

Action levers for wellbeing with low energy demand: re-thinking sufficiency, negative emissions, deliberative democracy

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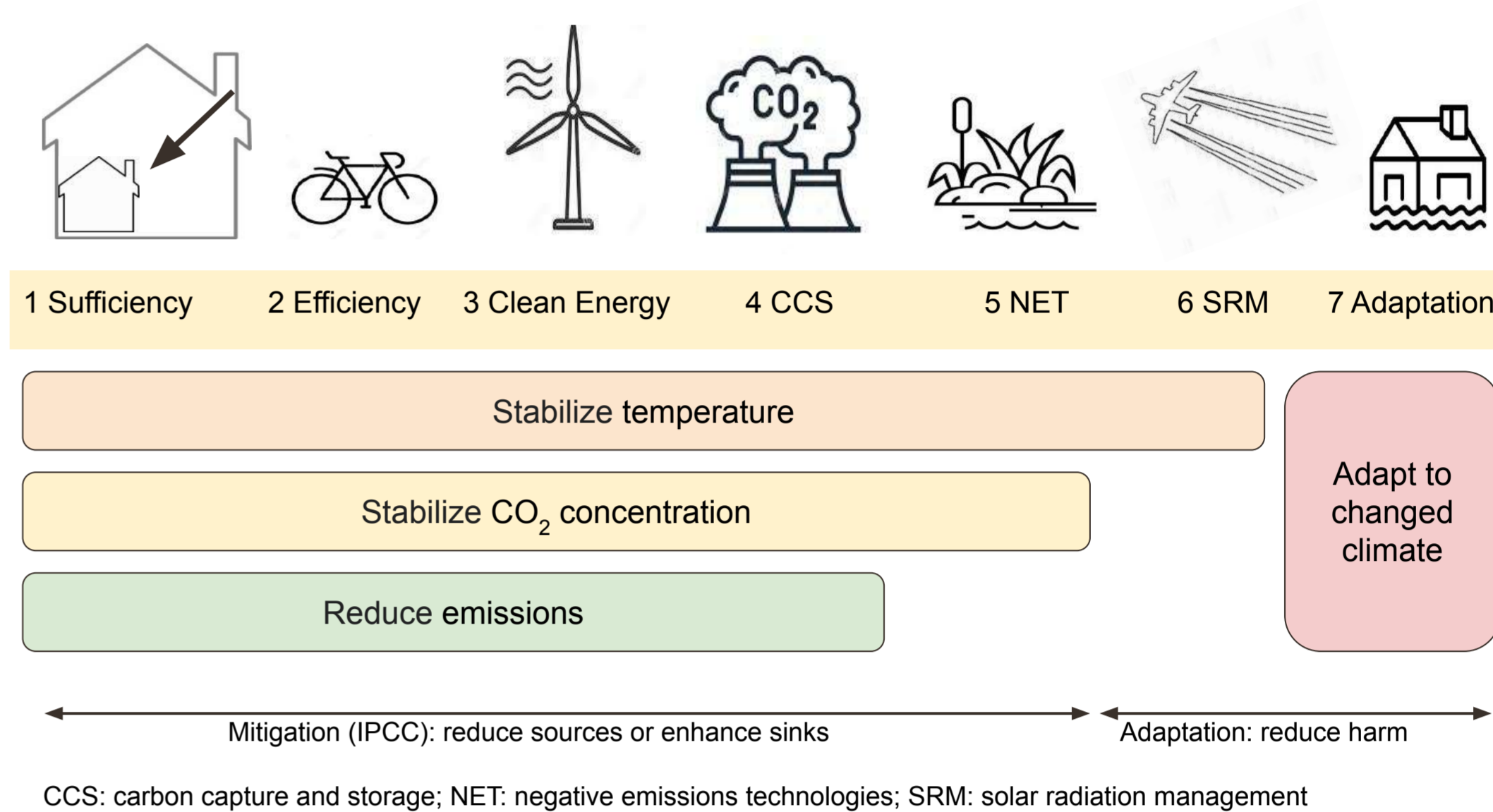
Why focus on action levers?

