



# Nebojsa Nakicenovic

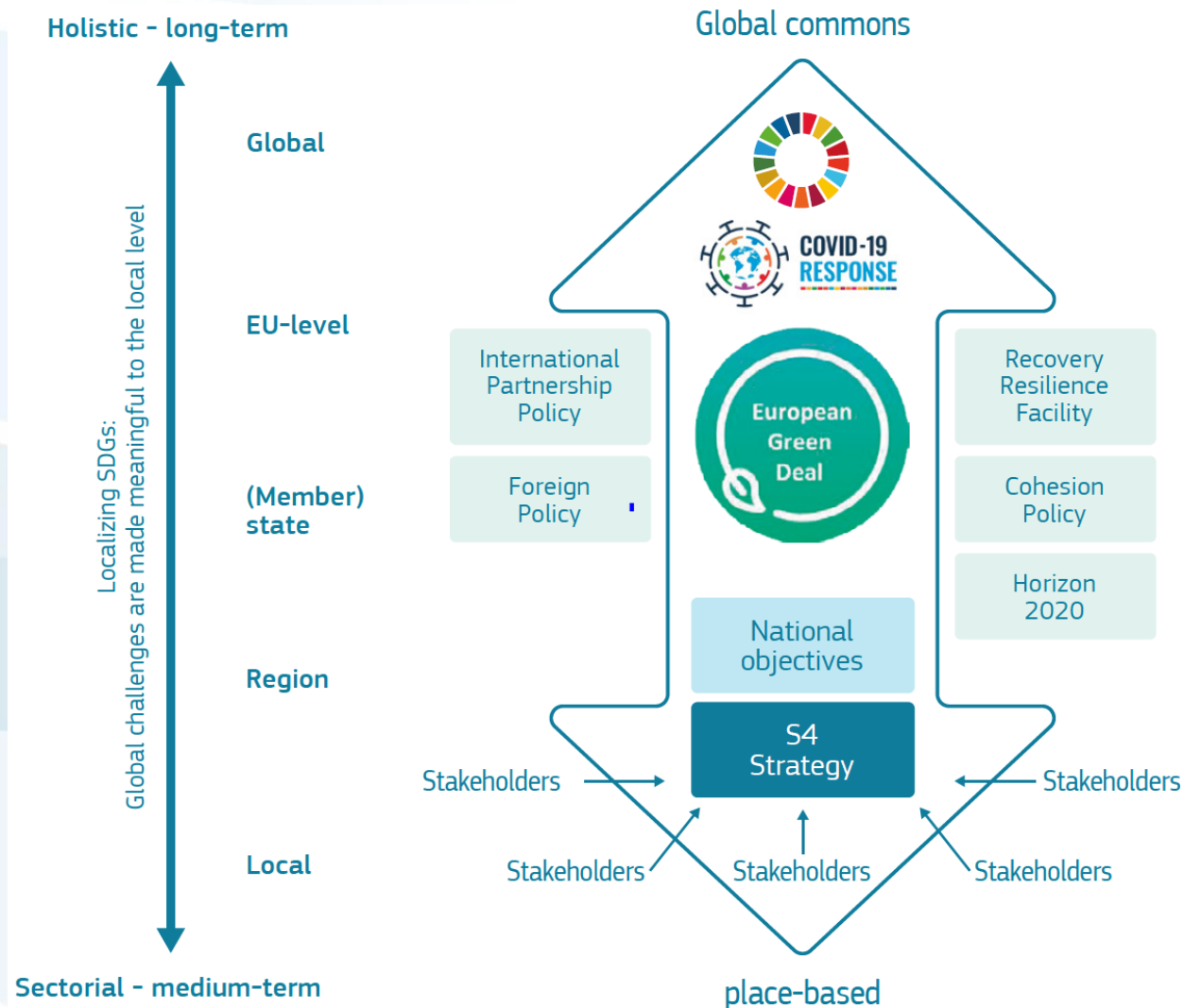
Group of Chief Scientific Advisers

Former Deputy Director General

Former Tenured Professor



# Duality of directionality – Aspirational vision of safe and just future for