

CARBON CAPTURE STORAGE

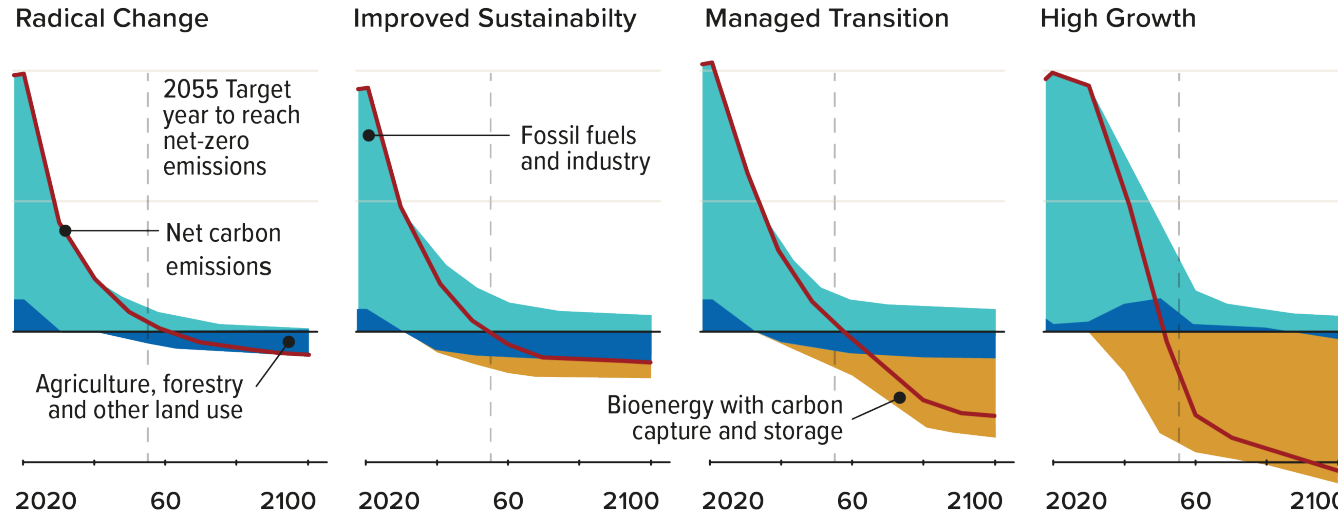
Branchemøde i Fjernvarmen.

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CARBON CAPTURE – A PART OF THE LONG-TERM SOLUTION

IPCC Four Pathways: Primary Energy Supply



Business, technology and society as a whole change, dramatically reducing demand for energy. Apart from changed land use and reforestation, no carbon removal is needed.

A worldwide focus on sustainability keeps energy demand stable. Renewable energy largely replaces fossil fuels. **Carbon capture and storage** compensates for the remaining emissions.