- **Wellbeing with low energy demand** is clearly defined in low energy scenarios like LED or DLS, but it is far from obvious how to get there, including even collectively deciding on what is a good transition.
- **Progressively changing mindsets:** No sufficiently ambitious transition will be spontaneously acceptable to most people, especially in rich countries. Engaging people in the process of designing the transition is key. Citizens' assemblies have an excellent track record of doing this, and the Academic Citizens' Assembly could scale to potentially millions of participants.
- **Who benefits from negative emissions (NE)?** If left within today's power structures (incumbents and markets), there is a real risk NE could slow decarbonization and transfer billions to fossil companies. A public fund could create an objective CO₂ price, and based on the realistic potential of NE with biodiversity and societal co-benefits, determine the required rate of reductions in emissions and energy use. We examine and model how this could be done for Switzerland, and for global aviation.

Can NE support sufficiency?

Negative emissions governed to benefit biodiversity and society could remove ca. 10% of today's emissions, and accelerate the needed 90% reduction from sufficiency, efficiency, clean energy

Typology of Climate Action



Academic Citizens' Assembly

21st century democratic decision-making for the Swiss societal transition.

The Academic Citizens' Assembly (ACA) is a model of a citizens' assembly built on academic principles (evidence-based, lobby-free, no ideology), open to the whole society and, using a novel process and tools, scalable to potentially include millions of participants.

This deliberative and participative approach builds on the Swiss tradition of direct democracy, and aims to bridge the gap between high-quality deliberation and decision-making of past citizens' assemblies, and the legitimacy of direct democracy.

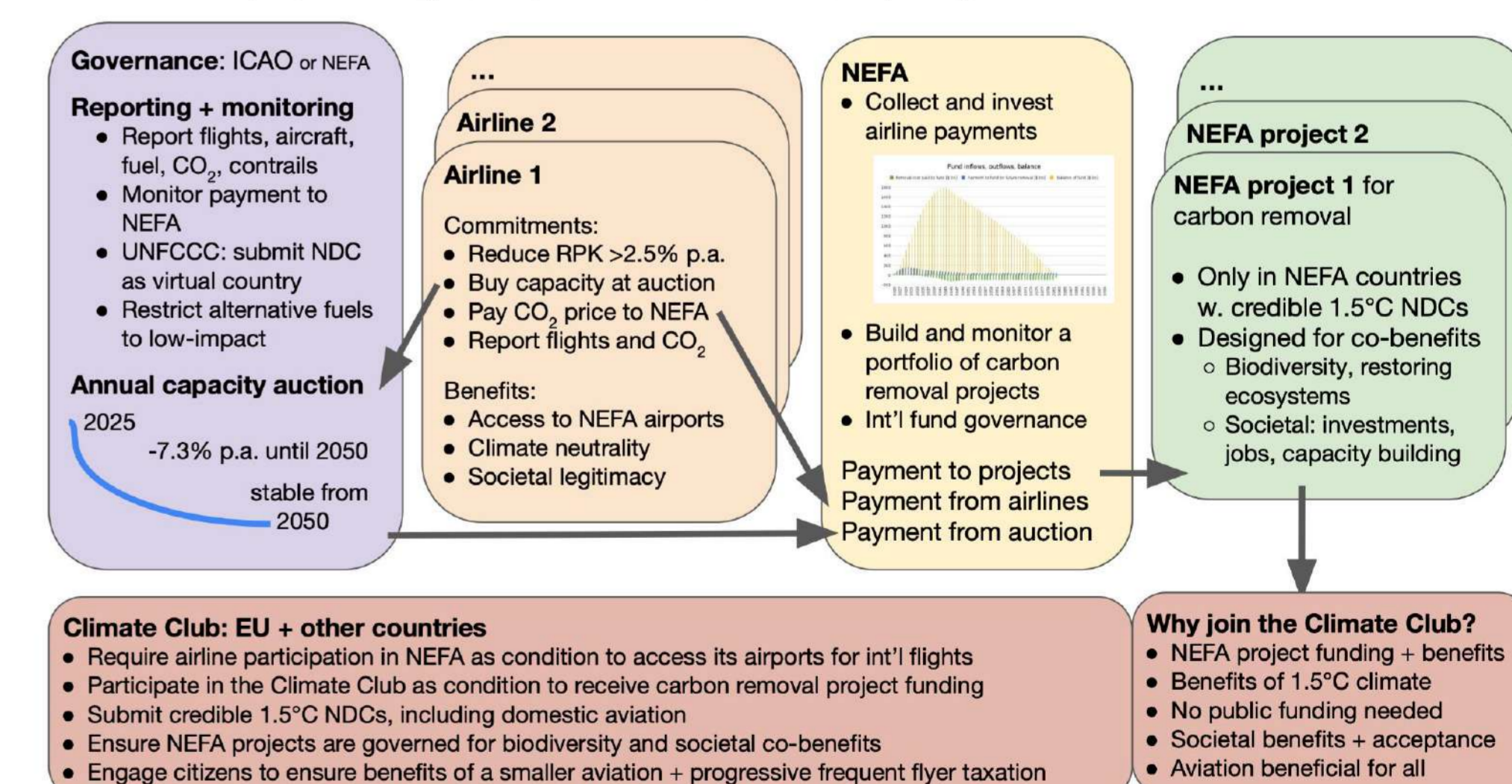
ACA 2022 made 40 proposals, most >90% convergence:

