Knowledge base for low carbon development in Norway. Analysis of measures and costs

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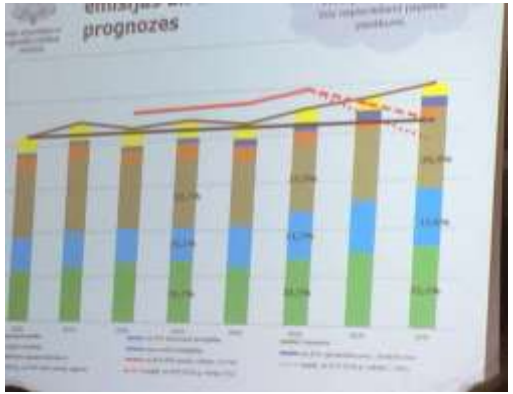
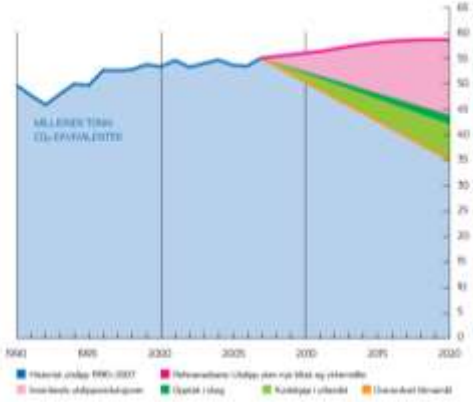
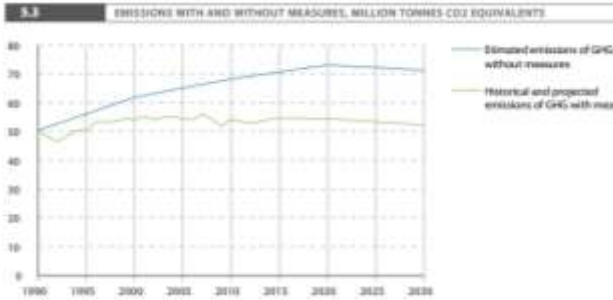
Lesson learned from having ambitious emission target since 2007



- Science before policy
  - Try to agree on facts:
    - What are the relevant measures and technologies?
    - Reduction potensial
    - Costs and Benefits



- Need of overall political decisions: What should be the contribution from different sectors?



- A lot has been done,
  but we still have a GAP…

Knowledge base for Low Carbon Transition

6th. Mars 2014
- National Emission Target 2020
- GAP
- Analysis of Measures

13th. October 2014
- Low Carbon Transition towards 2050
- Analysis of Measures 2030

Summary in english:
http://www.miljodirektoratet.no/Documents/publikasjoner/M287/M287.pdf

24th. June 2015
- Emission trajectories towards 2030
- Split between ETS/non ETS

Summary in english:
http://www.miljodirektoratet.no/Documents/publikasjoner/M418/M418.pdf

2th. December 2015
- Co-benefits of Measures
- Climate effect in short run (SLCPs
- Health effects

Summary in english:
Will be available at miljodirektoratet.no very soon

Knowledge base for Low-Carbon Transition

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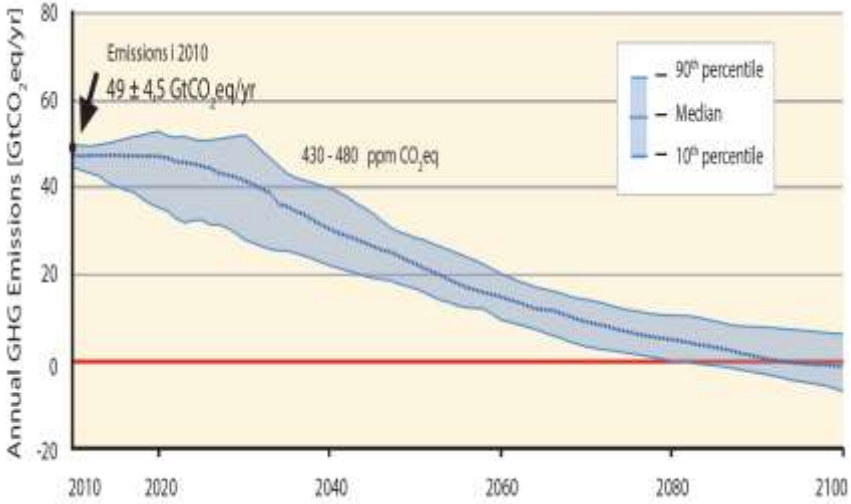
Two-degree target – What is needed globally?

