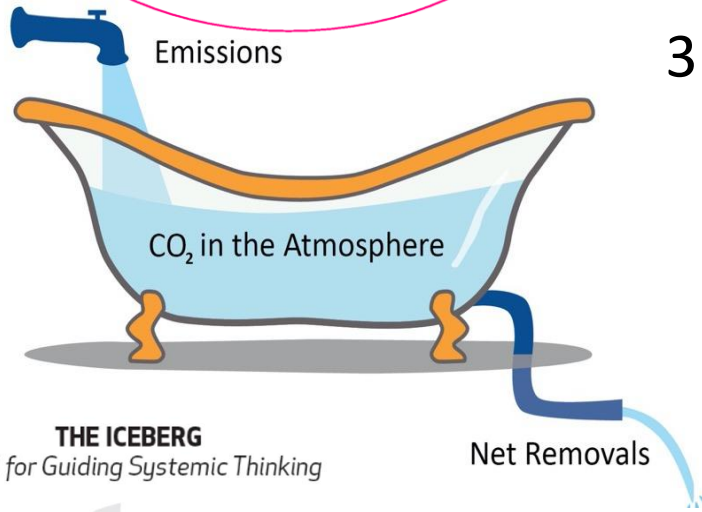
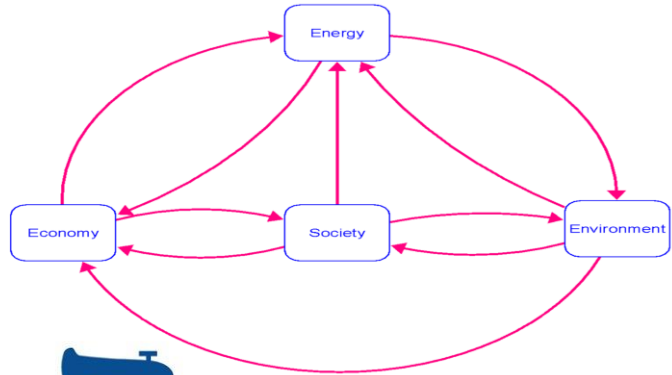


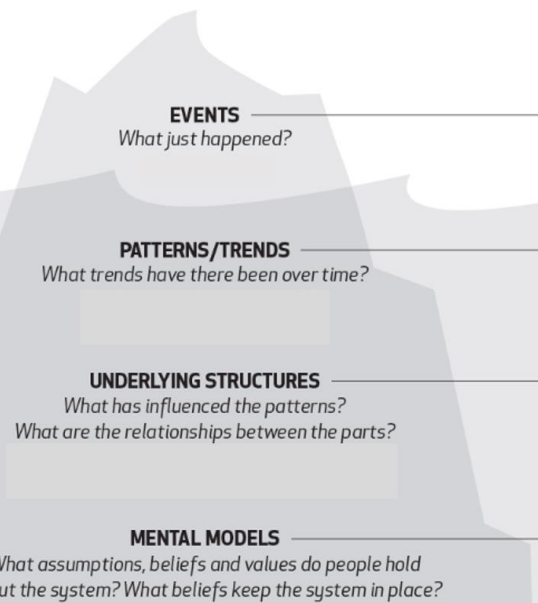
# Why systems thinking?

To reflect on ...