- Transport+Urban Planning
- Agriculture+Food
- Education+Engagement
- Buildings



Negative Emissions Fund for Aviation

Structure of the proposed Negative Emissions Fund for Airlines (NEFA)

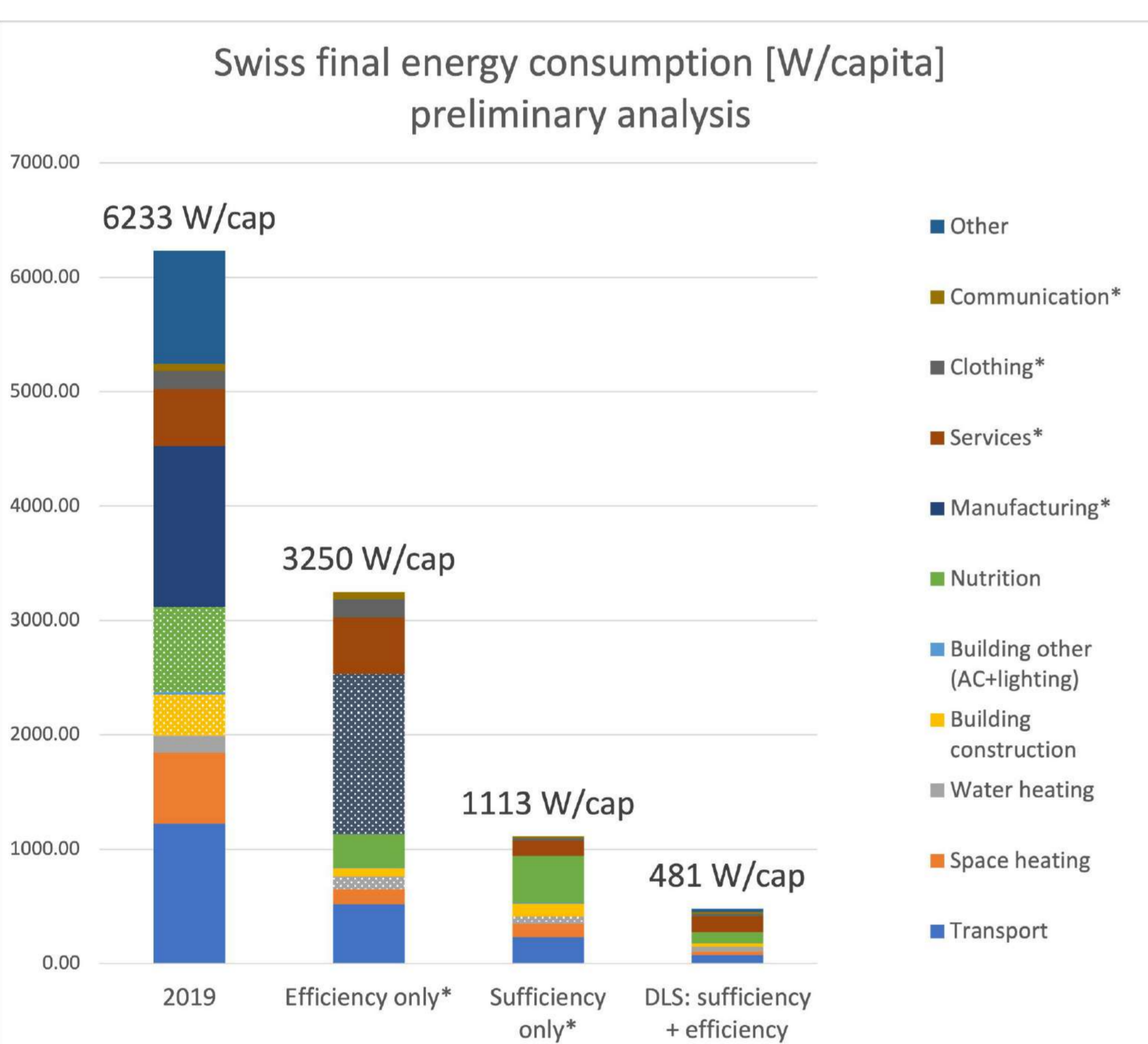


We develop four principles for a climate-neutral global aviation:

1. Urgently start reducing passenger-km flown by 2.5-7.3% p.a., stabilizing at its size in ca. 1984
2. Synthetic or biofuels must not negatively impact biodiversity or society, likely severely limiting their role before 2050
3. Airlines have an almost perfect track record of missing or "forgetting" their own CO₂ targets; size must be regulated
4. Principles 1-3 could reduce aviation's impact by 90%; the CO₂ must still be removed, and we propose and model a public "polluter pays" Negative Emissions Fund for Airlines (NEFA), with a required CO₂ price of \$200-250/t

