost of the EE programmes: 1 c€/kWh
- assumed maximum value for penalty for non-compliance: 2c€/kWh
- payment of the penalty cancels the obligation.
Costs of WhC Policies - FRANCE

Viewpoint of an **obliged implementer** of EE projects

- A critical field: thermal insulation of existing buildings
- Retrofitting industry nor so well organised:
  high transaction costs for medium size market:
  - tertiary: public & commercial buildings
  - small industry
- Sources of TC: info/call centres, manpower for audits and WhC issuing, contracting management
- Expected TC between 10 and 15 €/MWh
Costs of WhC Policies - GB

Viewpoint of Regulatory Agency - Ofgem

- costs of operating EEC in GB in 2002-2005
  ~£ 300,000 per year.
- biggest costs connected to the external auditor and to management of the database
- cost of operating the EEC anyway less than 0.5% of the total Regulatory Agency’s budget (£ 400 million).
Costs of WhC Policies - GB

Viewpoint of the end-user

– EEC 2002-2005 added ~£4 per year per fuel to energy bills.
– EEC 2005-2008 will add ~£5 on top of this.
– Therefore, between 2005-2008 the total cost of EEC for a customer who uses electricity and gas would be ~£18 per year.
Costs of WhC Policies - ITALY

Viewpoint of a household end-user

- cost of EE policies paid as a component of the distribution tariff (at present, 0.0213 €/kWh for electricity)

- assumed electricity consume = 3000 kWh/year per customer

- amount of annual electricity bill paid to fund EE policies (not an additional cost) = 0.64 €/year per customer
Viewpoint of an **obliged implementer** of EE projects

- cost recovery for each certificated saved toe: about 10 M€ from electricity targets in 2005 against an annual electricity turnover of about 30,000 M€
  
  annual consume = 300 TWh; average cost = 0.1 €/kWh

- penalty for non-compliance (upper limit for WhC price):
  
  still to be defined
  
  related to the number of not saved toe’s
  
  proportional and greater than the investment required to compensate the non-compliance
CAPOZZA Antonio:
can be roughly compared with the maximum WhC in France:

\[ 116 \text{ (MWh)} \times 0.02 \text{ (c€/kWh)} \times 1000 = 2.32 \text{ k€} \]

**Viewpoint of an eligible implementer of EE projects**

Particular case of substitution with high efficiency electric motors (from \textit{eff3} to \textit{eff1})

- Total involved electric power: 1,340 kW
- Cost of the project: about 37 k€
- Savings: final = 116 MWh/year; primary = 25.47 toe/year
- Savings on the electricity bill: about 11 k€/year
- Gain from White Certificates trading: can be referred to the acknowledged cost recovery 2.55 k€/year
Costs of WhC Policies - NSW (AU)

Viewpoint of **obliged implementers** of EE projects

- penalty for non-compliance: AUD10.50 (6.25 €) per tonne of CO₂ equivalent above the allowance (about 15 € for not saved toe)

- large transaction costs for small energy efficiency projects due to audits: the average cost of an audit is about AUD 10,500 (EUR 6,250)
Thank you

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