Defining the tax base

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Carbon tax design at a glance

Getting started

Define policy objectives and national circumstances

Compare policy options & determine whether to adopt a carbon tax

Design phase

DESIGN TAX
- Tax base
- Tax rate
- Institutions
- Revenue use
- Avoiding unwanted effects

Evaluation phase

Evaluation & Improvement

Modeling to inform decision-making
Design choice interactions

Note: MRV = Measuring, Reporting and Verification.
Tax base – main approaches

**Taxes on fuels**
- Tax on raw or processed fossil fuels (coal, gas, oil etc.)
- Applied upstream (import/extraction) or midstream (distribution)
- Common for transport and heating emissions
- **Advantages:** Simple to implement; Suitable for dispersed emissions
- **Disadvantages:** Limited to energy emissions; less visible price signal

**Taxes on direct emissions**
- Emissions taxed at source (e.g. power plant, factory)
- Common for electricity generation and heavy industry
- **Advantages:** Allows inclusion of non-fuel emissions; visible price signal
- **Disadvantages:** Requires MRV, additional government capacities; Unsuitable for dispersed sources

**Combined approach**
- Tax on direct emissions of generators and heavy industry; Fuel tax on transport, residential and commercial sectors
- Examples: South Africa
- Compare with combination with ETS
Point of regulation

UPSTREAM

Oil wells  Natural gas wells  Coal mines  Importers

MIDSTREAM

Electric utilities  Fuel distributors

DOWNSTREAM

Vehicles  Households  Commercial buildings  Industry

Source: Ramseur and Parker 2009.
Determining the tax base

- Emissions profile
- Emissions reduction opportunities
- Responsiveness to price signals
- Policy mix
- MRV and administrative capacity
- Political considerations
- Legal authority

For taxes on direct emissions:
- Determine legal responsibility
- Apply thresholds

☑ Determine scope
☑ Determine point of regulation
Thresholds and legal responsibility

**Thresholds**
Minimum level of activity that will trigger responsibility for paying the tax

Factors to consider:
- Proportion of emissions attributable to small emitters.
- Cost of reporting in relation to tax amount.
- Capabilities of firms and regulators.
- Likelihood of intra-sectoral leakage.
- Possibility of market distortions as a result of thresholds.

**Determining legal responsibility**

**Direct emissions:**
- Two main approaches:
  a. Ownership approach
  b. Control approach
- Self identification vs. government identification
- Issue of multiple entities in one installation – need for accounting rules

**Taxes on fuel:**
- Generally following existing excise tax rules
- E.g. EU – “tax warehouses”
## Tax base – approaches taken in practice

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>FUEL COVERAGE</th>
<th>MAJOR EXCLUSIONS¹</th>
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<tbody>
<tr>
<td>British Columbia</td>
<td>All</td>
<td>Agriculture, international aviation, and maritime transport</td>
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<td>Denmark</td>
<td>All</td>
<td>EU ETS sectors, international maritime</td>
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<tr>
<td>France</td>
<td>All</td>
<td>EU ETS sectors, agriculture, commercial transport</td>
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<tr>
<td>India</td>
<td>Coal</td>
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<tr>
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<td>EU ETS sectors, agriculture, international maritime transport</td>
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<tr>
<td>Japan</td>
<td>All</td>
<td>Agriculture; forestry; air, rail, and maritime transport</td>
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<td>Mexico</td>
<td>Coal, oil¹⁰</td>
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<tr>
<td>Norway</td>
<td>Oil, gas</td>
<td>EU ETS sectors, international maritime transport; fishing and agriculture (partially excluded)</td>
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<tr>
<td>Portugal</td>
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<td>EU ETS sectors, international maritime transport</td>
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<tr>
<td>Sweden</td>
<td>All</td>
<td>EU ETS sectors, agriculture (partially excluded), international maritime transport</td>
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<td>All</td>
<td>Transport; Swiss ETS-covered companies</td>
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<tr>
<td>United Kingdom</td>
<td>All</td>
<td>EU ETS sectors, agriculture (partially excluded), international maritime transport</td>
</tr>
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### ALL TAXES ON DIRECT EMISSIONS⁹

<table>
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<tr>
<th>JURISDICTION</th>
<th>EMISSIONS COVERED</th>
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</thead>
<tbody>
<tr>
<td>Australia (former)</td>
<td>Electricity generation, industry, waste, fugitive emissions</td>
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<tr>
<td>Chile</td>
<td>Large boilers and turbines</td>
</tr>
<tr>
<td>South Africa⁴</td>
<td>Fossil fuel combustion, industrial processes, product use, fugitive emissions</td>
</tr>
</tbody>
</table>