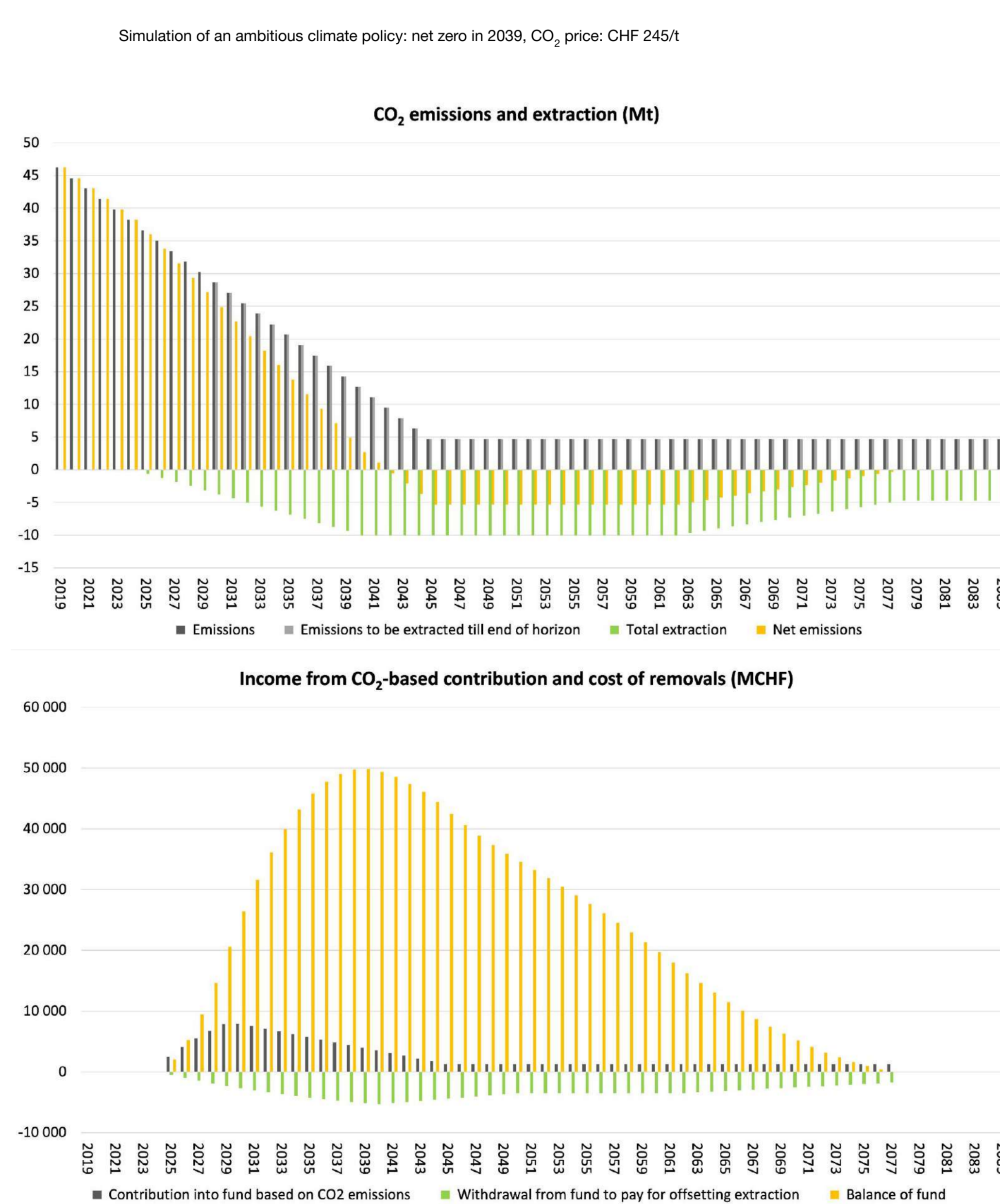
Sufficiency in the Swiss Habitat

Decomposing Decent Living Standards (DLS) into sufficiency and efficiency simplifies the development, validation, and communication of transition pathways



