CARBON PRICING in the Netherlands

symposium “Coordinating the next wave of EU climate policies”

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Carbon pricing

- Economists always know better
  - Presentation is a perfect illustration: just weigh goals and instruments in a grand CBA and we all know what to do.

- Do we?
  - Real world copes with yellow jackets, climate skeptics and what else?

- Simple solution!
  - You know what, just put a price on carbon and return the revenue!

- Is it that simple?
Careful design of additional carbon pricing is necessary

- Additional uniform *taxes* in Europe may exacerbate inefficiency
  - Cap and trade already exists in ETS sectors
    - Additional tax crowds out cap-and-trade
    - Existing implicit taxes (usually in non-ETS sectors) may already be too high

- Uniform *prices* helpful only if they take stock of existing role of ETS and the role of other externalities
  - Hybrid schemes: ETS vs taxes in non-ETS

- Additional *unilateral* pricing may undermine EU cooperation
Additional unilateral policy in the Netherlands

- ‘Climate tables’ with stakeholders:
  - Negotiate GHG emission reduction in 2030 minus 49% and even 55% in a coalition
  - Five tables: transport, agriculture, industry, electricity sector, built environment
  - Timeline 2017-2019; response by Dutch government in summer ‘19

- Urgenda:
  - Law suit by NGO against Dutch Stae
  - Ruling by Dutch High Court in June 2019: Dutch State liable for responsible care in case of climate change (through its commitments under Kyoto protocol)
  - Implication is that Netherlands should comply with Kyoto requirements: -25% GHG emissions relative to 1990
Use effective carbon taxes and prices for proper picture

- Explicit prices through cap-and-trade (ETS)
- Implicit prices through existing excises: mainly non-ETS; coordinated by EU minimum taxes

Carbon pricing in practice: the Netherlands

<table>
<thead>
<tr>
<th>CO₂ pricing and revenues, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
</tr>
<tr>
<td>CO₂ price (euro per tonne CO₂)</td>
</tr>
</tbody>
</table>

- Fuel taxes
- Tax on natural gas
- Cap and trade (ETS)
- Tax on electricity

Tax revenue
- Direct
- Indirect
- Surtax renewable energy (ODE)

ETS
- Auctioned allowances
- Free allowances

Source: PBL
Additional unilateral policy in the Netherlands

- **Measures ETS:**
  - **Electricity:**
    - Closure of five existing coal power plants by 2030 (5 GW)
    - Subsidy scheme renewables including biomass production
    - Gradual abolishment of subsidy scheme after 2025
    - **Pricing:** carbon floor price electricity; increasing from €12 (2020) to €32/ton (2030)
  - **Industry:**
    - New subsidy instrument for innovative carbon abatement options
    - **Pricing:** plant-specific marginal tax above linear declining threshold after 2021
Measures non-ETS:

- **Agriculture:**
  - Subsidy on abatement options (PM Nitrogen crisis)

- **Built environment:**
  - District specific heating policy aiming at substitution away from natural gas
  - Subsidies for households to prevent net income losses by households
  - Pricing: xecise tax swap; lower tax on electricity combined with higher tax on gas

- **Transport (PM EU policy standards):**
  - Additional obligation for biofuels
  - Subsidy for electric cars until 2023 (PM km pricing afterwards)
  - **Pricing:** Vignet for trucks
Evaluation unilateral pricing in the Netherlands

- **Observation:**
  - Non-uniform additional pricing
  - Unilateral action within ETS sectors

- **Analysis**
  - Alternative policy package based on additional local uniform carbon pricing vs additional industry pricing
  - Taking stock of other existing externalities
    - e.g. abolish tax on electricity; lower tax on natural gas; on top of existing fuel taxes (air quality and other externalities transport);
  - Computation of emission and welfare impacts using CGE model

See: [https://www.pbl.nl/publicaties/economische-effecten-van-co2-beprijzing-varianten-vergeleken](https://www.pbl.nl/publicaties/economische-effecten-van-co2-beprijzing-varianten-vergeleken)
# Evaluation unilateral pricing in the Netherlands