local policy action

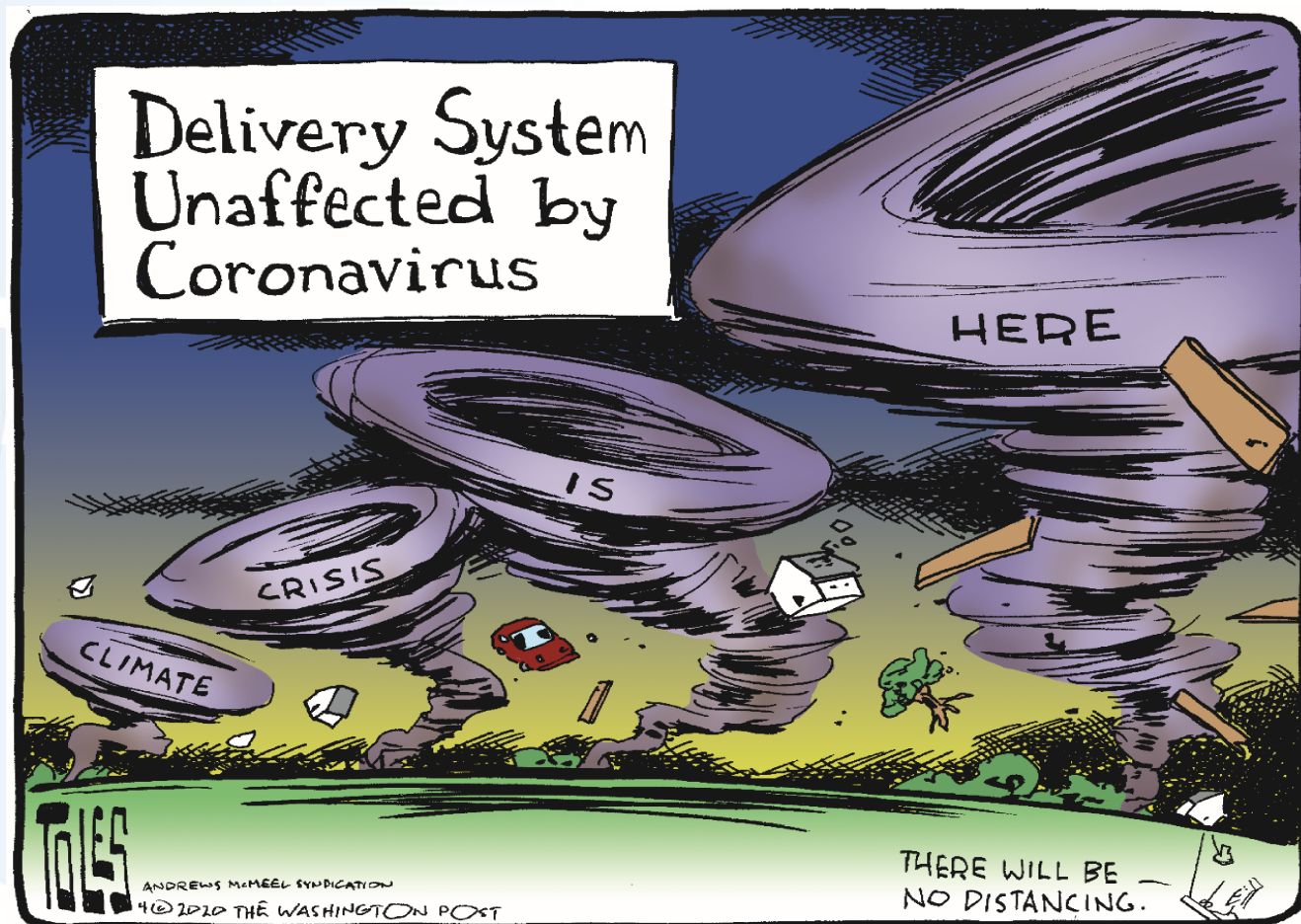


Source: Nakicenovic, Zimm, Matusiak, Ciampi-Stancova, 2021

Nakicenovic

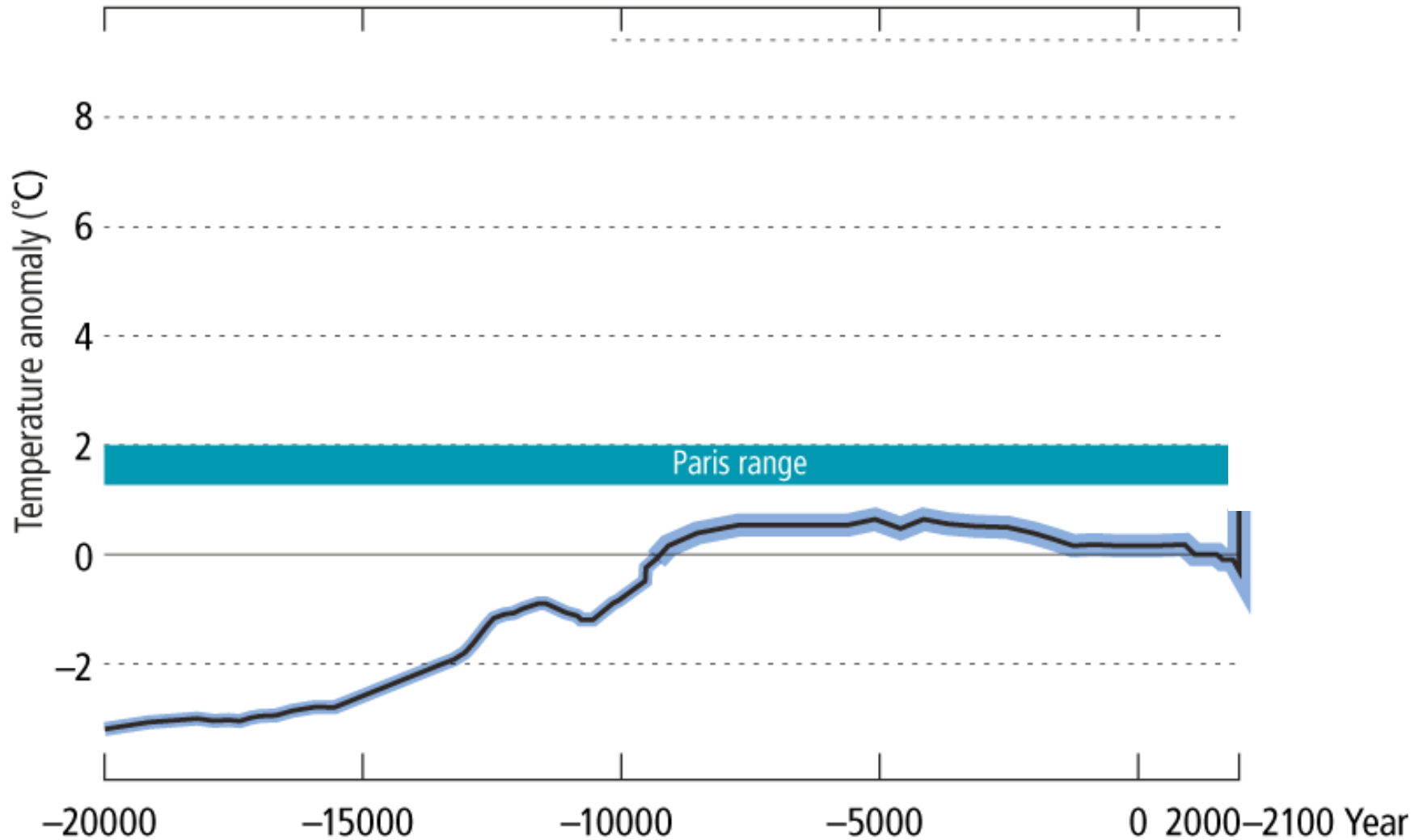
2021 #2

Despite the major immediate threat of the COVID-19, the climate