



Input presentation

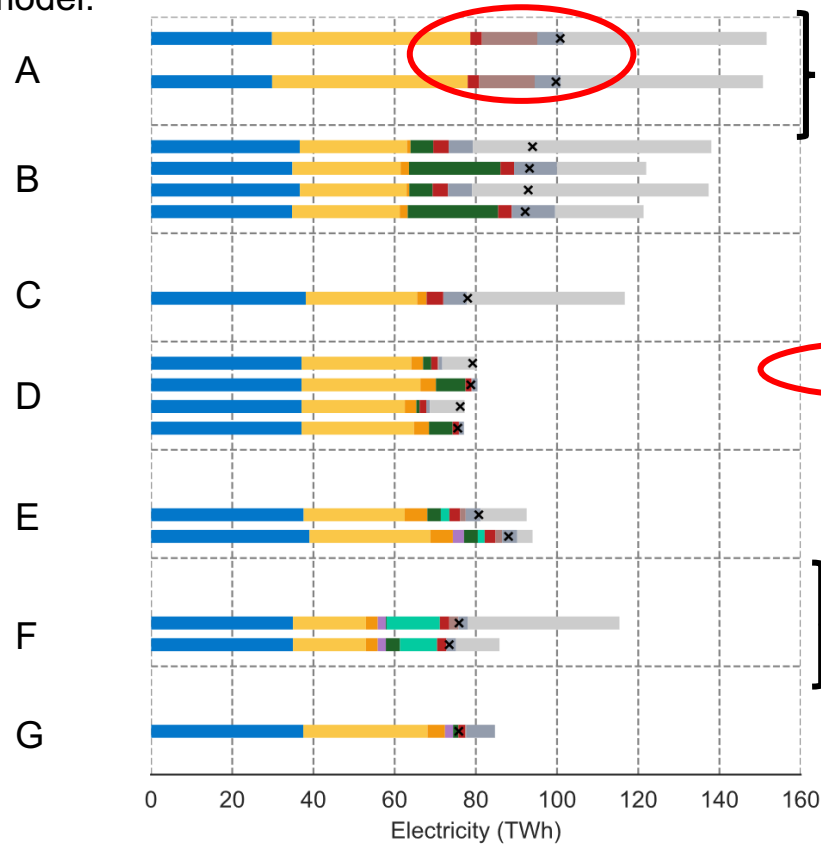
Niklas Nolzen, ETH Zurich
Streamlining energy scenarios
for the sector-coupled net-zero
Swiss energy system



Saying **No** means saying **Yes** to something else

Energy system models yield many scenarios

Optimization model:



Biomass is cheap in 2050 !

→ Different assumptions
→ Different futures

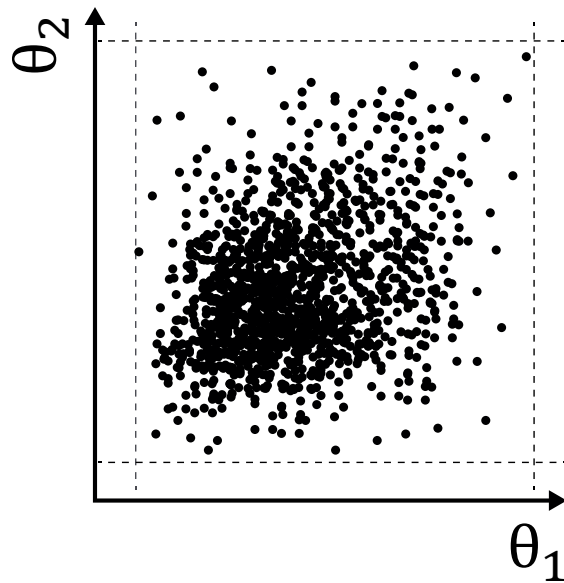


Biomass is expensive in 2050 !

