



Norway's knowledge platform on Short-lived climate forcers (SLCF) – holistic thinking and multiple benefits for climate change and air quality

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The challenge ahead of us

A few potential impacts of Climate Change



Food and water shortages



Increased displacement of people

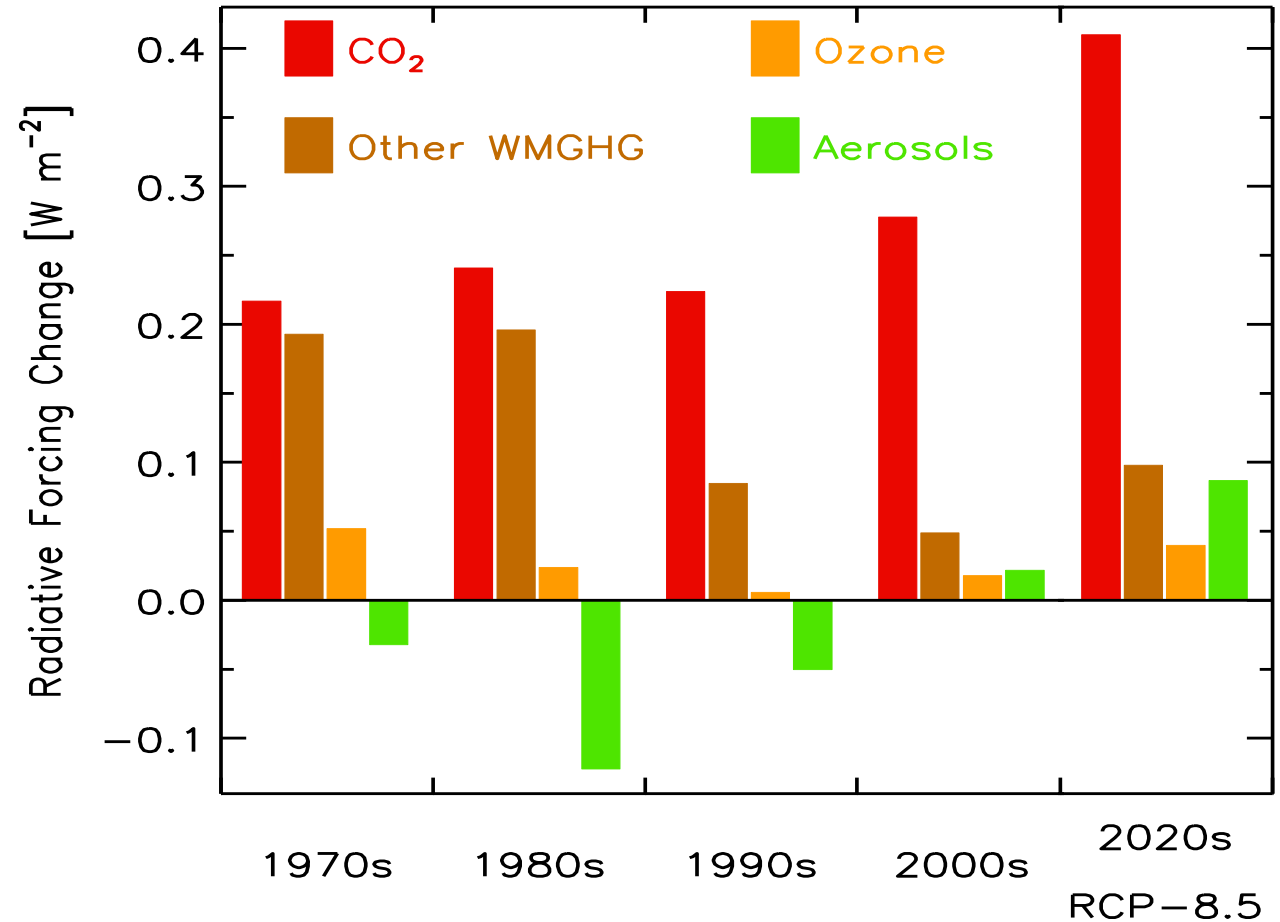


Increased poverty



Coastal flooding

CO₂ is the most important forcer



Source: Myhre et al., Nature Geoscience (2015)

Why do we care
about SLCF?