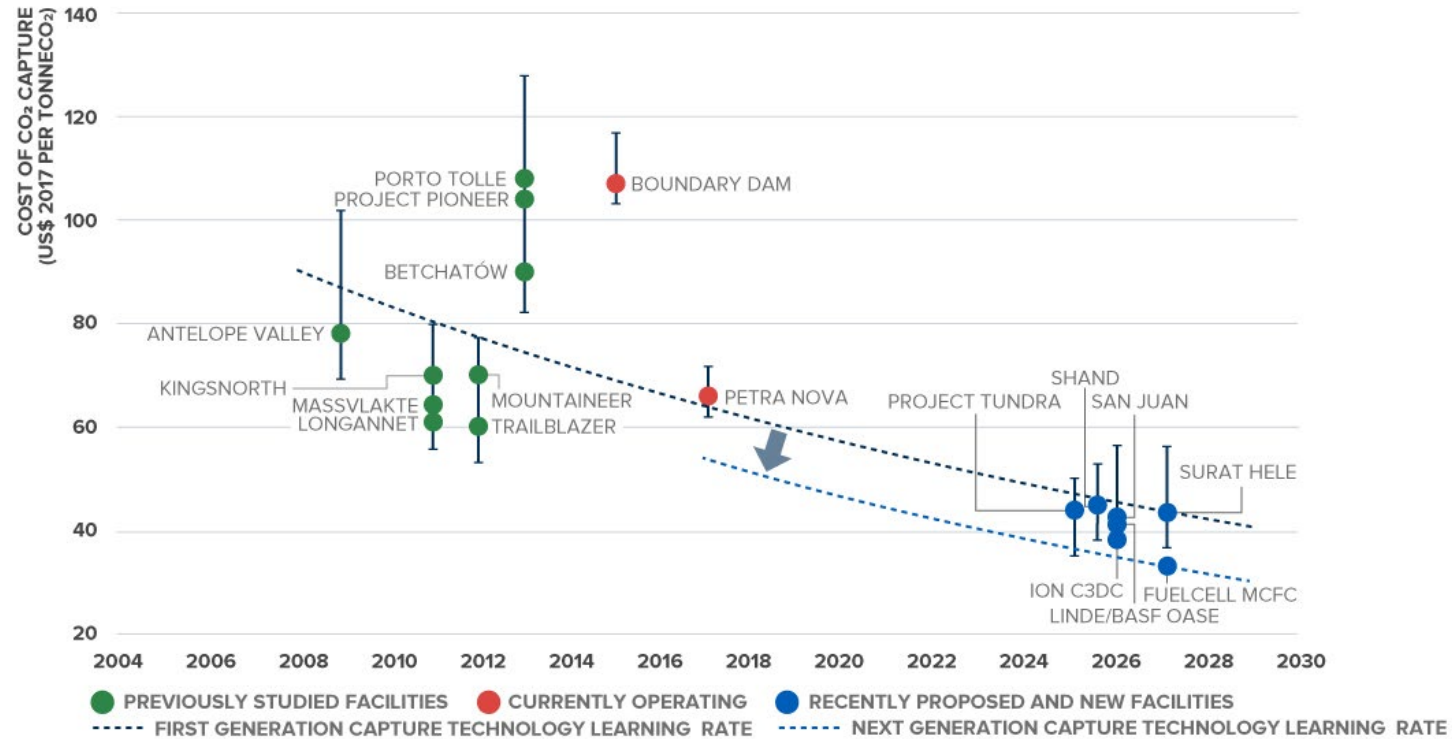
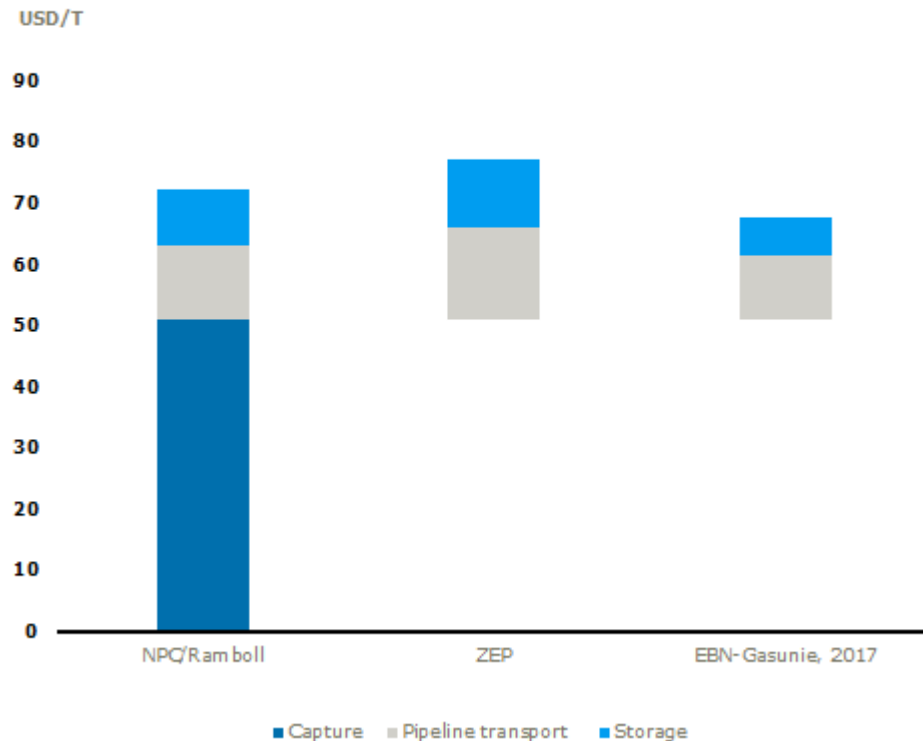
Energy demand rises at a moderate pace, in line with historical trends. More renewable energy production and the intensive use of **carbon capture and storage** keep emissions in check.