Swiss Negative Emissions Fund

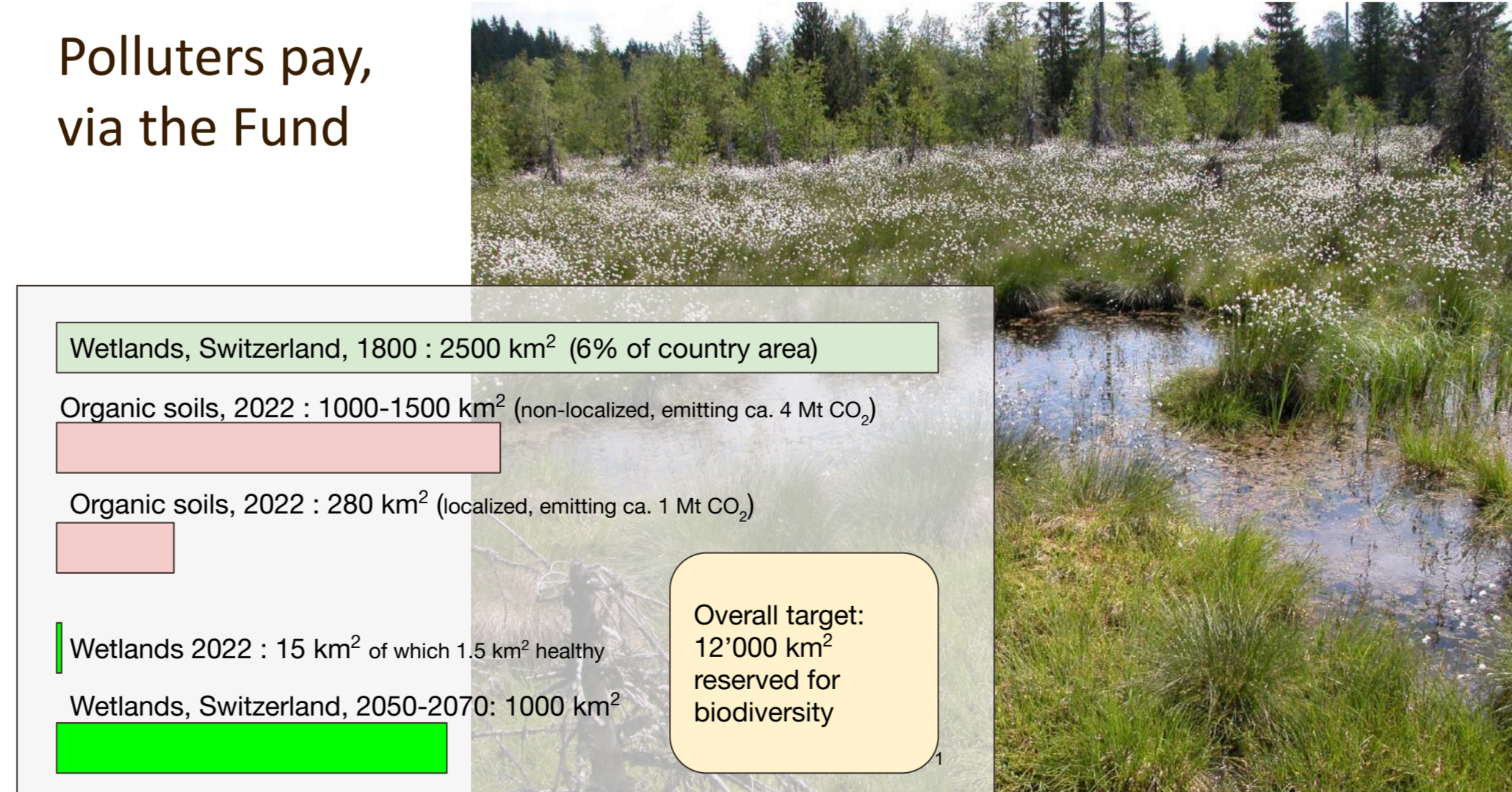
The proposed SNEF is a public fund, 100% polluter-financed, starting in 2025, reaching Swiss net zero around 2040, and removing all emissions from 2030, before 2080



NE project example:

Re-naturing wetlands restores Swiss biodiversity hotspots, stops peat oxidation, and restarts carbon sequestration

Polluters pay, via the Fund



Wetlands, Switzerland, 1800 : 2500 km² (6% of country area)
Organic soils, 2022 : 1000-1500 km² (non-localized, emitting ca. 4 Mt CO₂)
Organic soils, 2022 : 280 km² (localized, emitting ca. 1 Mt CO₂)
Wetlands 2022 : 15 km² of which 1.5 km² healthy
Wetlands, Switzerland, 2050-2070: 1000 km²
Overall target: 12'000 km² reserved for biodiversity

SNEF paper:



Please connect:



Policy implications

A complete rethink of the Swiss Habitat...:

- Floor area, heating temperature
- Flexible shared vs. individual spaces, adapted to needs
- Trade-offs: "public luxury" vs. "private frugality"
- Construction policy, methods, materials
- Neighborhoods to renovate / to abandon
- Sufficient and efficient mobility: clean air, more time, active and healthy mobility, much lower cost
- A new social licence for universally inclusive, shared, better-quality local services

... could have major positive impact [final energy per capita]:

- Buildings 1150 W -> 100 W
- Mobility 1250 W -> 500 W
- Manufacturing+Services 1900 -> 800 W

Habitat-related measures, including induced mobility and local services, could reduce total Swiss final energy use by perhaps 50%, while increasing wellbeing and resilience

(Preliminary, to be validated scientifically, and ethically with stakeholders, within the project SWICE)