LESSONS AND OPEN ISSUES FROM THE FIRST PERIOD OF EEO’S AND ALTERNATIVE MEASURES IN THE EU
5 years ago we took Schumacher’s seminal “Small is Beautiful: A Study of Economics as if People Mattered” approach and established a small entity to target big issues. Now we are a knowledge hub of 16 interdisciplinary experts from all over EU.

A non-for-profit, independent research foundation working on science-based climate change mitigation, energy efficiency and renewable energy policy. Sharing pragmatic results & innovative ideas providing policymakers, and all private and public decision-makers, with independent expertise and science-based research to support their work towards the energy transition and a sustainable future.
In 2019...

- About 20 projects in 5 years

- 7 proposals won
- 10 H2020 projects
- 5 H2020 projects managed as coordinator
- 2.5 million € total project value
- >10 events
- Increase in outreach: ENEWS, LINKEDIN & TWITTER ACCOUNTS, LUNCH SEMINARS
- Spoken in the team: 10 languages
- Scientific articles and peer-reviewed publications
- ECEE, ENERGY SUFFICIENCY PROJECT WORKSHOP, AND MORE
Status of Art7 EED implementation

Achieved vs Cumulative targets

Maybe only half of MS can achieve their targets
Energy Efficiency Obligations are a key instrument and can continue to deliver.

Financing Schemes – always accompanying the “difficult” sectors and investments.

Taxes are important but they should not be used to close the gaps...
Energy Efficiency Obligations

- 16 MS
- 58% of the EU28 final energy consumption (2017 data)

✓ EEOS started in Croatia and Latvia + soon in Cyprus
✓ Danish EEOS estimated to end by December 2020
✓ Most of the other EEOS will likely be continued

- Denmark (ended) (2006)
- Poland (2013)
- Latvia (2018)
- UK (2002)
- Luxembourg (2015)
- Austria (2015)
- Slovenia (2015)
- Croatia (2019)
- Bulgaria (2008)
- Greece (2017)
- Spain (2014)
- France (2006)
- Italia (2005)
- Malta (2015)
- Lithuania (2012)
- Estonia (2014)
- Latvia (2018)
- Cyprus (ends 2020)

+ Cyprus (to be started soon)
Cost parameters of EEOs

**Buy-out mechanism**

- Buy-out or pay-to-save costs (for first-year savings *for Italy the value is in yearly energy savings and for France in cumulative yearly energy savings). (Source: survey conducted by KAPE)
- Multiplication factors that impact the obligation in EEOS
- Stringency of MRV requirements

*This could be the outcome of the lifetime cumac savings*
# Average costs of EEOs

<table>
<thead>
<tr>
<th>MS</th>
<th>Investment Cost</th>
<th>Admin cost</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG</td>
<td>519 €/MWh buildings, 297 €/MWh industry</td>
<td>N/A</td>
<td>Fine 510-2550€</td>
</tr>
<tr>
<td>PL</td>
<td>367.5 €/toe (avg cost of buy-out 2019)</td>
<td></td>
<td>&lt;2m € (max 10% of income)</td>
</tr>
<tr>
<td>F</td>
<td>3-4 mrd € and cost 7-9.2 €/MWh cumac</td>
<td></td>
<td>1.5c € cumac</td>
</tr>
<tr>
<td>GR</td>
<td>N/A (ranging from 10k€/ktoe – <strong>main measure (50% of target)</strong>- for behavioural to 5m€/ktoe for renovation)</td>
<td>N/A</td>
<td>0.5m€ /ktoe</td>
</tr>
<tr>
<td>UK</td>
<td>754mGBP</td>
<td>70.7</td>
<td>Up to 10% of turnover</td>
</tr>
<tr>
<td>A</td>
<td>230 €/toe (based on buy-out)</td>
<td>800K€/y</td>
<td>50-100k €</td>
</tr>
<tr>
<td>IE</td>
<td>5.6€cents/kWh</td>
<td></td>
<td>X1.25 buyout price</td>
</tr>
<tr>
<td>IT</td>
<td></td>
<td>14m€ (2016)</td>
<td>Not defined ex-ante</td>
</tr>
<tr>
<td>ES</td>
<td>0.79M€/ktoe (based on contribution fee)</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>LV</td>
<td>70 €/MWh (contribution to Fund)</td>
<td></td>
<td>10.5c€ / kWh</td>
</tr>
</tbody>
</table>
Certificate markets (shadow prices?)

Poland

France

Italy

WhC market price trend

Price trend for bilateral agreements

Market session data

- "May 31st session"
- "DSO's reimbursement"
- "Other fuels savings"
- "Gas savings"
- "Electricity savings"
Very different distributions from one country to the other
Calculation methods / M&V rules might have an important influence
Lessons learned on EEOs

- Don’t wait to start: no scheme can be perfect from its launch (cf. learning by doing), and it is not possible to come back in time to achieve savings!
- EEOS cannot do everything alone: synergies or complementarities with other policy measures are essential for a comprehensive EE strategy
- Don’t underestimate the need in resources on the public authorities’ side
- Be aware of possible distributional effects (between and within sectors)
- High targets = high needs in controls (+ taking into account the whole chain of contractors)
- Verifying the achievements is important. Knowing the costs as well. And identifying the impacts should even engage in a broader view.
- Learning effects on all sides (public authorities, obligated parties and third parties) → improved processes, increased quality
- Whatever the calculation methods, provide clear guidelines
- Numerous small projects = need for standardized procedures
- Need of quick feedback loops and to be very reactive to correct unforeseen flaws
- Involving small energy companies can be time-consuming (vs. small share of savings) → optimizing the scope of obligation
Taxation measures