crisis, digital revolution are here and injustice, inequity, and ever-increasing pressure on Earth systems

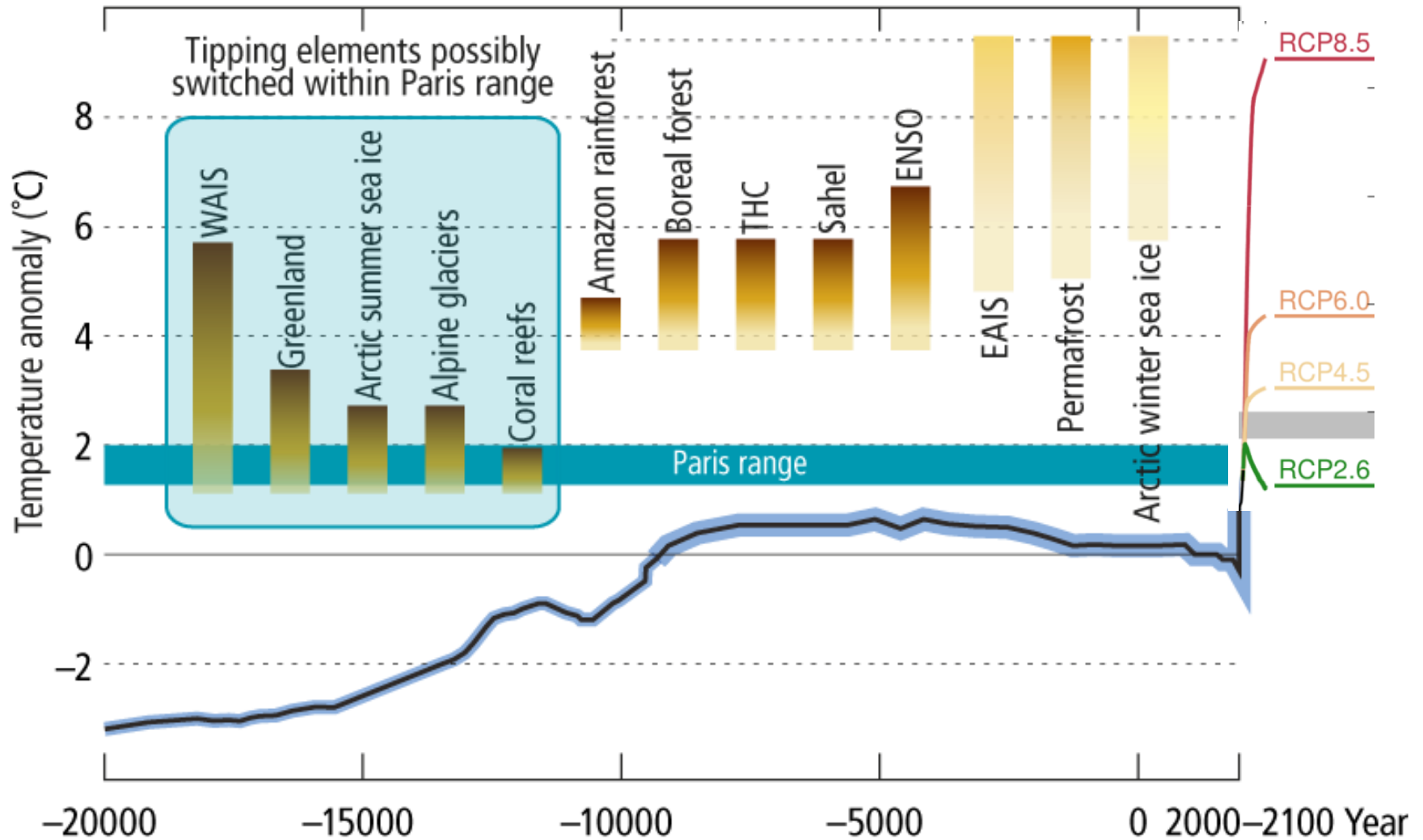


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# Holocene, Paris & Tipping Elements