Short-lived climate forcers:

- Black carbon, methane and tropospheric ozone, some HFCs, organic carbon and sulphur.
- Relatively short lifetime in the atmosphere - a few days to a decade.
- Location matters.
- Warming or cooling influence on climate.
- Also dangerous air pollutants, with various detrimental impacts on human health, agriculture and ecosystems.



Photo: Vigdis Vestreng

Rapid reductions are smart and possible

- Co-benefits (Climate, air pollution, food production).
- Health and food security are strong policy drivers.
- Mitigation of SLCFs slows down the rate of warming.
- Complimentary to CO₂ .
- Implementation of measures can start before 2020.

Norway's SLCF knowledge platform

Five elements of our knowledge platform

1. Emission inventories and projections.
2. Short-term climate effect.
3. Holistic analysis of policy measures.
4. Economic analysis.
5. Reduction strategies.



Photo: iStock

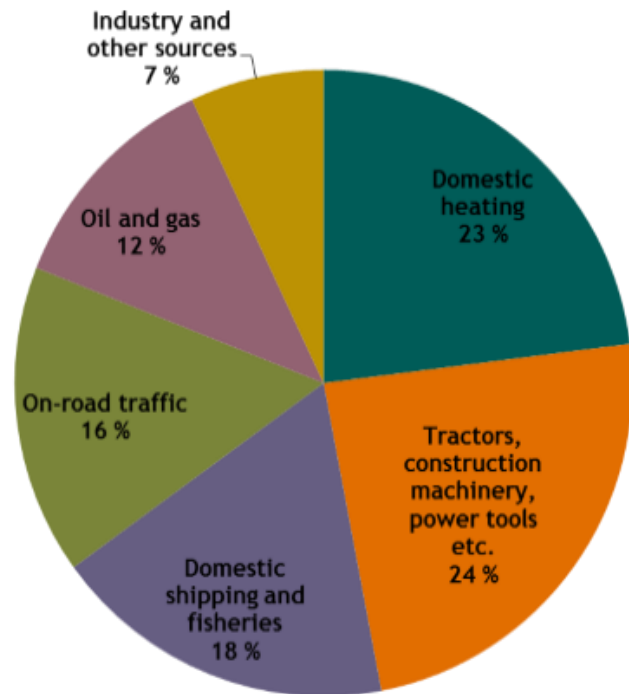
Challenges for SLCF policy development

- Norway's SLCF action plan was the first of its kind.
- Scientific understanding evolves rapidly - complicates policy development.
- No universal methodological approach.
- No internationally agreed metric.
- Lack of international definitions and reporting guidelines for black carbon and organic carbon.