1. How things are connected
2. How change happens (feedbacks, time lags)
3. Indirect drivers and barriers to change

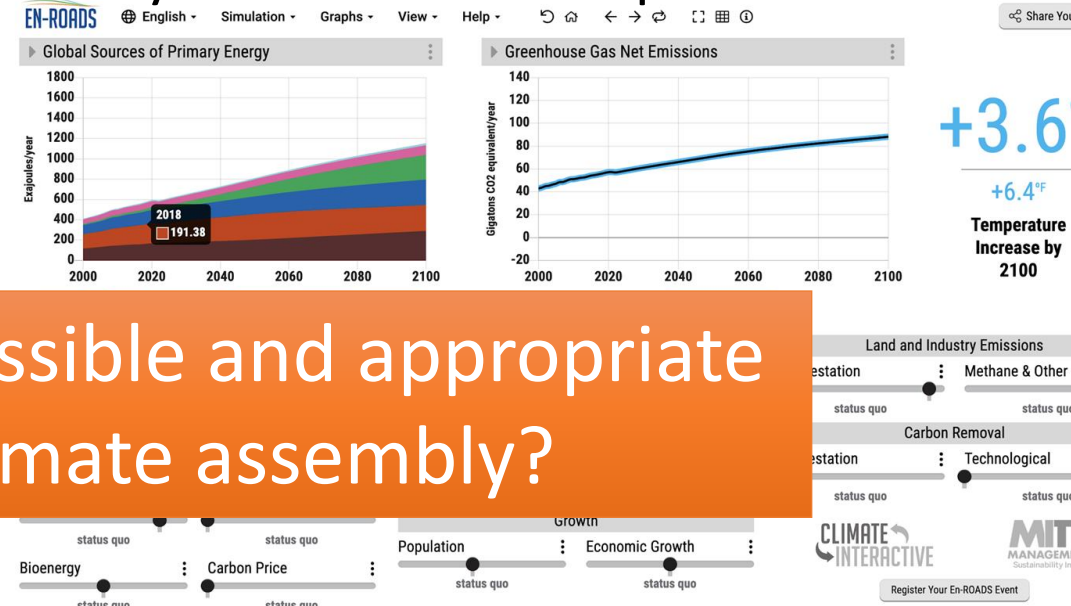
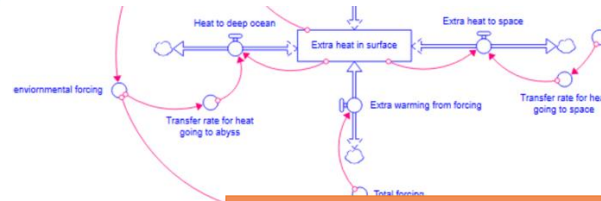


**THE ICEBERG**  
A Tool for Guiding Systemic Thinking



# Why systems models?

1. To support explicit systems thinking
2. To quantify trade-offs and impacts



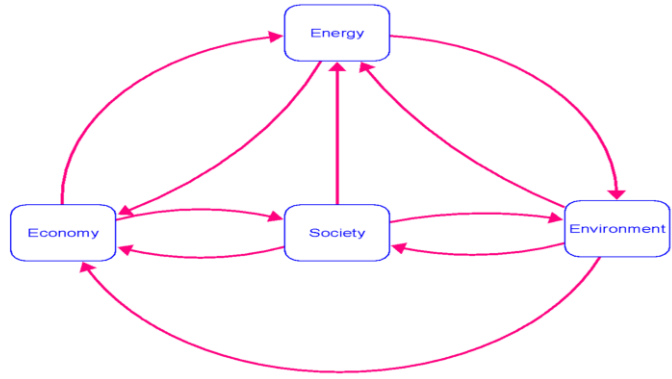
**+3.6°C**  
+6.4°F  
Temperature Increase by 2100

# How system thinking and systems models could support the CA processes A perspective from a planned Swedish CA

Tim Daw, David Collste, Sarah Cornell

Stockholm Resilience Centre  
Stockholm University

**FAIRTRANS** ►



# Why systems thinking?

To reflect on ...

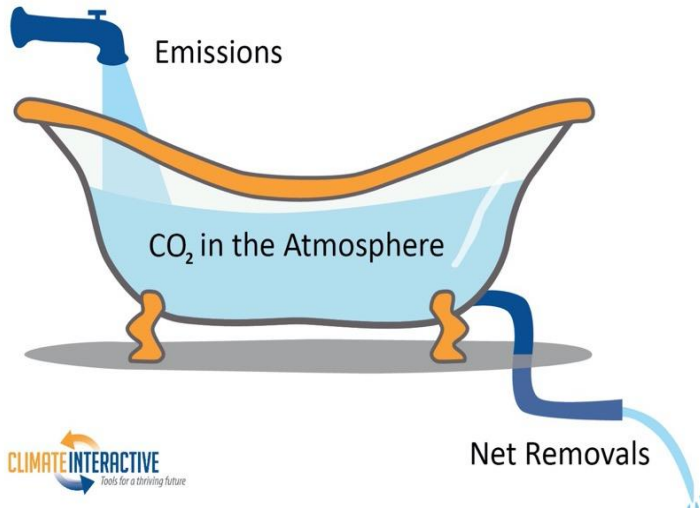
1. How things are connected



# Why systems thinking?

To reflect on ...