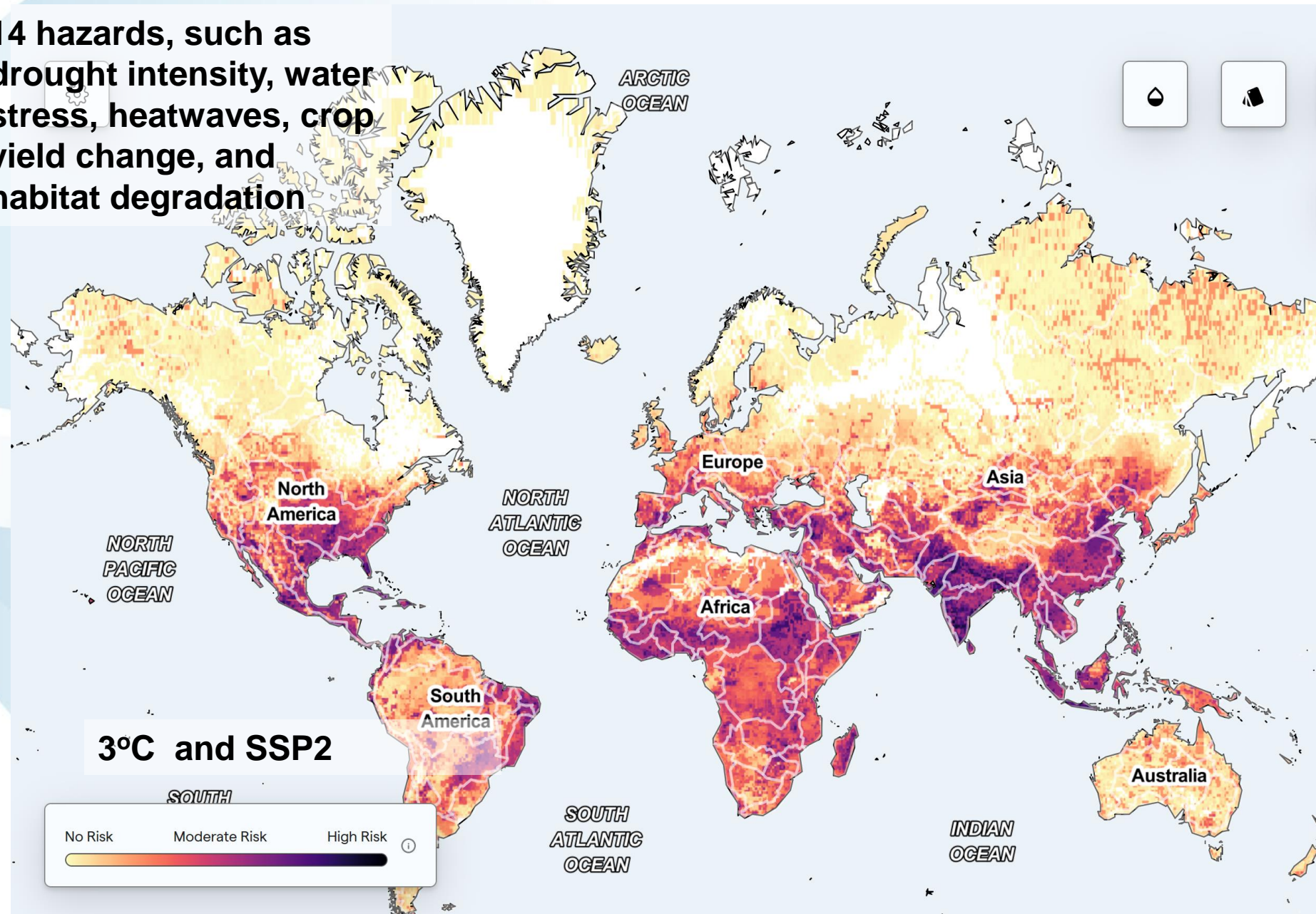


# Holocene, Paris & Tipping Elements



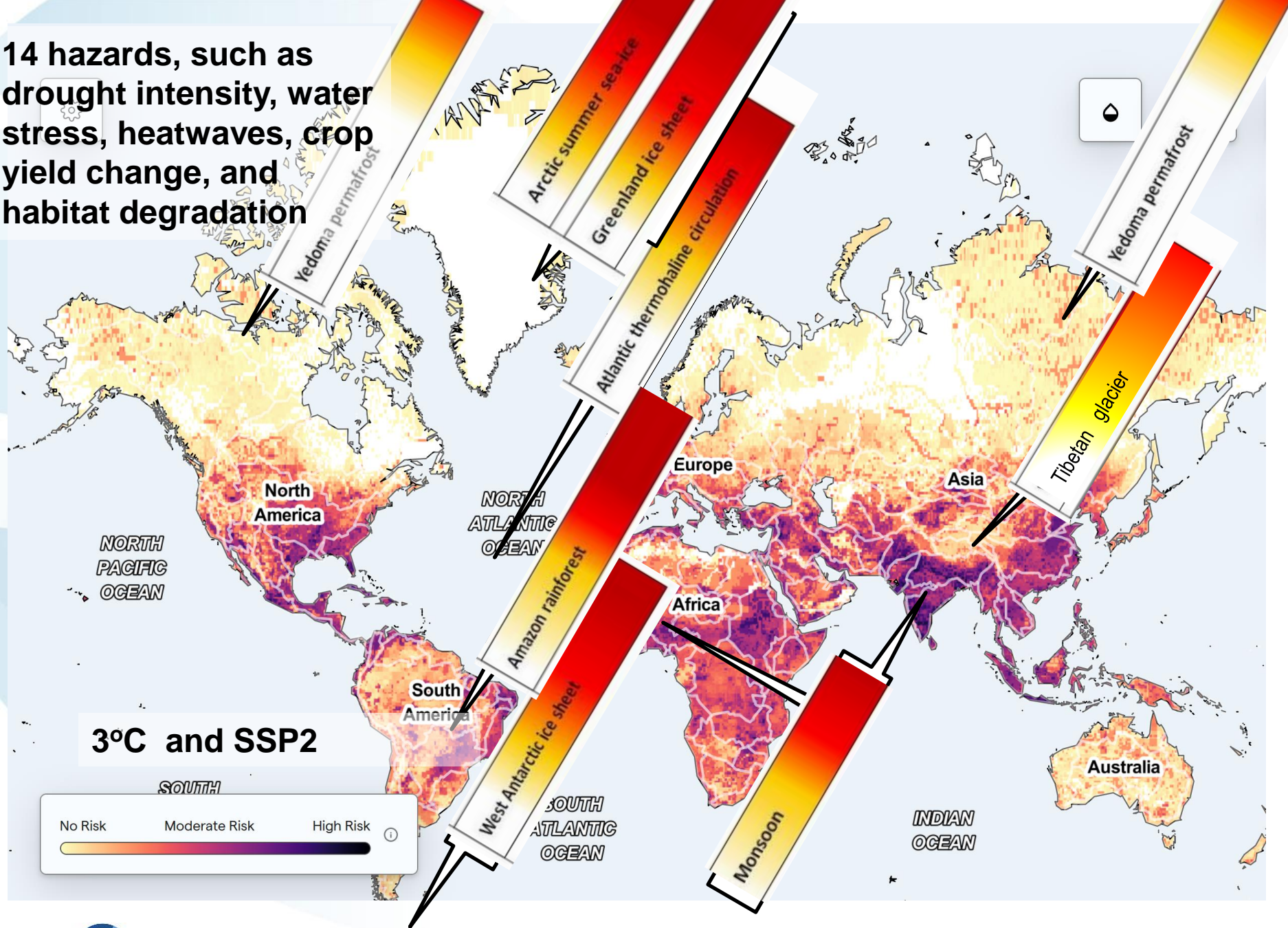


14 hazards, such as drought intensity, water stress, heatwaves, crop yield change, and habitat degradation





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UN DESA and UNFCCC conference  
on synergies between the SDGs and  
the Paris Agreement – 1-3 April 2019  
Copenhagen.



# Six Major Transformations (TWI2050.org)

**Digital  
Revolution**



**Human capacity  
Demography &  
Health**