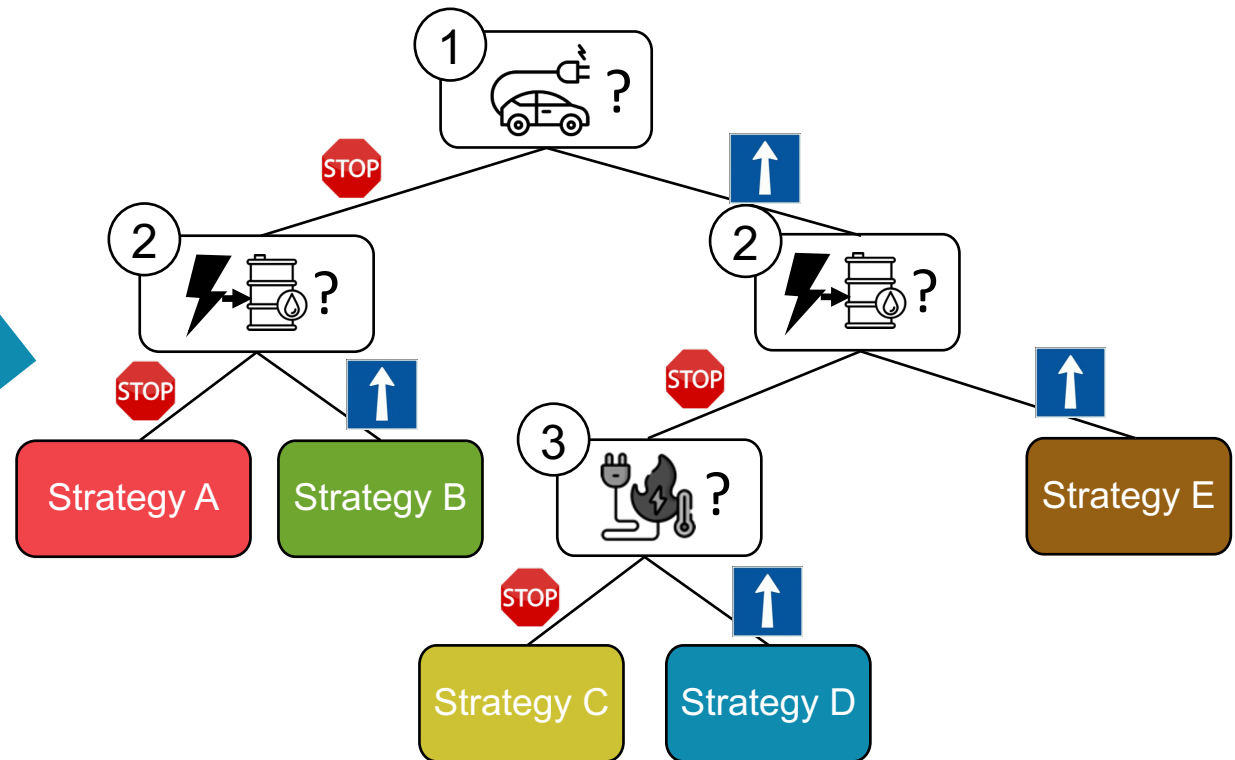
[1]: Marcucci et al. 2023. *CROSS model result comparison*. https://sweet-cross.ch/wp-content/uploads/2023/01/2023_01_18_CROSS_Scenarios_Comparison.pdf [02/23]

Saying **No** means saying **Yes** to something else
- under uncertainty

From **1024** net-zero scenarios for the
Swiss energy system...



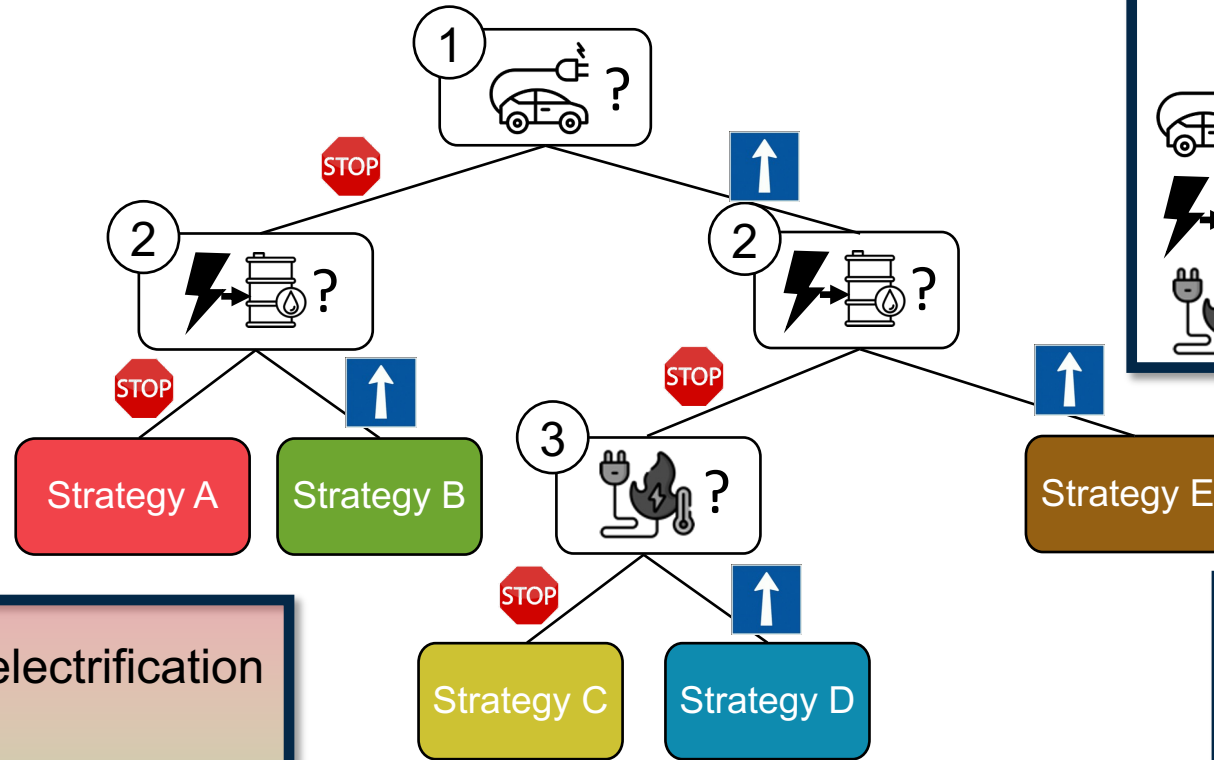
Decision
Trees



...to **3** key decisions



Decision tree on a net-zero Swiss energy system



Key decisions for a net-zero Swiss Energy System

- Transport electrification
- Synthetic fuel production
- Heat electrification

STOP Low Transport electrification

↑ Carbon Capture mandatory

STOP Synthetic fuels

↑ Biomass for industrial heat

↑ Synthetic fuels

STOP Less direct electrification



The Swiss energy transition is about sector-coupled decisions!

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sector-coupled decisions!