- From IPCC's Fifth Assessment Report:
  - Emissions must be reduced by 40–70 % in 2050
  - Then net negative emissions by 2100
- Per capita emissions globally:
  - 2050: 1.5 to 3.1 tonnes CO_2-eq
  - 2100: -0.9 to +0.9 tonnes CO_2-eq



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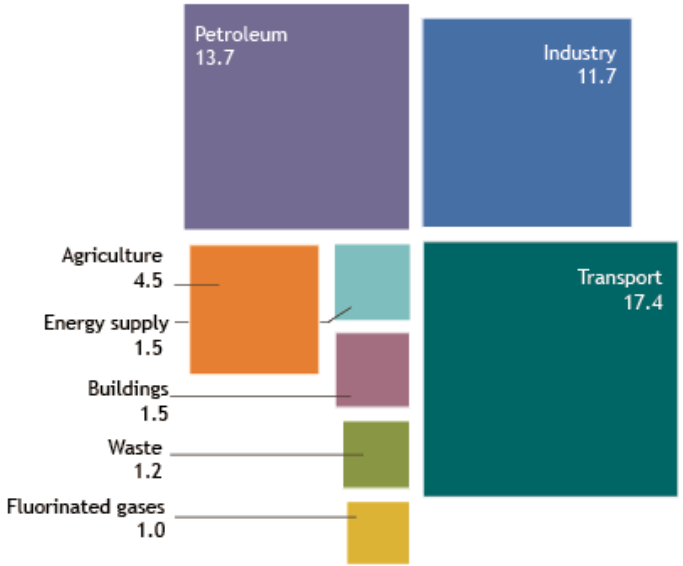
Norway as a low emission society

Norwegian emissions of greenhouse gases in 2012

Emissions to air (million tonnes CO_2 equivalents)



10.5 tonnes/capita

1 tonne/capita

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Where can Norway make a difference?

- Continue large-scale electrification of transport, including infrastructure development
- Improve urban planning to develop climate resilient towns and infrastructures
- Develop and deploy carbon capture and storage technologies in industry
- Develop new processes that minimise greenhouse gas emissions from metal production and cement production
- Intensify efforts to develop biomass based chemicals and fuels

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Climate Mitigation Measures and Emission trajectories towards 2030

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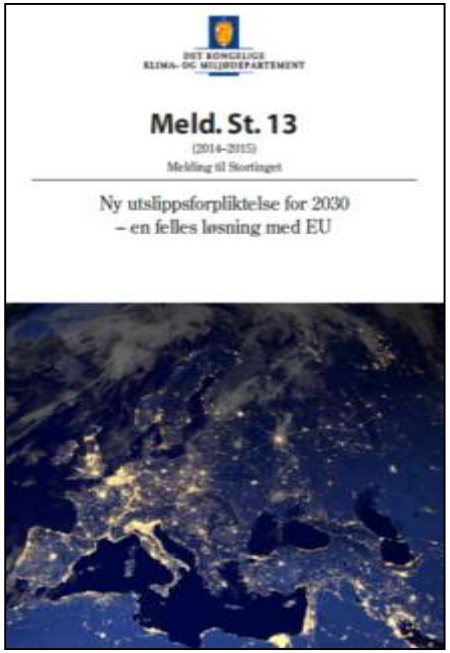
White paper 2015: New targets for 2030 – Norway's INDC

- Reduce emissions by at least 40 percent in 2030 compared to 1990 level
- The government aims to join the EU 2030 framework for climate policies in order for Norway and the EU to jointly fulfil their climate targets
  - ETS sector: part of EU's cap
  - Non-ETS: burden sharing between 0-40 percent reduction