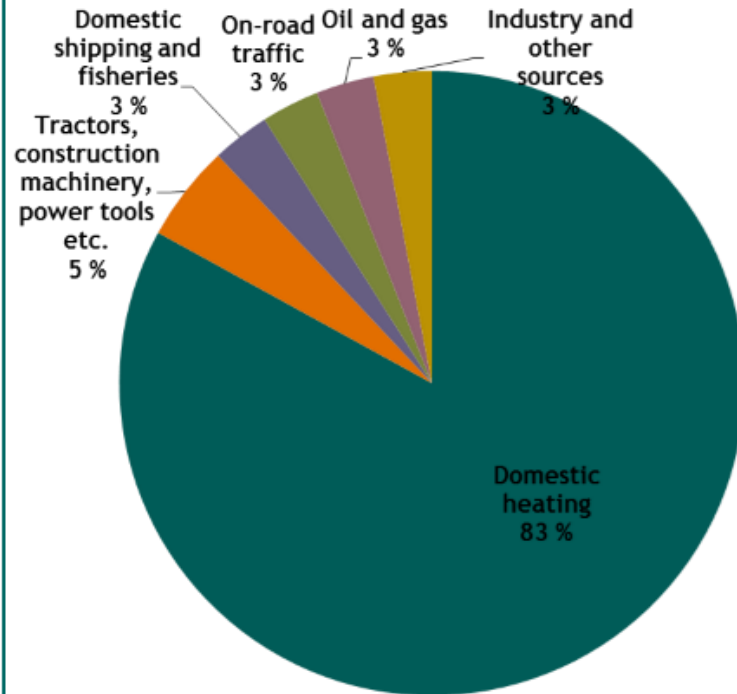


Photo: iStock

Emission of black carbon in Norway (2011)



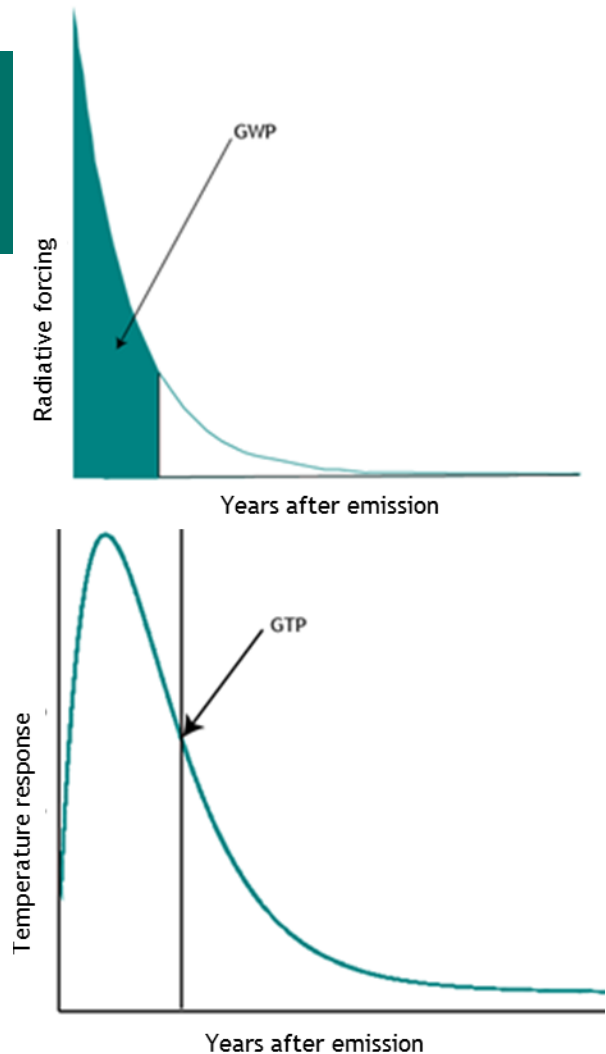
Emission of organic carbon in Norway (2011)