**Smart Cities  
& Mobility**



**SDGs:  
Prosperity  
Social Inclusion  
Sustainability**



**COVID-19  
RESPONSE**

**Consumption  
& Production**



**Food, Biosphere  
& Water**



**Decarbonization  
& Energy**



# The European Green Deal

von der Leyen Commission

#EUGreenDeal





# European Council adopts Just Transition Fund and Fit for 55 Package

09 July 2021

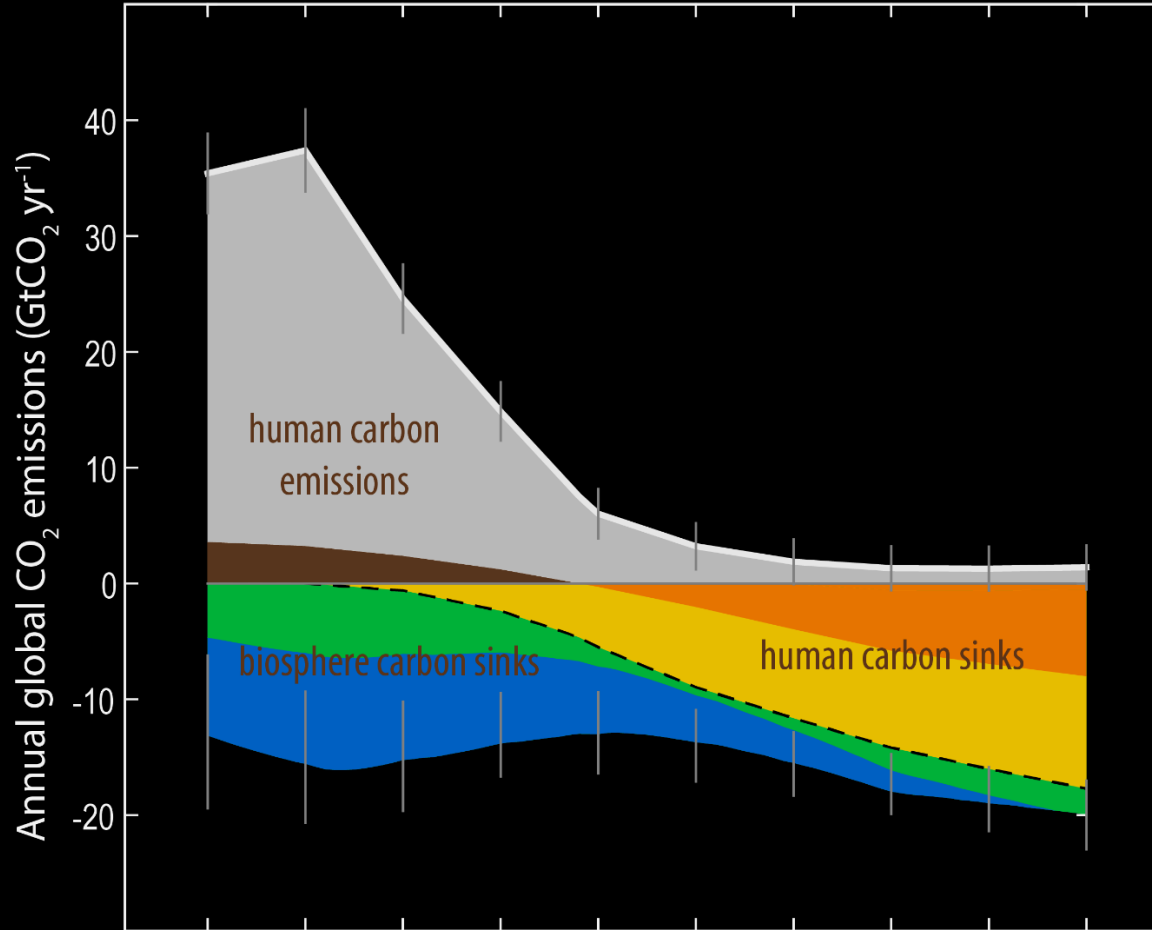


A broad legislative package to align existing EU policy with the new emissions reduction goal of 55% by 2030.