1. How things are connected
2. How change happens (feedbacks, time lags)



# Why systems thinking?

To reflect on ...

1. How things are connected
2. How change happens (feedbacks, time lags)
3. Indirect drivers and barriers to change

## THE ICEBERG

*A Tool for Guiding Systemic Thinking*

### EVENTS

*What just happened?*

### PATTERNS/TRENDS

*What trends have there been over time?*

### UNDERLYING STRUCTURES

*What has influenced the patterns?  
What are the relationships between the parts?*

### MENTAL MODELS

*What assumptions, beliefs and values do people hold  
about the system? What beliefs keep the system in place?*

# THE ICEBERG

*A Tool for Guiding Systemic Thinking*



# THE ICEBERG

*A Tool for Guiding Systemic Thinking*

## EVENTS

*What just happened?  
Catching a cold.*

**React**

## PATTERNS/TRENDS

*What trends have there been over time?  
I've been catching more colds  
when sleeping less.*

**Anticipate**

# THE ICEBERG

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# THE ICEBERG

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**PUBLISHED** 18 Aug 2021 04:30

# Severe flooding in Gävle and Dalarna

Update 20 August 08.35: Severe flooding has affected parts of Gävleborg and Dalarna counties, causing disturbances in traffic and some municipal services. Here, you find information from the responsible authorities.