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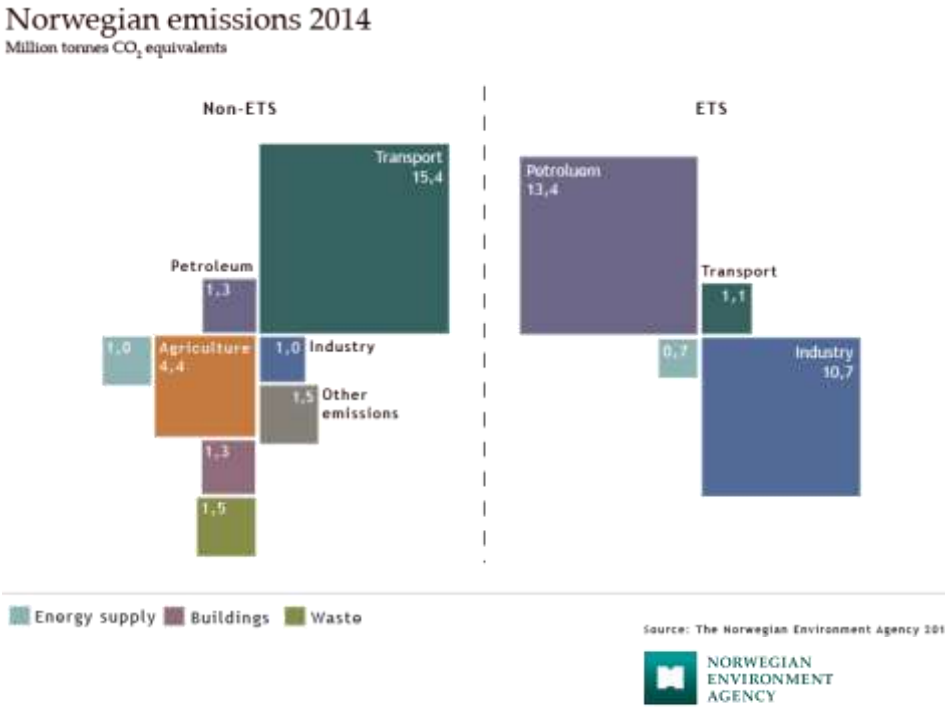
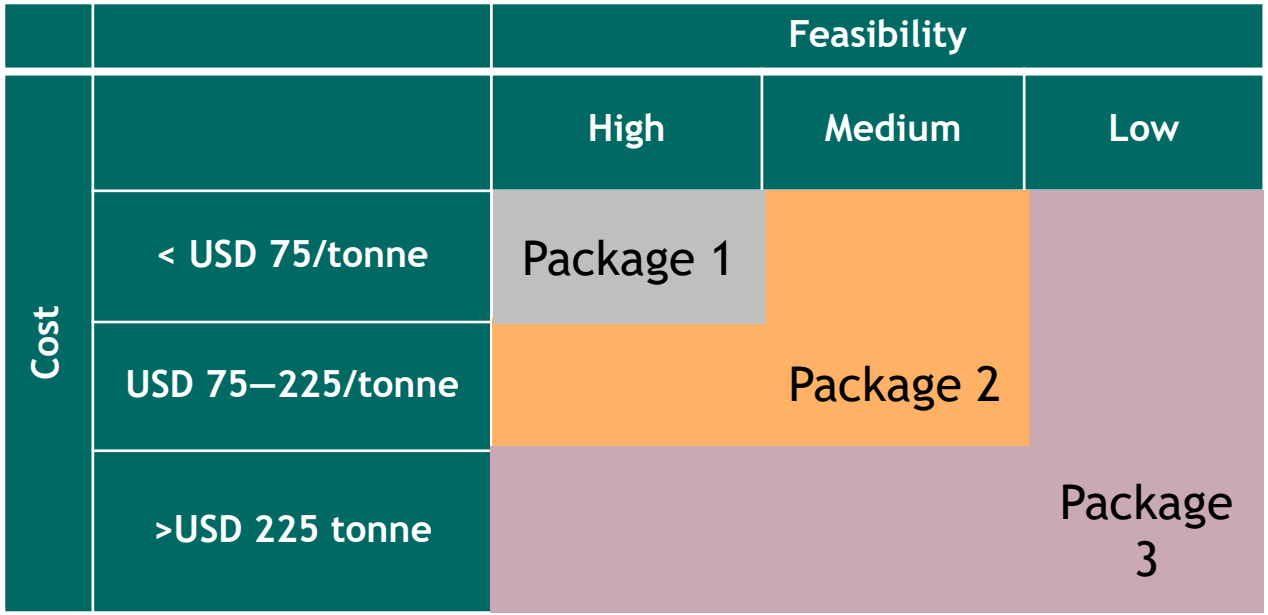
2030: Mitigation analysis for all sectors