Rapid economic growth drives global energy demands even higher, keeping emissions up. Technological fixes and zealous use of **carbon capture and storage** ultimately claw back carbon emissions.

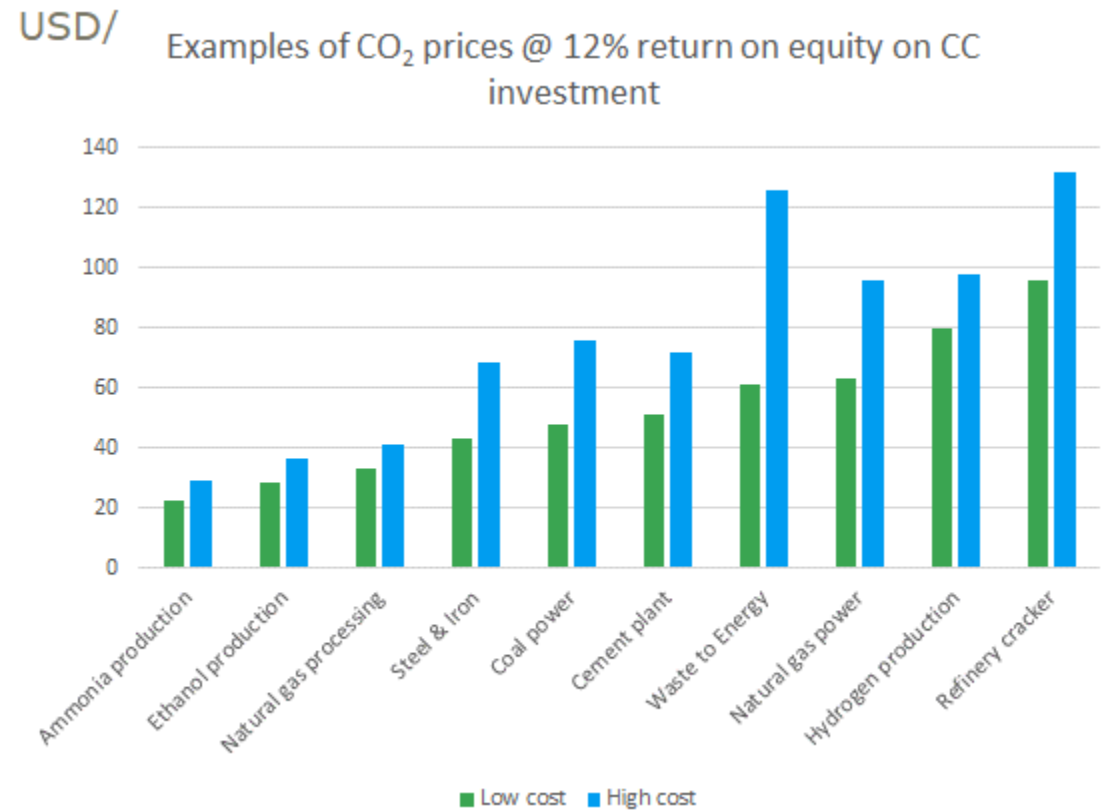
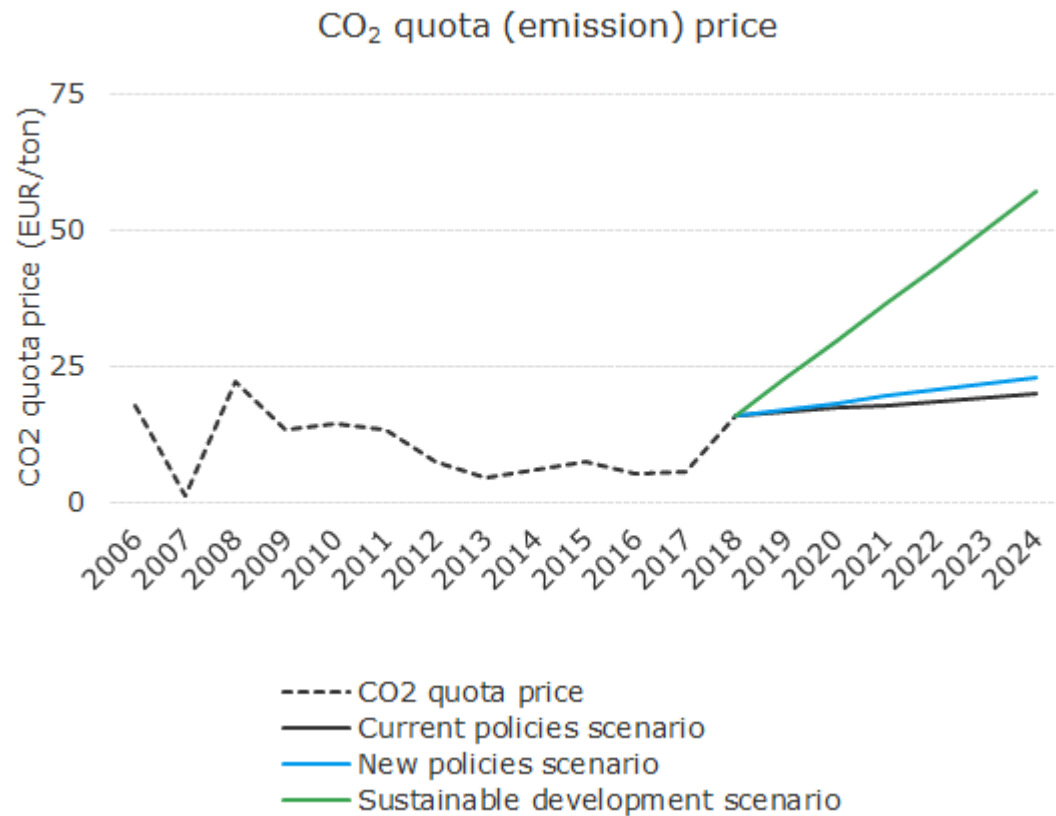
- Currently, there are 21 large-scale CCS facilities in commercial operation, 3 in construction, and 35 in various stages of development.
- In China there are 2 facilities poised to come online in the next 12 months and in the US alone, there are 12 facilities in Advanced Development that are expected to come online between 2022-30.
- Non monetized benefits:
 - Energy security
 - Power system back-up and resilience
 - Maintaining jobs and workplaces