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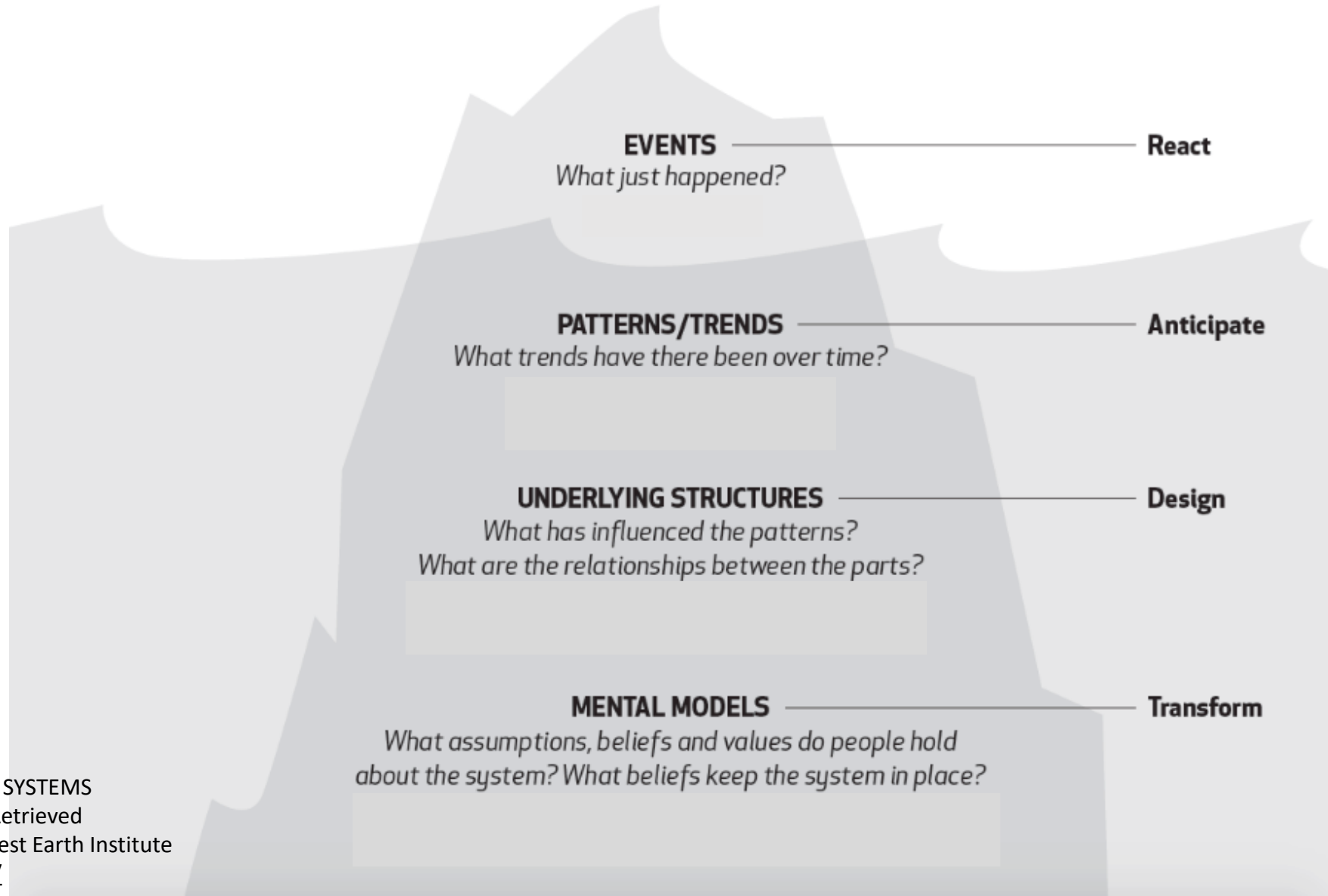
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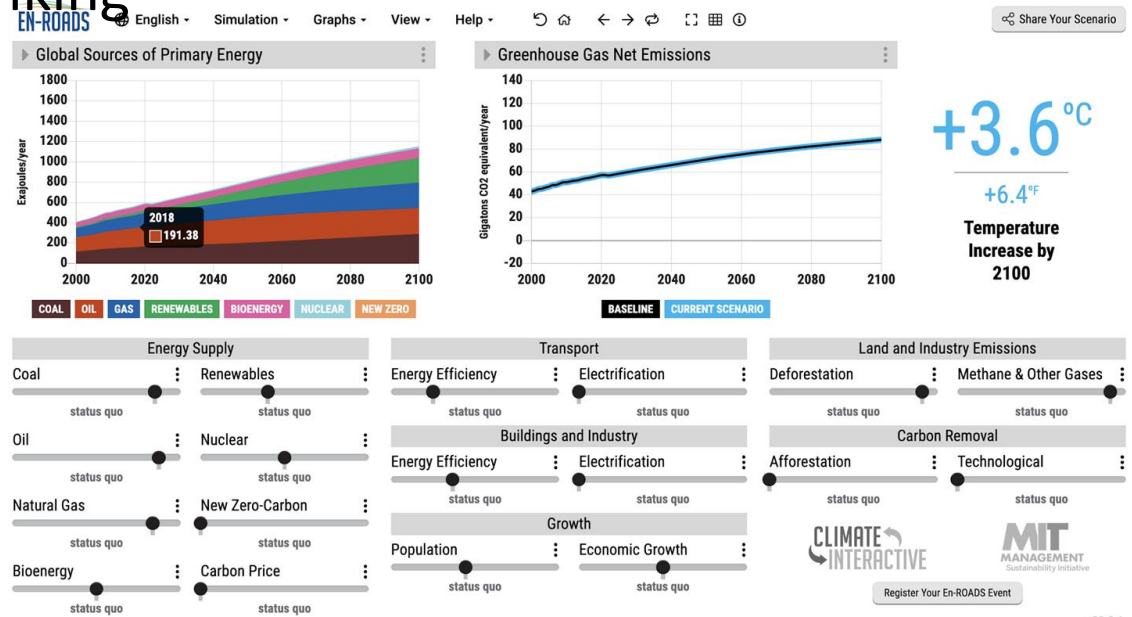
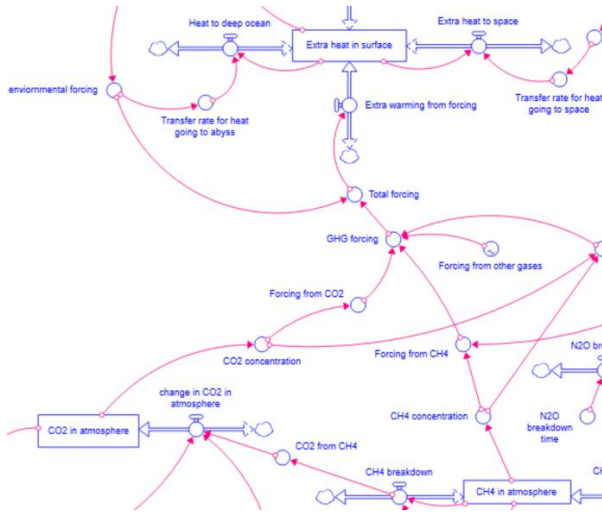
# THE ICEBERG