- How can different sectors cut emissions?
  - Emission reductions
  - Costs
- What can be done by 2030?
- How can this lead us to the Low-Carbon Society 2050?



Mitigation analysis for 2030



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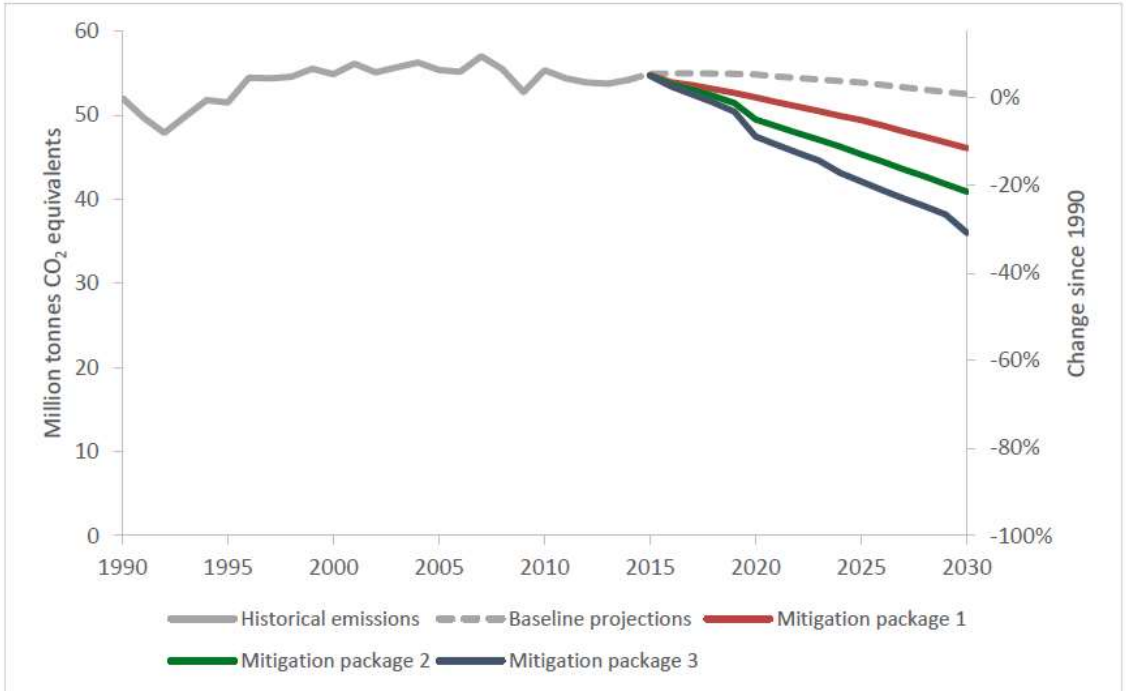
Potential effects of «mitigation packages» towards 2030