CCS IS REAL AND HAPPENING – AND COSTS ARE COMING DOWN

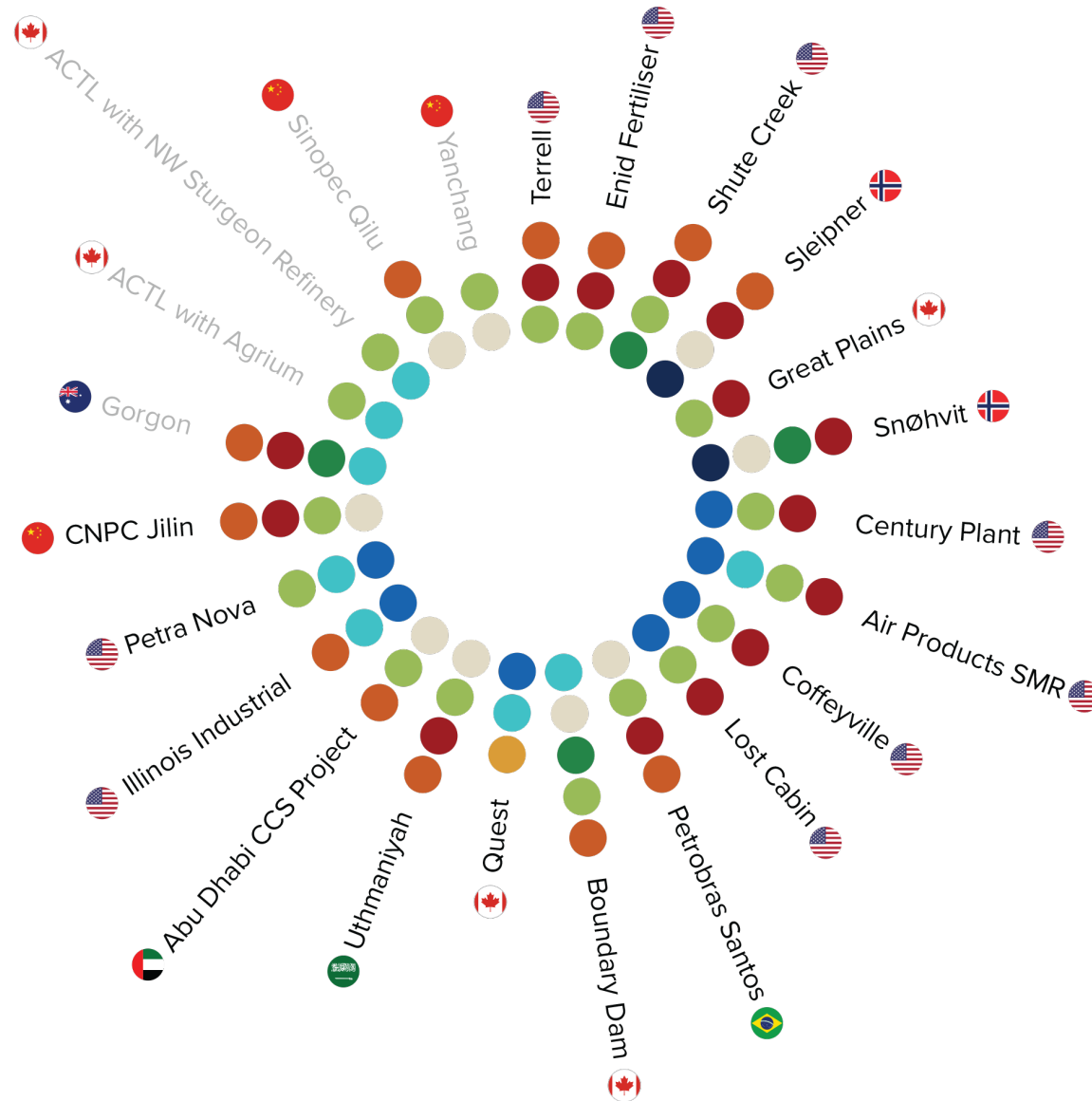
EXAMPLES OF CARBON CAPTURE AND STORAGE VALUE CHAIN ELEMENTS – LOW COST CC @ CEMENT PLANT



HOWEVER, TODAY ONLY FEW INDUSTRIES CAN BE EXPECTED TO INVEST IN CARBON CAPTURE WITH CURRENT CO₂ PRICES AND CURRENT INCENTIVE SCHEMES



WHAT MAKES A FEASIBLE CCS PROJECT?



POLICIES & PROJECT CHARACTERISTICS

- Carbon Tax
- Tax Credit or emissions credit
- Grant Support
- Provision by Government or SOE
- Regulatory Requirement
- Enhanced Oil Recovery
- Low Cost Capture
- Low Cost Transport and Storage
- Vertical Integration

The companies in light grey are under construction.

WHAT CAN WE DO TO UNLOCK THE SOCIO-ECONOMIC POTENTIAL?

INVESTMENT TAX CREDIT



% deduction in tax of certain capex elements

CONTRACTS FOR DIFFERENCES



Flat reference price agreed with the government. (UK approach for offshore wind).

TAX EXEMPT PRIVATE ACTIVITY BONDS



Lower requirement for interest rates.

TAX CREDITS PER TONNE CO₂ CAPTURED AND STORED OR USED.



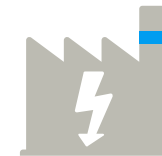
Currently adopted in the US 35 – 50 USD per ton

ACCELERATED DEPRECIATION, BONUS DEPRECIATION, UPLIFT ON INVESTMENTS



In use in other countries and industries

PRODUCTION TAX CREDITS



Specific subsidy for kWh produced by CCUS retrofitted power plants