



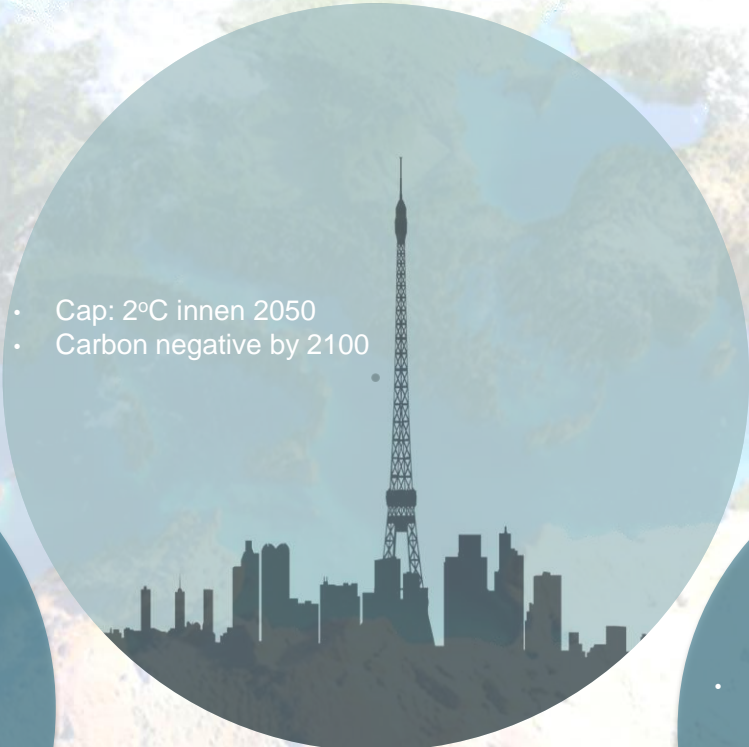
Norsk Industri

Federation of Norwegian Industries

Roadmap for Norwegian Process Industries

- combining growth and zero emissions by 2050

2050

- 
- Cap: 2°C innen 2050
 - Carbon negative by 2100

Global

- Population: 9 billion
- Higher consumption
- Higher demand for energy
 - Scarce resources
- Technological breakthroughs

National

- Access to renewable energy
- Stable economic and political framework conditions
 - Norway an attractive host nation
- Authorities support industries' efforts to develop new technology and new products

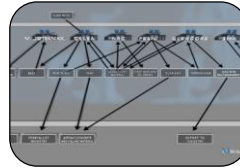
Process- and product development



BALI – biochemical and bioethanol



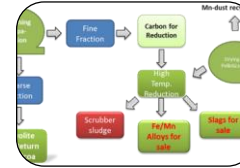
Aluminium in transport



Systemized circular economy



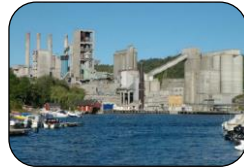
Energy efficiency Karmøy



Waste-to-Value



Quartz for climate-friendly technologies



CCS Norcem



CCS Yara



Bioethanol production



Hydrogen as reductor



Microfibrillar cellulose



New aluminium products



Lignin in concrete



Biocarbon in ferro-alloys



Cement with flyash



New copper-based electrolysis technology



Silicone, heat, power and salmon in Finnjord

Two alternative pathways:

ALT.1

Stricter climate regulations push some Norwegian industries out of market.
Norwegian phase-outs replaced by new industry in areas with lax climate regulation.

ALT.2

Norway fortifies its position through investments in new climate technology, new processes and new products.
Higher value-added and zero emissions.

Technologies exist

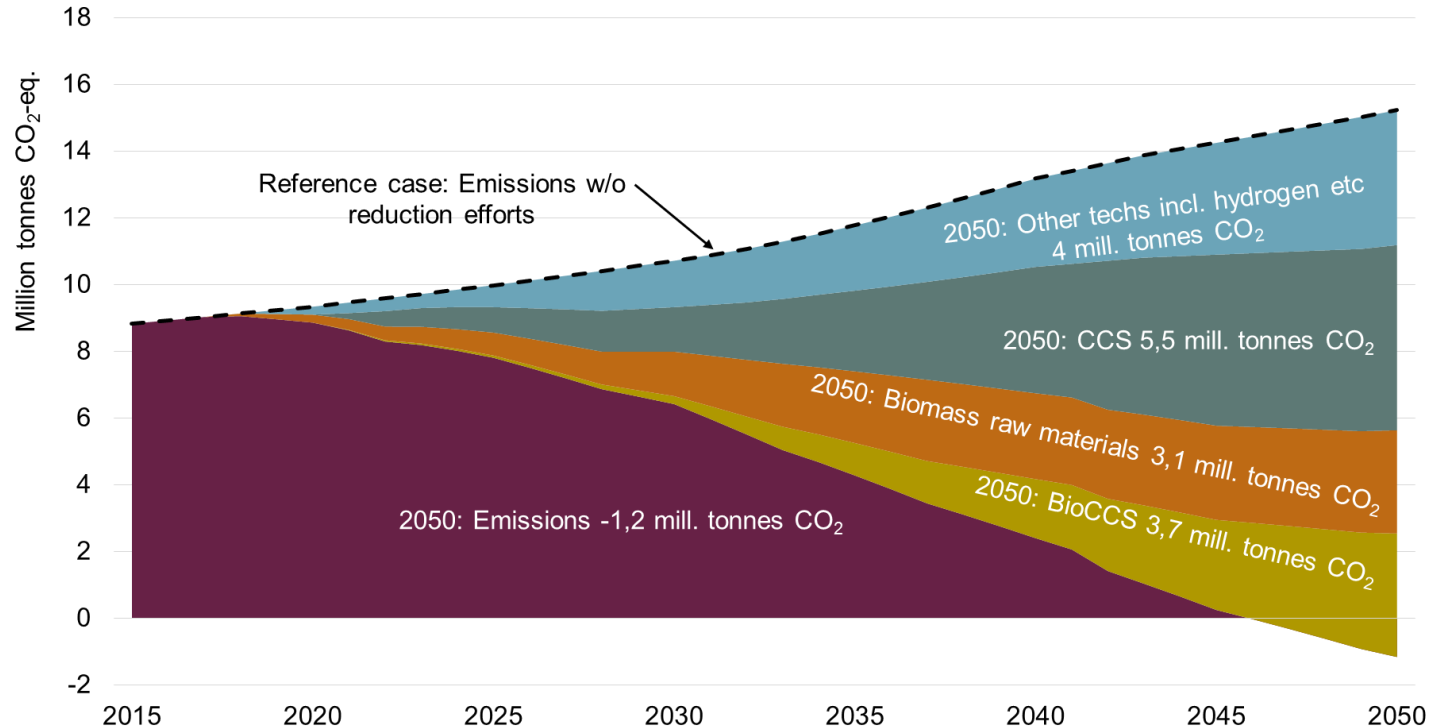
Biomass

CCS

H₂ and
biogas

Future
technologies

Emissions and emission reductions by technology



The Roadmap