*A Tool for Guiding Systemic Thinking*



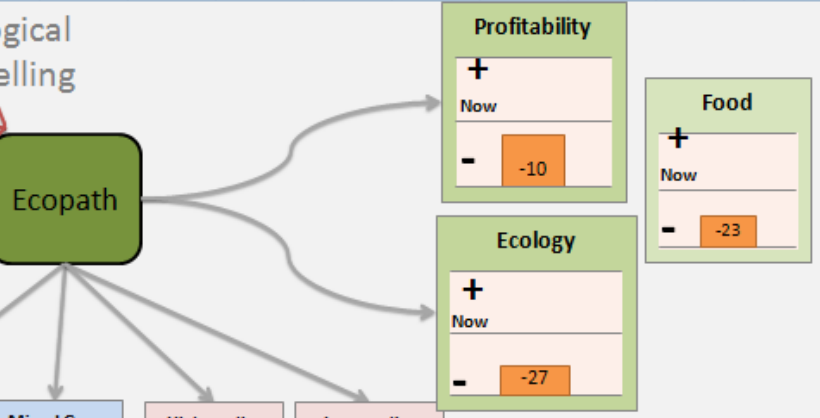
# Why systems models?

1. Models are already deeply embedded in climate politics (but untransparently)
2. To quantify trade-offs and impacts
3. To support explicit systems thinking