---Package 1

---Package 2

---Package 3

--- BAU

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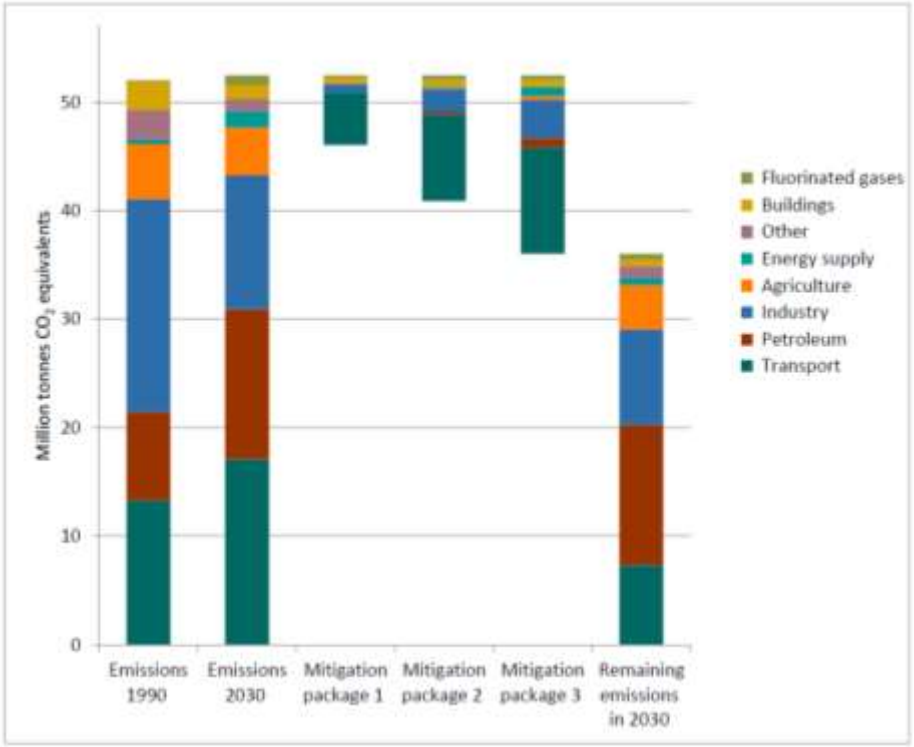
Emission reductions per sector



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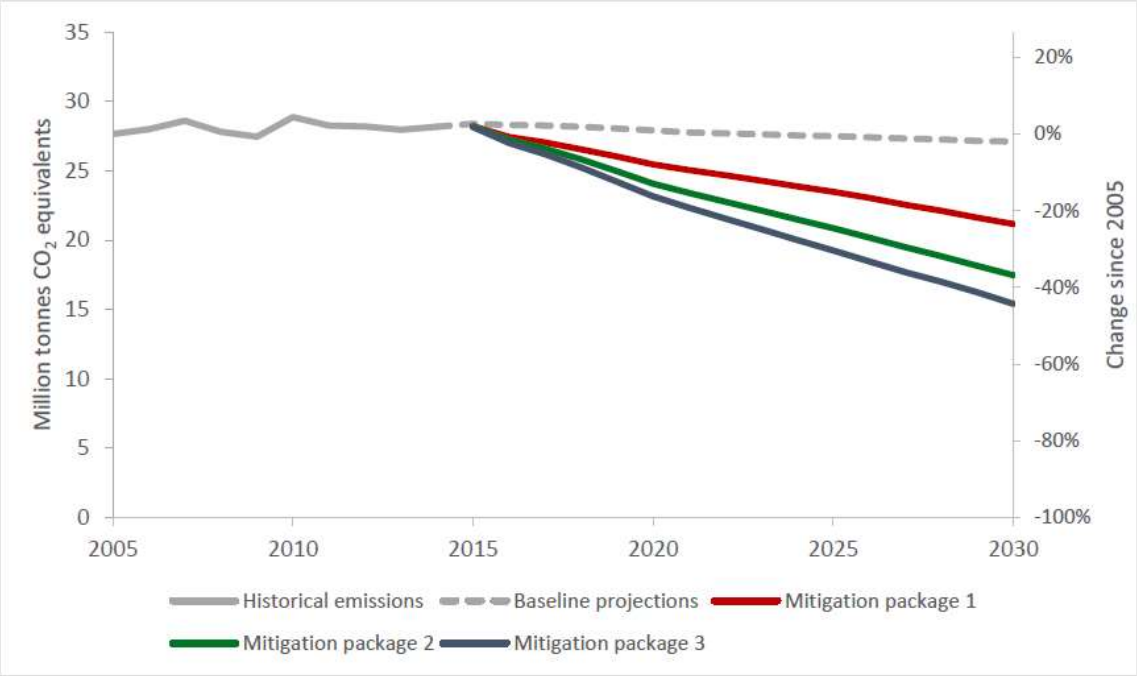
Non-ETS-sector