# “Carbon Law”



**anthropogenic CO<sub>2</sub> emissions (gross)**

■ fossil fuel and industry

■ land use and land-use change

**anthropogenic CO<sub>2</sub> removals**

■ land use and land-use change

■ engineering CO<sub>2</sub> sink (BECCS)

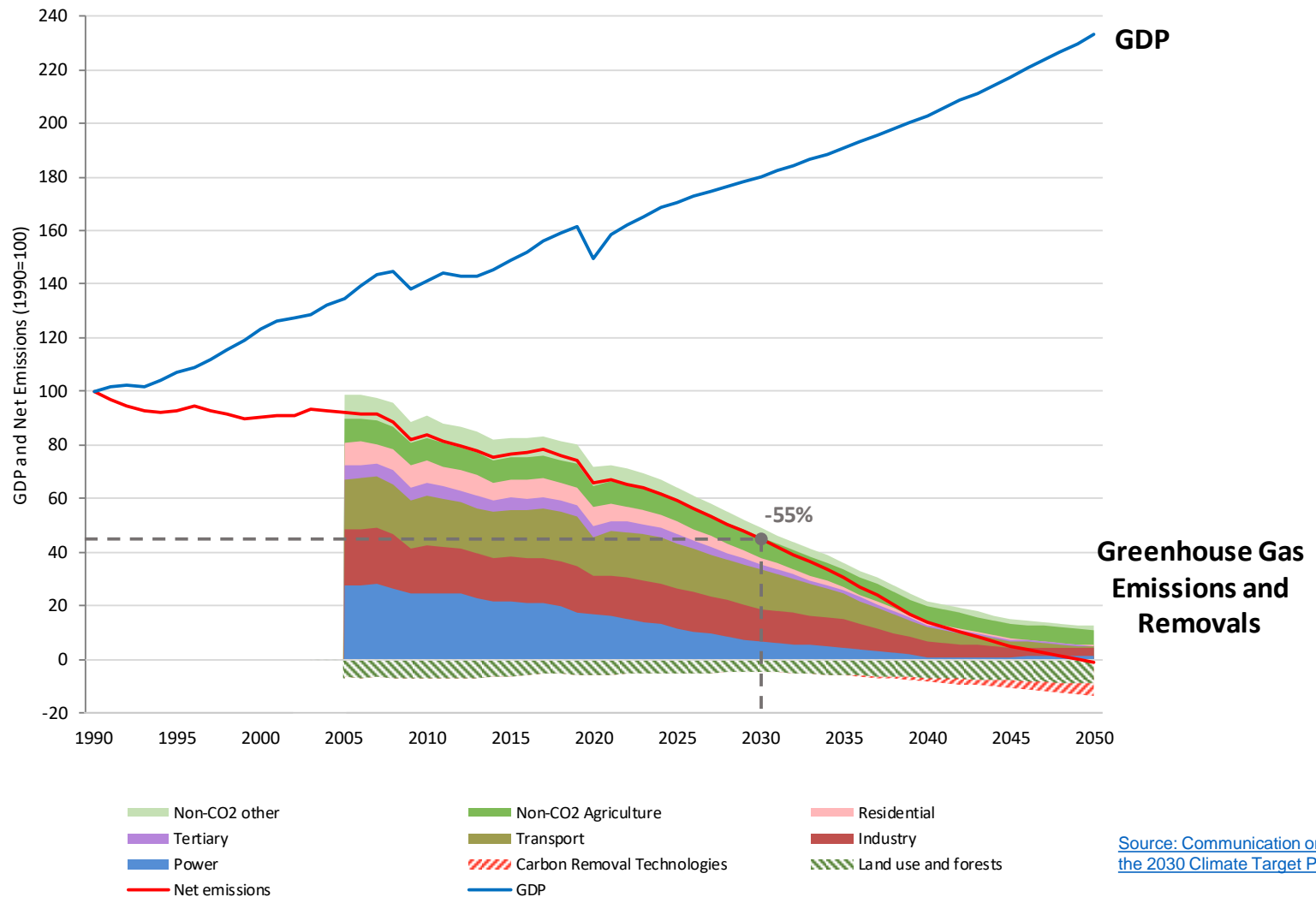
**biosphere carbon sink**

■ Land carbon sink

■ Ocean carbon sink

