Policy mapping, the case of Norway

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Ministry of the Environment, Norway

Washington, March 14th 2013
Context: Growing concern of sustainability in the late 80’s

• The Brundtland commission 1987: “Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

• Increasing awareness in the late 80’s of impact on nature by human activity and especially fossil fuels. Sulphur, NO\textsubscript{X}, CO\textsubscript{2}, Mercury, etc.

• Parliament decided in 1989 a preliminary target for CO\textsubscript{2} emissions, replaced by a broader internationally binding GHG target through the Kyoto protocol in 1997

• CO\textsubscript{2} tax introduced in 1991
Status Norwegian GHG emissions

Mill ton co2-equivalents

CO₂  CH₄  N₂O  HFK, PFK og SF₆

0  10  20  30  40  50  60


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March 14th 2013

Norwegian Ministry of the Environment
Climate instruments by source

- **Landbased industry (ETS)**: 22%
- **Agriculture, waste etc.**: 15%
- **Fishing**: 3%
- **HFC/PFC tax**: 1%
- **Heating etc.**: 6%
- **Road transport**: 22%
- **Other transport**: 4%
- **Aviation**: 2%
- **Offshore**: 24%

Source: Norwegian Ministry of Finance
The CO$_2$ tax

- Introduced in 1991
- Levied on mineral oil products and on CO$_2$ emissions from petroleum activities, and gas used for heating and transport
- Objective: cost effective way to reduce emissions & polluter pays principle
- Current tax rates vary across energy products and sectors
- Generate revenues to the government
- Low administrative costs
Emissions trading

• In principle a predefined cap
• Carbon price set by cap and emission reduction costs
• 2005-2007 - National emission trading system - one way link to EU ETS
• From 2008 – fully linked to EU ETS- (Norway has lower share of free allowances)
• From 2013- Norway part of the EU ETS harmonised system.
• From 2013 about 50 % of Norwegian emissions are covered by the ETS.
ETS in Norway from 2005 - 2020

Norwegian GHG emissions

- Energy production
- Oil and gas
- Other
- Waste

Emissions covered by ETS

Phase 1
2005 - 2007
~ 10%

Phase 2
2008 - 2012
~ 40%

Phase 3
2013 - 2020
~ 50%
Mix of policies- Carbon tax and ETS

• Tax and ETS both put a price on emissions
• In a well functioning ETS, taxes on sectors covered by ETS has no impact on total emissions
• Reduce emissions in targeted sector, and increases technology transition incentives
• Lowers allowance price, reduces the emission cost for other sectors, and leads to higher emissions in these
• Sectors covered by the ETS are as a main rule exempted from carbon tax
• Double regulation applies to the offshore sector and the aviation sector
Carbon price variations

Marginal cost of GHG emissions in 2013

GHG emissions in USD per mill. tonnes CO₂ equivalents in 2013. Emission figures are from 2010.

Source: Norwegian Ministry of Finance
Mix of policies – cap and tax: the offshore petroleum industry

*) Using 2012 exchange rate
Mix of policies – cap and tax, example: the oil and gas industry

*) Using 2012 exchange rate
Cost internalization of externalities in general, example: diesel for cars

### Diesel tax in NOK per liter (indicative value USD per gallon using 2012 exchange rate)

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel total tax rate, dependent on sulfur content</th>
<th>Including CO2-tax</th>
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<tbody>
<tr>
<td></td>
<td>&lt;500 ppm</td>
<td>≥500 ppm</td>
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<tr>
<td>1995</td>
<td>5.05 (3.28)</td>
<td>5.16 (3.35)</td>
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<tr>
<td>1996</td>
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<td>5.11 (3.33)</td>
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<td>4.44 (2.89)</td>
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<tr>
<td>2013</td>
<td>4.36 (2.84)</td>
<td>4.41 (2.87)</td>
</tr>
</tbody>
</table>

*) Lower tax on biodiesel from 2010

Tax rates in real terms
Tax changes have reduced CO₂ emissions from new cars in Norway

Average CO₂ emissions from new passenger cars, grams per km, 2002 – 2012
Other regulations – with emission impacts

- housing standards
- car emission standards
- Green certificates
- Support schemes energy efficiency (industry and households)
- Support to research and development
Long term measures and policy for the future

- Low emission society by 2050 (and carbon neutral)
- Strongly advocate global carbon price
- Norway will contribute to global mitigation through a combination of national measures and global available international instruments both inside and outside the UN system, and substantial international efforts (REDD+)
- National measures:
- Carbon pricing important part of national climate policy
- R&D for developing of new climate technology
- Handle increased traffic in cities with public transport, focus on intercity railways
- Climate friendly building sector, housing standards for low energy use
Thank you!