Types of taxation
• General energy taxation covering all sectors A, BE, CY, CZ, DE, EE, GR, ES, H, LV, NL, SE, (UK)
• Taxation on transport fuels FI, LT, MT

Contribution of taxation measures differs substantially from 75% in cumulative savings (CY, ES, SE) to <20% in most MS

Energy taxes were reported in their majority early enough as taxes with clear objectives (energy/energy efficiency) with only few exceptions

Energy and CO2 taxes in some cases introduced recently as an alternative measure to close the gap in energy savings from incumbent measures

Interactions with other policies under Art7 exist, mainly with grants and subsidies in related sectors and fewer with Energy Efficiency Obligations (EEOs)
### Taxation measures (NECP)

<table>
<thead>
<tr>
<th>Member State</th>
<th>Cumulative savings 2021–2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>677</td>
</tr>
<tr>
<td>Cyprus</td>
<td>4.07 / 93.3 / 199.6</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.5 / 20</td>
</tr>
<tr>
<td>Finland</td>
<td>55.26</td>
</tr>
<tr>
<td>Lithuania</td>
<td>21.6</td>
</tr>
<tr>
<td>Latvia</td>
<td>540</td>
</tr>
<tr>
<td>Netherlands</td>
<td>N/A</td>
</tr>
<tr>
<td>Sweden</td>
<td>172.2</td>
</tr>
</tbody>
</table>

Fewer MS make use of taxation measures (up to now)

The longer term horizon of the target allows more possibilities for using more measures or for strengthening the existing ones (such as EEOs?)
Elasticities in taxation measures

How to calculate elasticities?

(_: Direct estimation: Study for short (1-2 years) and long term (15-20 years) estimates/ modelling scenarios/ national verified databases/ inclusion of parameters (income, prices, other measures, seasonal effects, autonomous efficiency improvements, etc)

(_: Indirect estimation: Regressions from academic literature results, particular sector in another (similar) country/ justifications are required
## Elasticities

<table>
<thead>
<tr>
<th>Member State</th>
<th>Short run elasticities</th>
<th>Long run elasticities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>X (WIFO-DYNC model)</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.18 (cost of km travelled and distance – no price)</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-0.1 (cement), -0.1 (rest of industry), -0.1 (residential), -0.05 (services)</td>
<td>N/A</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>Time series 2001–2017</td>
</tr>
<tr>
<td>Germany</td>
<td>-0.2 (gas), -0.2 (electricity), -0.2 (heating oil), -0.25 (diesel and gasoline)</td>
<td>N/A</td>
</tr>
<tr>
<td>Estonia</td>
<td>-0.26 (gas), -0.18 (electricity), -0.2 (district heating), -0.26 (petrol), -0.26 (diesel)</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>-0.51 (heating oil), -0.31 (diesel), -0.41 (gasoline), -0.31 (LPG)</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-0.236 (res electricity), -0.055 (services electricity), -0.073 (industrial electricity), -0.2 (residential gas), -0.203 (services gas and industrial gas)</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>-0.12 (petrol), -0.11 (diesel)</td>
<td>-</td>
</tr>
<tr>
<td>Hungary</td>
<td>Not available</td>
<td>-</td>
</tr>
<tr>
<td>Lithuania</td>
<td>-0.58 (petrol), -0.26 (LPG) – source provides other values</td>
<td>-</td>
</tr>
<tr>
<td>Latvia</td>
<td>Not available</td>
<td>-</td>
</tr>
<tr>
<td>Malta</td>
<td>-0.16 (petrol transport), -0.21 (diesel transport), -0.2 (gasoil heating), -0.44 (LPG heating)</td>
<td>(unclear if only short-term elasticities would be used)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>-0.15 (Residential electricity), -0.1 (gas)</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-0.58 (Gasoline), -0.17 (diesel), -0.07 (electricity)</td>
<td>-1.09 (gasoline), -0.4 (diesel), -0.5 (electricity)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-0.2 (industry)</td>
<td>-0.47 (industry), -0.3 (services)</td>
</tr>
</tbody>
</table>
Calculation of savings in taxation

- Elasticities should account for “net” effects of the change in prices

- Counterfactual scenarios
  1. Bottom-up: estimation of granular estimates of energy use or energy savings and on the multiplication of these granular estimates up to the total level of the affected population
  2. Extrapolation of trends observed before the intervention: Past trend to evaluate the changes over time
  3. Comparison with similar (regional or national) markets where the policy measure is not introduced

Important: counterfactual should ensure that the energy savings that are estimated are directly attributable to the adopted taxation measure, taking into account energy savings from accompanying taxation policy instruments and beyond the EU minimum

- ALTERNATIVE: Decomposition analysis (disentangling of the effects of individual policies in sub sectors and end uses)
Upcoming challenges

- Learning effects on all sides (public authorities, obligated parties and third parties) → improved processes, increased quality
- Whatever the calculation methods, provide clear guidelines
- Numerous small projects = need for standardized procedures
- Need of quick feedback loops and to be very reactive to correct unforeseen flaws
- Involving small energy companies can be time-consuming (vs. small share of savings) → optimizing the scope of obligation
- Link with ETS review – role of Art7 EED in the EED review and future period (issues on energy poverty, cost-effectiveness, MRV schemes, transport sector?)
H2020 ENSMOV and STREAMSAVE projects

• Comprehensive needs assessment and gap analysis
• Resources related to policy implementation and MRV
• Proceedings of conferences, workshops and webinars
• Policy reports at national level
• Policy recommendations on the implementation of EED art. 7
• Guidelines for policy makers and stakeholders involved in policy design and implementation

www.ensmov.eu

www.article7eed.eu

WWW.IEECP.ORG
Thank you!