v23.2.1

# System 'toy model' in participatory processes in Kenyan fisheries





# EN-ROADS

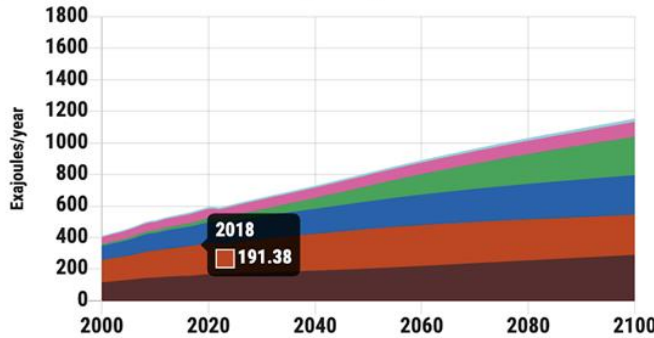
## Climate Action Simulation



Sustainability  
Initiative

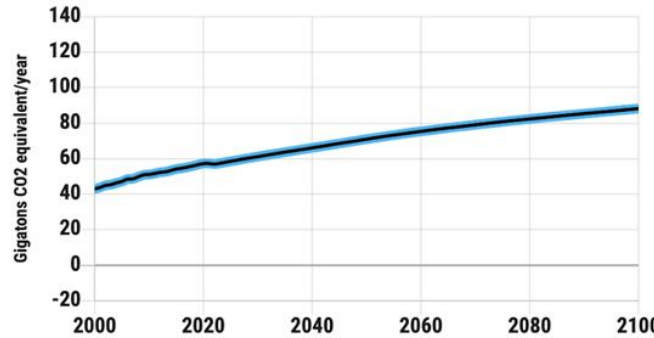


Global Sources of Primary Energy



COAL OIL GAS RENEWABLES BIOENERGY NUCLEAR NEW ZERO

Greenhouse Gas Net Emissions



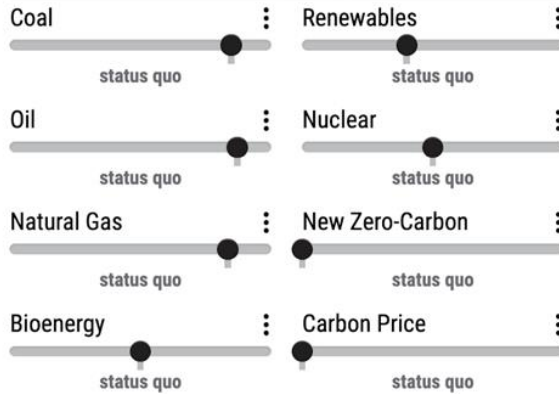
BASELINE CURRENT SCENARIO

+3.6°C

+6.4°F

Temperature Increase by 2100

Energy Supply



Transport



Buildings and Industry



Growth



Land and Industry Emissions



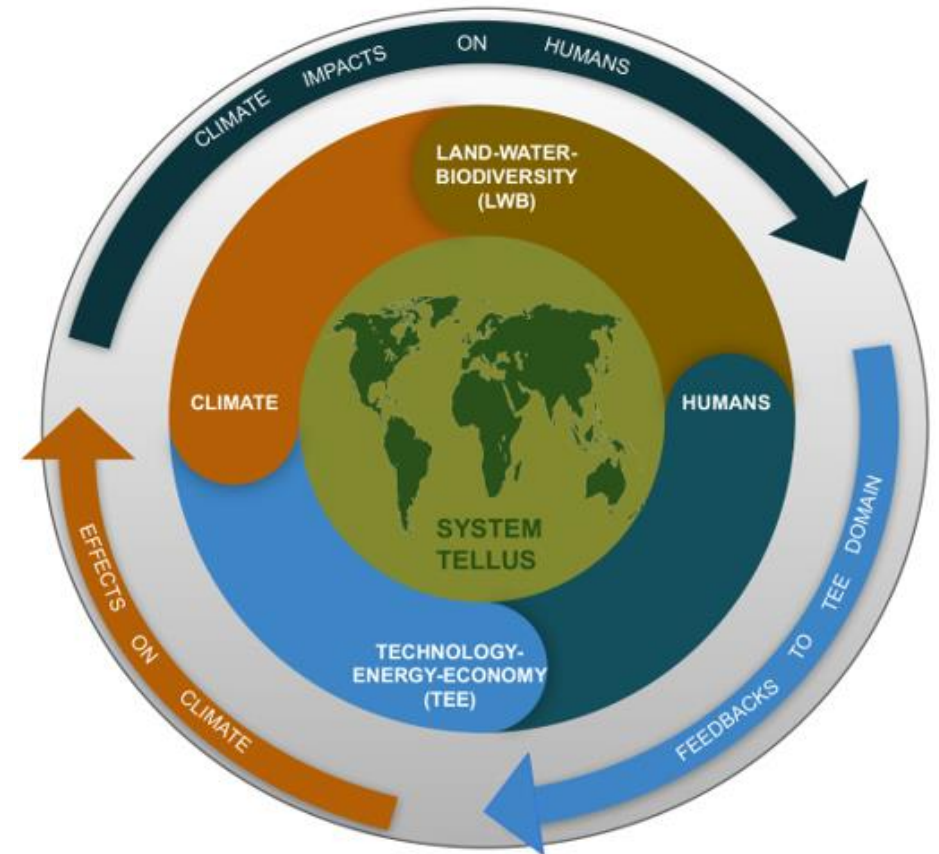
Carbon Removal



Register Your En-ROADS Event

# EU WorldTrans project

- **Toolbox for active engagement with citizen assemblies** – model development and application workshops, role plays, etc
- **Integrated assessment** of climate impacts as a multi-actor process (new modeling and beyond!)