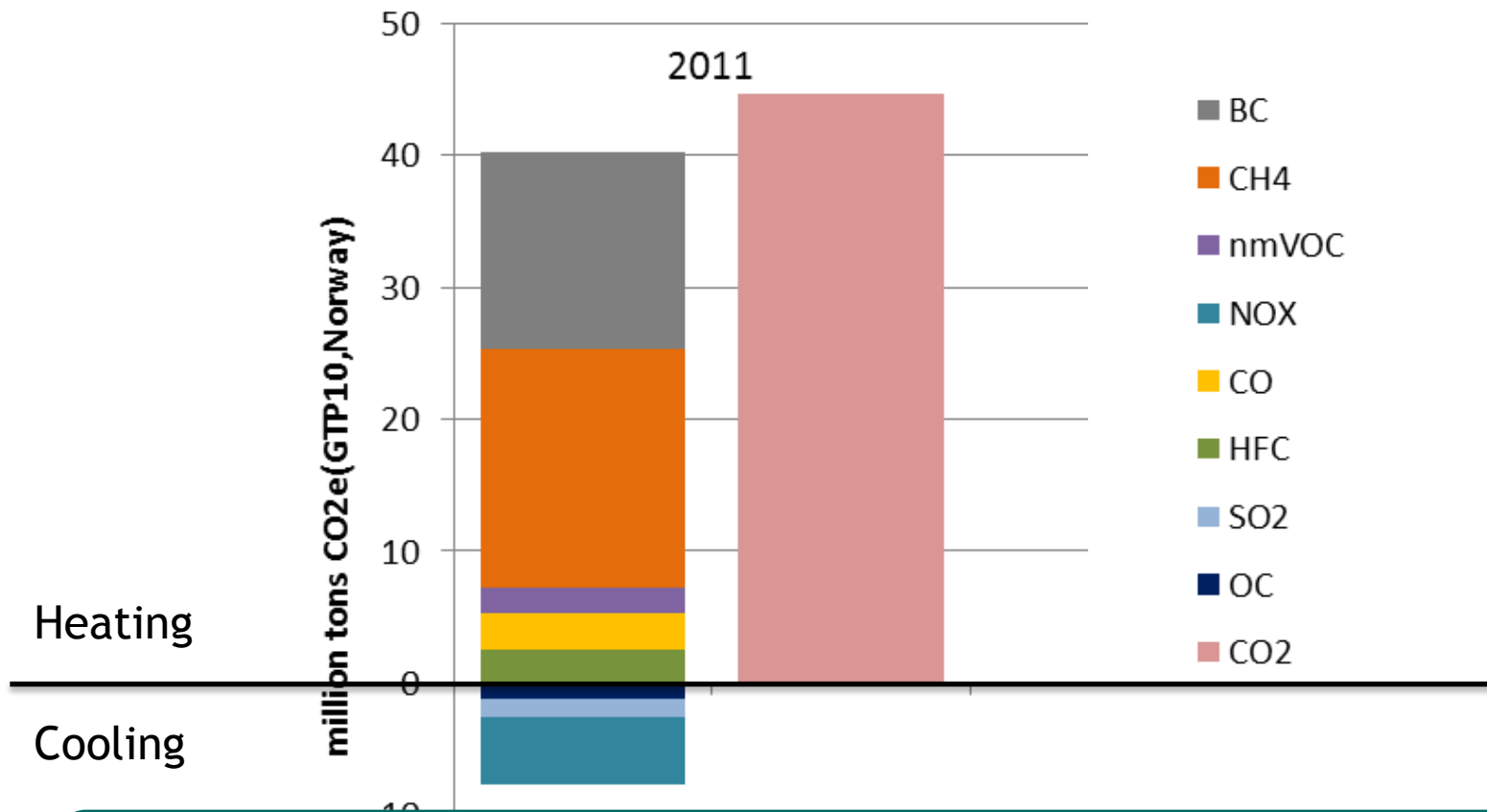


Important to assess net climate effect

A metric for the short term climate effect must consider:

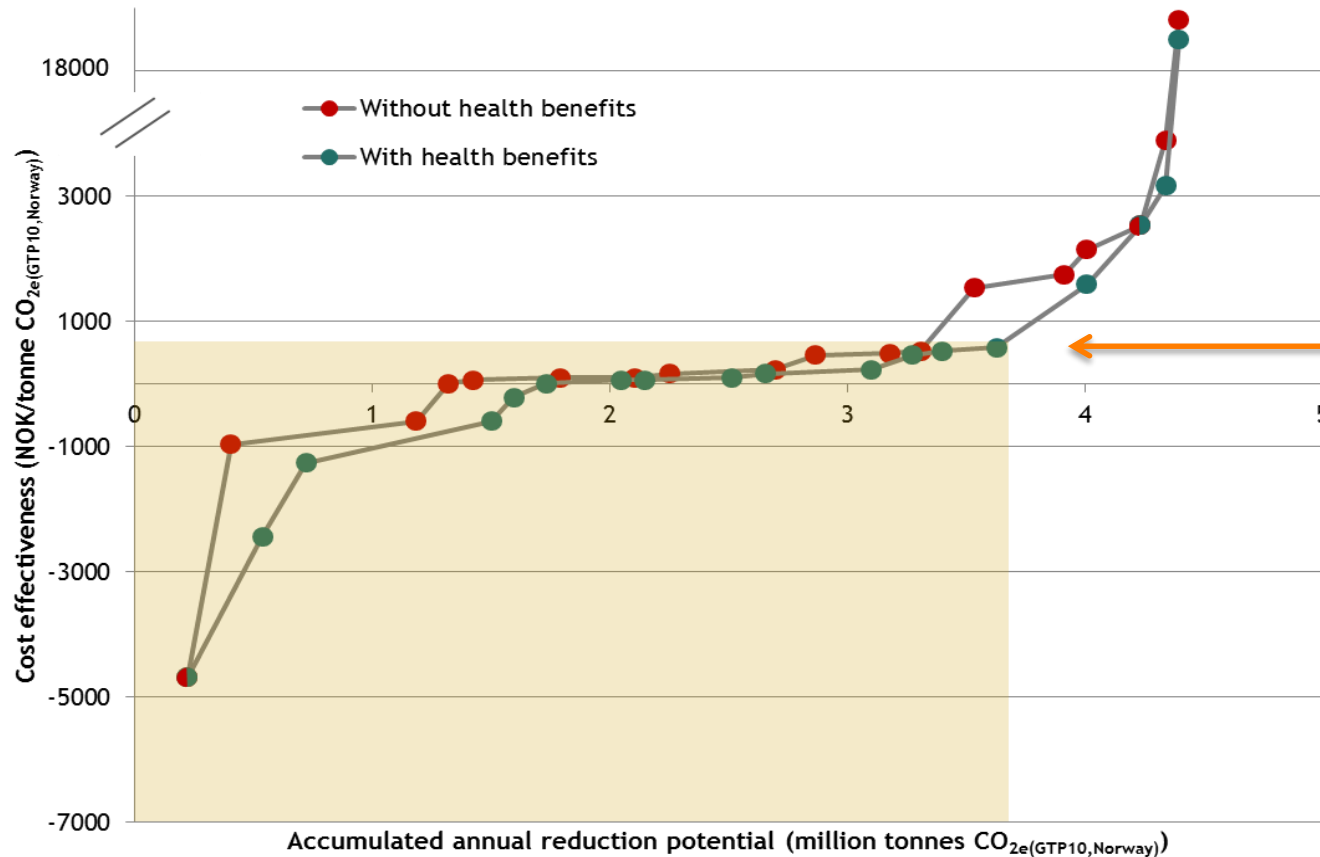
- The methodology (GWP or GTP).
- The time period (e.g. 10, 20 or 100 years).
- The region - where the emissions occur (e.g. globally or in Norway).
- “GTP10,Norway” was developed for the Norwegian knowledge platform.





Important to reduce both short-lived climate pollutants and CO₂ in the short term

The cost of measures decrease when health benefits are included



600 NOK
= 100 USD/tonne
CO_{2eq}(GTP10, Norway)

Reduction strategies

Some selection criteria:

Measure	Cost-efficiency	Climate effect	Health effect	Effectiveness of instrument
1	High	Low	High	Medium
2	Low	Medium	Low	High
3	Medium	Medium	Medium	High

Cost efficiency, climate and health effects are internally rated

Effectiveness of instrument is qualitatively

Key messages

- Two-in-one solution: Climate and air pollution.
- Holistic approach is necessary to convey the right message.
- There is a need for internationally agreed definitions and methodology.
- Science still evolving, but strong case for action.



Photo: iStock

Norway's way forward

- Calculate the short-term climate effect of “CO₂-measures”.
- Further develop the measures in the SLCFs knowledge platform.
- Contribute in international cooperation (CCAC, LRTAP, AC).



Photo: Hilde Knapstad



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