---Package 1

---Package 2

---Package 3

--- BAU

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Climate mitigation measures up to 2030
- Short term climate effects
- Health effects

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89 measures

6 Kyoto gases

GWP 100, global

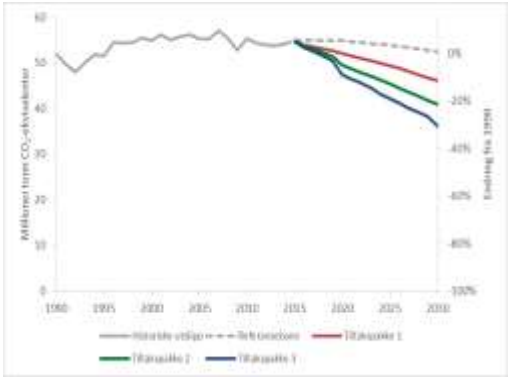
3 mitigation packages

Emission trajectories towards 2030

CO2
CH4
N2O
HFCs
PFCs
SF6

X

1
25
298
(...)
(...)
22767



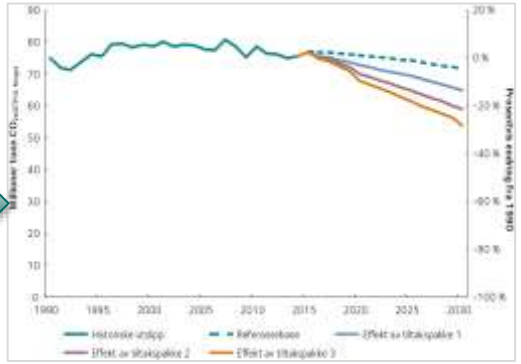
6 Kyoto gases
+ 4 SLCPs

GTP 10, Norway

CO2
CH4
N2O
HFCs
PFCs
SF6
BC
OC
SO2
NOX

X

1
86
279
(...)
(...)
15144
2700
- 62
- 74
- 28



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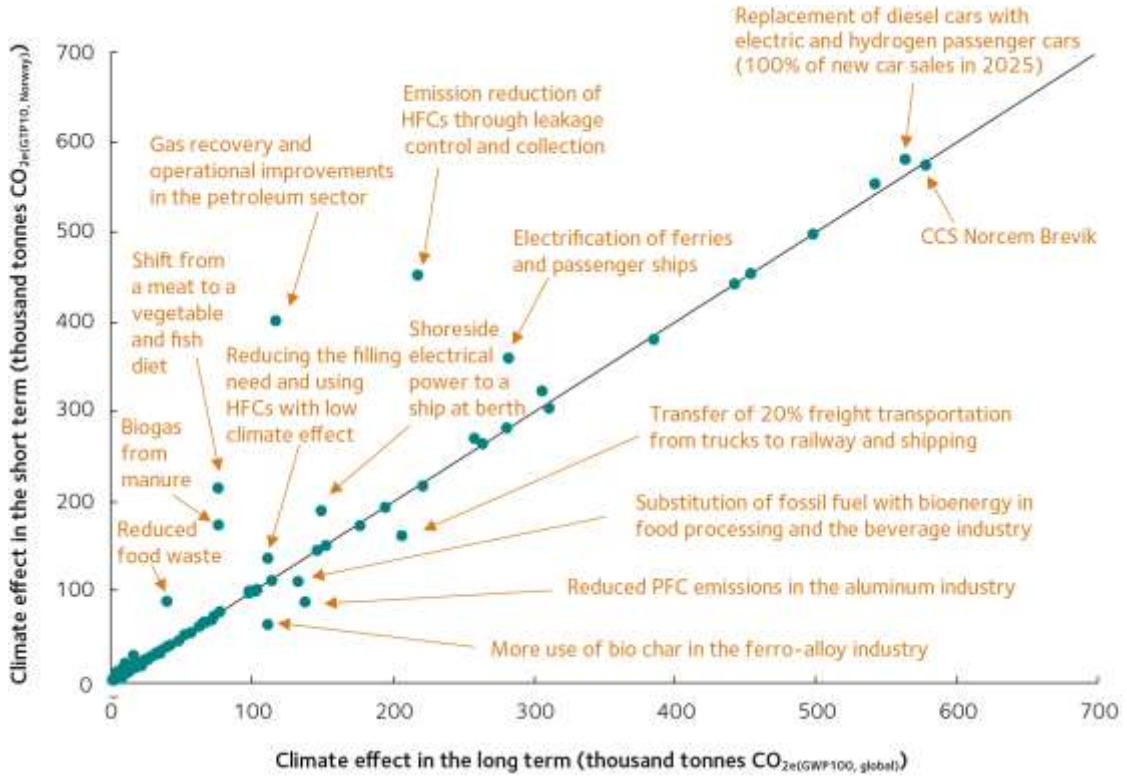
Climate effect in short and long term