<table>
<thead>
<tr>
<th></th>
<th>Uniform A</th>
<th>Uniform B</th>
<th>Industry A</th>
<th>Industry B</th>
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</thead>
<tbody>
<tr>
<td><strong>Revenue recycling</strong></td>
<td>lump sum</td>
<td>industry</td>
<td>lump sum</td>
<td>industry</td>
</tr>
<tr>
<td></td>
<td>households</td>
<td>SDE++</td>
<td>households</td>
<td>SDE++</td>
</tr>
<tr>
<td><strong>CO₂-emission in Netherlands</strong></td>
<td>Mton CO₂</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ETS – industry</td>
<td>1,7</td>
<td>-8,5</td>
<td>-3,8</td>
<td>-3,5</td>
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<tr>
<td>-ETS – elektricity</td>
<td>-11,0</td>
<td>-5,4</td>
<td>0,6</td>
<td>0,4</td>
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<tr>
<td>-non-ETS</td>
<td>9,2</td>
<td>13,9</td>
<td>3,1</td>
<td>3,1</td>
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<tr>
<td><strong>CO₂-leakage</strong></td>
<td>Mton CO₂</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CO₂-emission World (excl. NL)</td>
<td>8,1</td>
<td>-1,2</td>
<td>3,7</td>
<td>0,7</td>
</tr>
<tr>
<td></td>
<td>6,1</td>
<td>4,2</td>
<td>0,5</td>
<td>0,3</td>
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<tr>
<td></td>
<td>2,0</td>
<td>-5,4</td>
<td>3,2</td>
<td>0,4</td>
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<tr>
<td><strong>Welfare</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- GDP</td>
<td>%</td>
<td>0,1</td>
<td>0,2</td>
<td>-0,2</td>
</tr>
<tr>
<td>- Consumer welfare (HEV)</td>
<td>%</td>
<td>0,4</td>
<td>0,4</td>
<td>0,1</td>
</tr>
</tbody>
</table>
Carbon pricing in a complex world

- Economist should be careful with their policy advice on carbon taxation

- A problem of messing up goals and instruments
  - EU ETS caps emissions and does deliver for the ETS sectors,
    - MSR adaptation renders minimum price schemes redundant in the short run ….
    - but cap is still too lose from Paris perspective
  - Also outside ETS more effort needed but pleas for uniform carbon pricing may backfire
    - Example of uniform carbon taxation in NL

- Additional local carbon pricing
  - Requires careful design
  - Uniform taxes are a bad idea and uniform prices only if other externalities are included
  - Proper additional pricing in the industry would work better in a two-speed coalition
Explicit pricing: EU ETS

- Emission cap from -1.74% to -2.2% each year from 2021

![Graph showing emission cap from 2015 to 2070 with linear reduction factors of 1.74% and 2.2%]

- Linear reduction factor 1.74% = 38 Mton/jr
- Linear reduction factor 2.2% = 48 Mton/jr
Explicit pricing: EU ETS

- Introduction of latest Market Stability Rules (MSR):
  - restricts the ‘bank’ and endogenizes the cap by cancellation of allowances
  - waterbed effect temporarily punctured
- Emission price up from 5 to 20-25 euro per ton
Carbon price Netherlands

**CO₂-prijs, 2030**

- Euro per ton CO₂

- Elektriciteitsector (ETS)
- Industrie (ETS)*
- Gebouwde omgeving Aardgas
- Gebouwde omgeving Elektriciteit
- Verkeer

*Inclusief 7 euro ODE en bestaande beprijzing toegeschreven aan overige externaliteiten

Referentie: Uniform A B

Opslag Duurzame Energie (ODE)

Bestaande beprijzing toegeschreven aan overige externaliteiten

Bron: PBL
The real world consists of multiple externalities and not always multiple instruments.

**Belastingen en milieuschade van verkeer, 2018**

**Belastingen**

- Benzine
  - Accijns

- Diesel
  - Accijns

**Milieuschade**

- Benzine Personenauto
  - Klimaat direct
  - Klimaat keten
  - Extra milieuschade bij hoge inschatting klimaatschade

- Diesel Personenauto
  - Lucht direct
  - Lucht keten
  - Infrastructuur
  - Ongevallen
  - Congestie
  - Overig

- Diesel Vrachtauto
  - Lucht direct
  - Lucht keten
  - Infrastructuur
  - Ongevallen
  - Congestie
  - Overig

Bron: PBL