EEA: European Environment Agency

- "The EEA aims to support sustainable development and to help achieve significant and measurable improvement in Europe’s environment..."

- "... through the provision of timely, targeted, relevant and reliable information to policy making agents and the public"

- EEA is an independent EU institution with 32 member countries incl. Turkey, Switzerland and Norway

- 200 staff in Copenhagen headquarters - and 6 Topic Centres with wide network throughout Europe
Environmental fiscal reform

- Incentives for new process technologies that improve energy efficiency
- Incentives for new products, that are less energy demanding
- Stable price signals, but transaction costs complicate responses
Revenue recycling for innovation

- **The text-book approach:**
  - Revenue-neutral recycling of environmental tax proceeds to lower employers’ social security contributions or other payroll taxes

- **Framework for innovation (Schumpeter):**
  - Recycling of 5-20 per cent of environmental tax proceeds to promote change
  - Example: Denmark's CO₂ tax
Complexity of price signals

Partial reduction of CO$_2$ tax if:
- Binding energy saving target
- Energy management system
  - with energy audit, staff training, procurement policies and annual progress report

Micropanel result: with binding EMAS 60 per cent higher energy savings than in companies subject to tax only

*(Bjørner and Togeby, Energy Economics, 2001)*
## Unit energy costs
(€ per 100 € value added)

<table>
<thead>
<tr>
<th></th>
<th>Denmark</th>
<th>Finland</th>
<th>Germany</th>
<th>NL</th>
<th>Slovenia</th>
<th>Sweden</th>
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Environmental tax reform in Europe: opportunities for eco-innovation

By Roger Salmons, Ulrike Lehr and Christian Lutz
GINFORS model

Figure 2: The Wheel of GINFORS

Figure 1: Country Coverage of GINFORS
Scenarios

- BH: Baseline scenario (High energy price)

- S1H: ETR to meet EU’s unilateral 2020-target for GHG, with revenue recycling

- S2H: same – but with 10% of revenues dedicated for eco-innovation
Additional scenarios with focus on eco-innovation

• S2HE: ETR with revenue recycling; 10% dedicated to eco-innovation implying increase in global RES market share

• S2HI: ETR with revenue recycling; 10% dedicated to eco-innovation implying domestic RES on German model
<table>
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Figure 3.7 Total primary energy supply in 2020 under scenario S2H — deviation from the baseline (BH)
Figure 3.6 Energy-related CO₂ emissions in 2020 under scenario S2H — deviation from the baseline (BH)

- Germany
- Austria
- Luxembourg
- Denmark
- Finland
- Greece
- Ireland
- Italy
- Netherlands
- Portugal
- Spain
- Sweden
- United Kingdom
- Czech Republic
- Hungary
- Poland
- Slovakia
- Cyprus
- Estonia
- Latvia
- Lithuania
- Bulgaria
- Slovenia
- Malta
- EU-15
- EU-27
- World
Figure 3.1 EU-27 GDP according to four scenarios — deviation from the baseline (BH)
Figure 3.4 GDP in 2020 in EU-27 Member States under scenario S2H — deviation from the baseline (BH)
Figure 3.2 EU-27 employment according to four scenarios — deviation from the baseline (BH)

Percentage deviation from the baseline (BH)

- S2HI
- S1H
- S2H
- S2HE
Figure 3.5 Employment in 2020 in EU-27 Member States under scenario S2H — deviation from baseline (BH)

- Germany
- Austria
- Belgium
- Luxembourg
- Denmark
- Finland
- France
- Greece
- Ireland
- Italy
- Netherlands
- Portugal
- Spain
- Sweden
- United Kingdom
- Czech Republic
- Hungary
- Poland
- Slovakia
- Cyprus
- Estonia
- Latvia
- Lithuania
- Malta
- Slovenia
- Bulgaria
- Romania

Percentage deviation from the baseline (BH)
Table 3.4  Employment impacts of scenario S2HE in 2020 in Germany — deviations from scenario S2H

<table>
<thead>
<tr>
<th>Employment in 2020</th>
<th>Deviation from S2H (%)</th>
<th>Deviation from S2H absolute (1 000s)</th>
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<tbody>
<tr>
<td>Agriculture, forestry</td>
<td>-0.1</td>
<td>-0.2</td>
</tr>
<tr>
<td>Industry</td>
<td>0.3</td>
<td>19.4</td>
</tr>
<tr>
<td>Non-metallic minerals</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>1.3</td>
<td>13.0</td>
</tr>
<tr>
<td>Electrical machinery</td>
<td>2.4</td>
<td>11.7</td>
</tr>
<tr>
<td>Construction</td>
<td>0.1</td>
<td>1.8</td>
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<tr>
<td>Trade and transport</td>
<td>0.0</td>
<td>2.6</td>
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<tr>
<td>Business services</td>
<td>0.7</td>
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<tr>
<td>Other services</td>
<td>0.1</td>
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<tr>
<td>Total</td>
<td>0.2</td>
<td>63.4</td>
</tr>
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</table>

Table 3.5  Employment impacts of scenario S2HI in 2020 in Germany — deviations from scenario S2H

<table>
<thead>
<tr>
<th>Employment in 2020</th>
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<td>Other services</td>
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<td>5.6</td>
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<tr>
<td>Total</td>
<td>0.0</td>
<td>16.7</td>
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</tbody>
</table>
• “Environmental taxation can spur innovation” (OECD, 2010)
• Negative impact on GDP can be softened by dedicating small part of revenues
• Employment effects can be fine-tuned with specific approaches to eco-innovation
Thank you for your attention

http://www.eea.europa.eu