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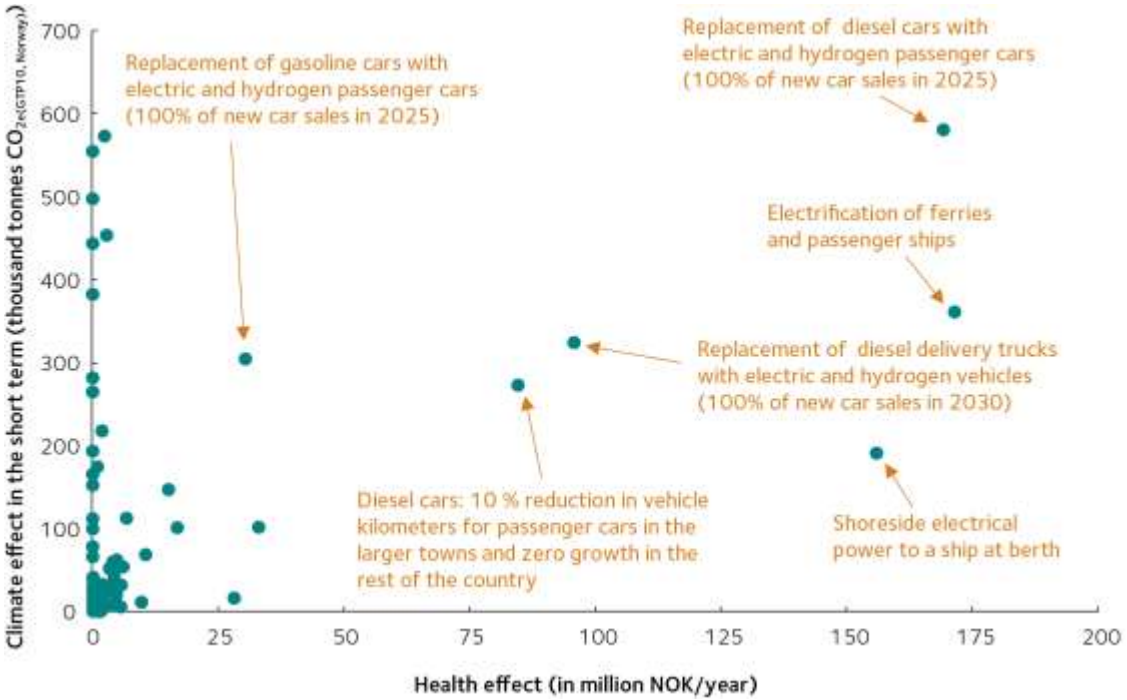
Climate effect in short term and health effects



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