# EU pathway to prosperity & climate neutrality

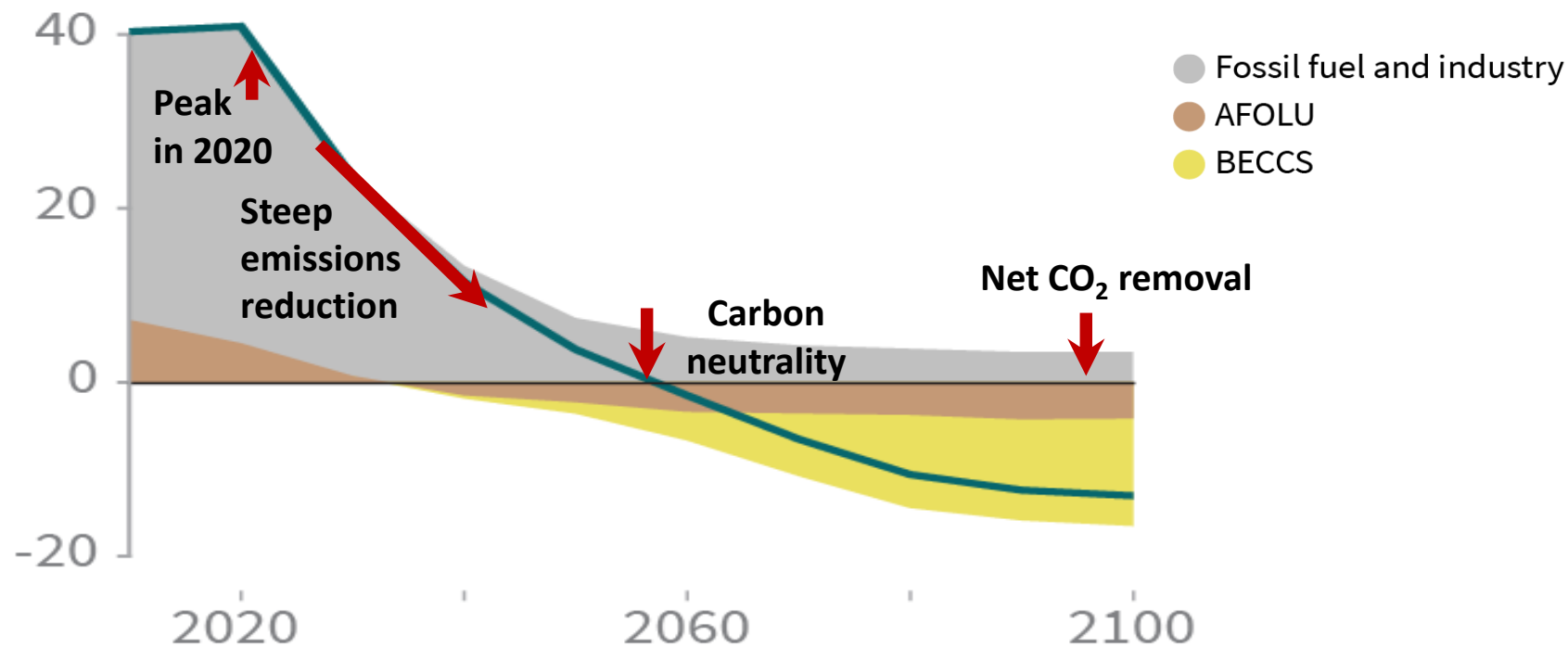
Fit for 55 package under EGD



Source: Communication on the 2030 Climate Target Plan

# Sequence of Systems Transition

Billion tonnes CO<sub>2</sub> per year (GtCO<sub>2</sub>/yr)



IPCC, SR1.5 Fig. SPM3b P3 scenario with historical dynamics.

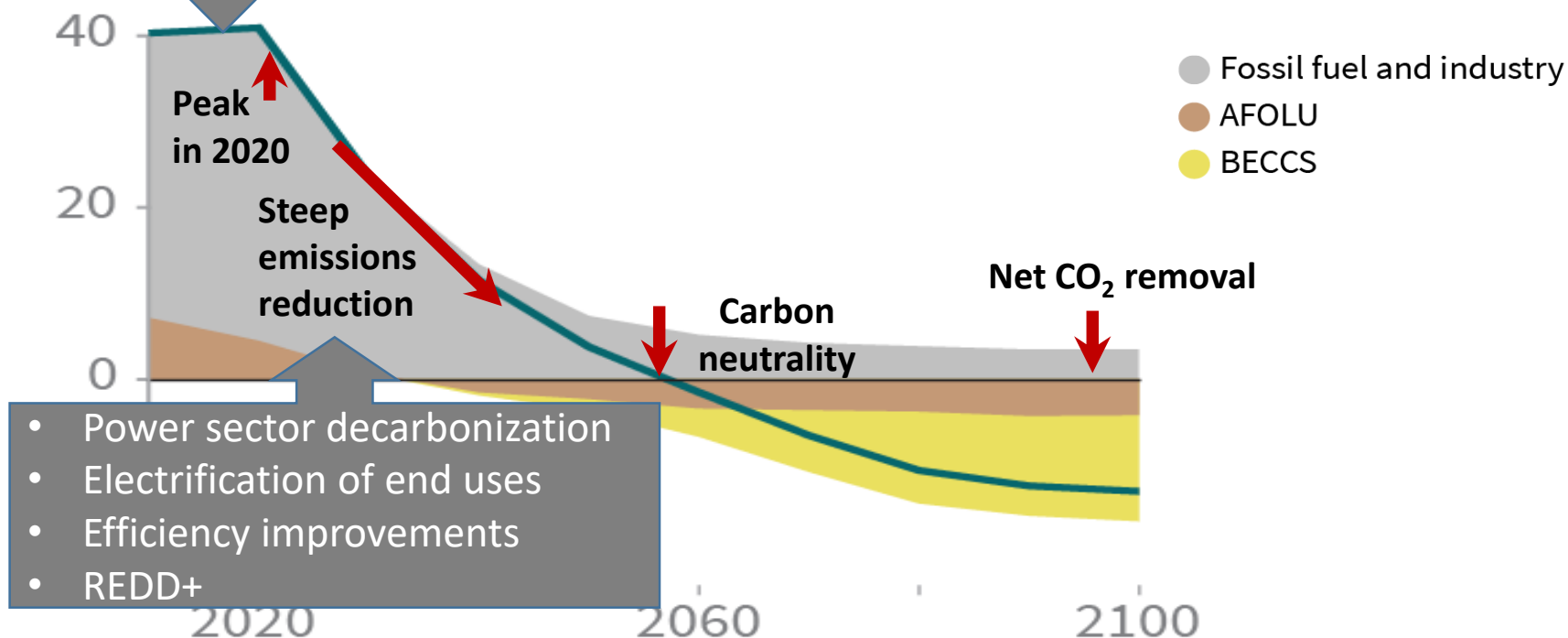
Source: IPCC 1.5SR, 2019 and Kriegler, 2019



