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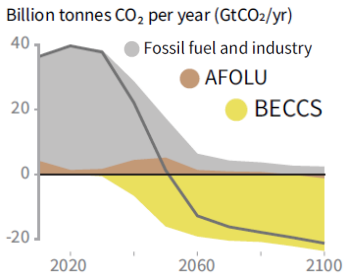
Carbon Dioxide Removal (CDR): Boosting promising approaches indispensable to meet Swiss and global climate targets

Switzerland / Federal Office for the Environment FOEN www.bafu.admin.ch, *UNFCCC Research Dialogue 12, 24 November 2020*

Questions to the scientific community on the CDR from a government perspective: opportunities, risks, potential, costs and the need for international governance and enabling environments

1 CDR is essential to keeping global warming below 1.5°C



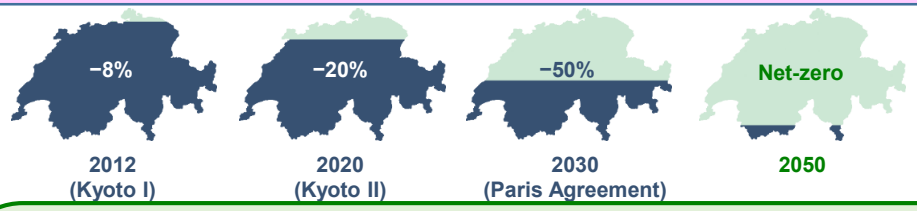
P4: A resource- and energy-intensive scenario.making strong use of CDR through the deployment of BECCS
www.ipcc.ch

IPCC 2018 Global Warming of 1.5 ºC

"All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of carbon dioxide removal (CDR) on the order of 100–1000 GtCO2 over the 21st century CDR would be used to compensate for residual emissions and, in most cases, achieve net negative emissions to return global warming to 1.5°C following a peak (*high confidence*)."
www.ipcc.ch

- **Net-zero CO_2-emissions around 2050**
- **Net-negative thereafter (in most scenarios)**

2 Switzerland's goal: net-zero GHG emissions by 2050



Annual residual GHG emissions of about 10 Mt CO2eq

(from cement, waste, agriculture, etc.)

➔ **Avoid emitting into the atmosphere by using carbon capture, use and storage (CCUS) at point sources**

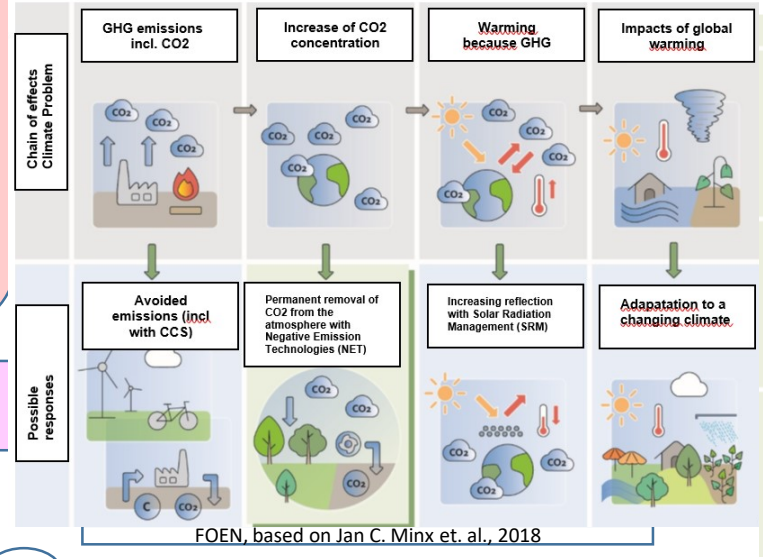
➔ **Remove the rest from the atmosphere with CDR**

https://www.admin.ch/gov/fr/accueil/documentation/communiques.msg-id-80271.html

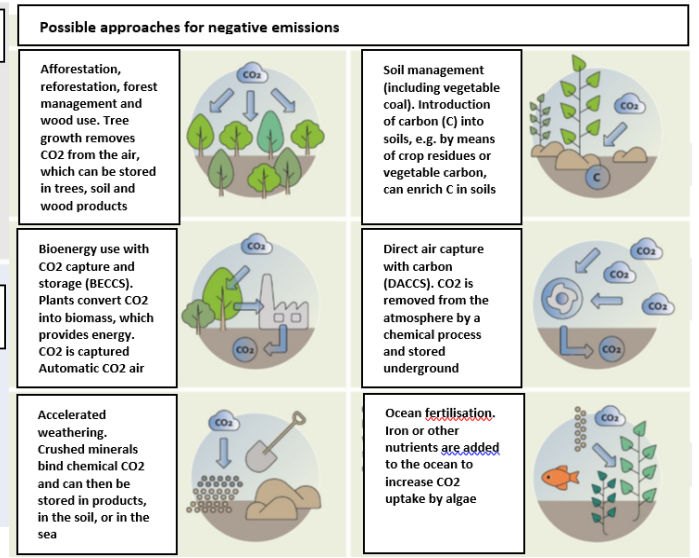
Contact: climate@bafu.admin.ch

3 CDR permanently removes CO_2 from the atmosphere – unlike Solar Radiation Management (SRM), which addresses only the "symptom" of warming

CDR approaches: Not yet ready for large-scale deployment, many questions remain open: Costs, environmental effects, permanence, conflicting objectives, acceptance, etc.



FOEN, based on Jan C. Minx et. al., 2018



4 The scientific community must support policymakers for a better understanding of the challenges and solutions concerning CDR. This is urgently needed in Switzerland and at the international level

- Understand the challenges and opportunities (environment, politics, research, industry, society) locally, nationally and internationally.
- Technology portfolios according to national conditions
- Reduction and possibly removal targets in accordance with 1.5 degrees
- Evaluation of research and development as well as pilot projects, scale-up options, market conditions and social acceptance
- Exploring ways to develop international collaboration, dialogue and governance frameworks
- Monitor GHG emissions and concentrations, e.g. with IG3IS / WMO