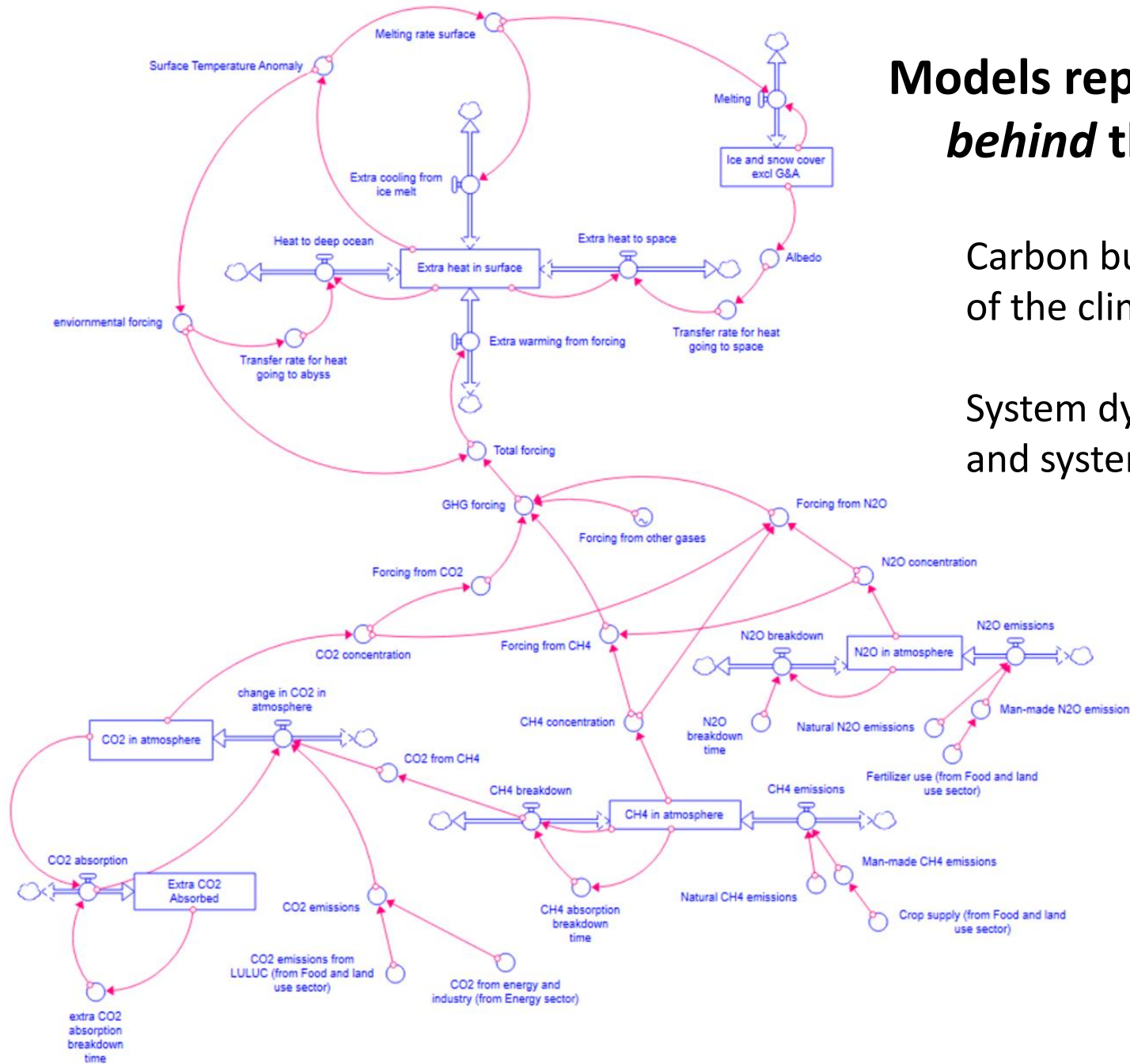




# Models represent the complex systems *behind* the budgets and pathways

Carbon budgets are generated using models of the climate-energy-economy system

System dynamics models show causal loops and system feedbacks



Structure of the FRIDA system dynamics model (used and developed by the EU project WorldTrans)

# Concerns and discussions

- How to empower rather than intimidate participants?
- How does it affect external view of the process?
- Possible to combine with roleplay activities to understand the politics around the dynamics depicted in models

# What is possible and appropriate within a climate assembly?

- What are the opportunities and benefits
- Risks and drawbacks
- How could they be used
- Examples you know of?