Re-directing investments from fossils to low carbon and efficiency solutions

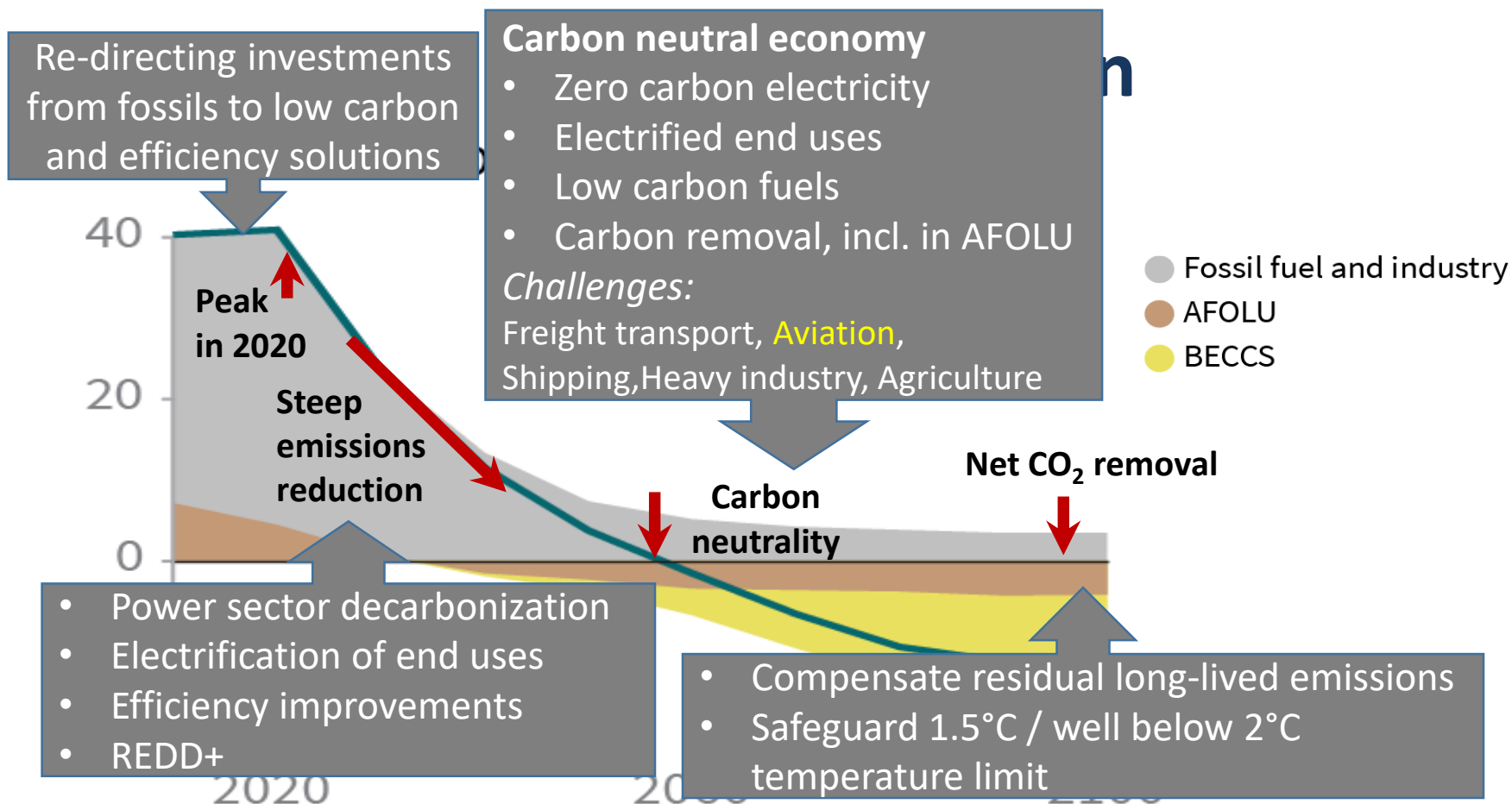
# Systems Transition

CO<sub>2</sub> per year (GtCO<sub>2</sub>/yr)



IPCC, SR1.5 Fig. SPM3b P3 scenario with historical dynamics.

Source: IPCC 1.5SR, 2019 and Kriegler, 2019



IPCC, SR1.5 Fig. SPM3b P3 scenario with historical dynamics.

Source: IPCC 1.5SR, 2019 and Kriegler, 2019

# Smart Specialization Strategy (S3)

S3 is an important driver of development and prosperity and includes:

- ➔ Entrepreneurial discovery STI (EGD missing)
- ➔ Entry and agglomeration (convergence)
- ➔ Structural change (“creative destruction”)
- ➔ Aspirational vision (roadmaps, action plans)
- ➔ But not:
  - “Horizontal” support of all sectors and domains
  - “Central planning” by decision makers (public or private)



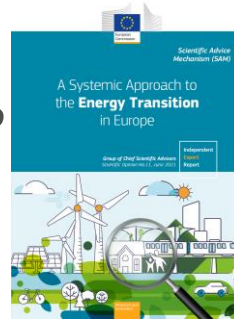
# Challenges in S4 Road-Mapping

Development of S4 roadmaps poses significant challenges and opportunities:

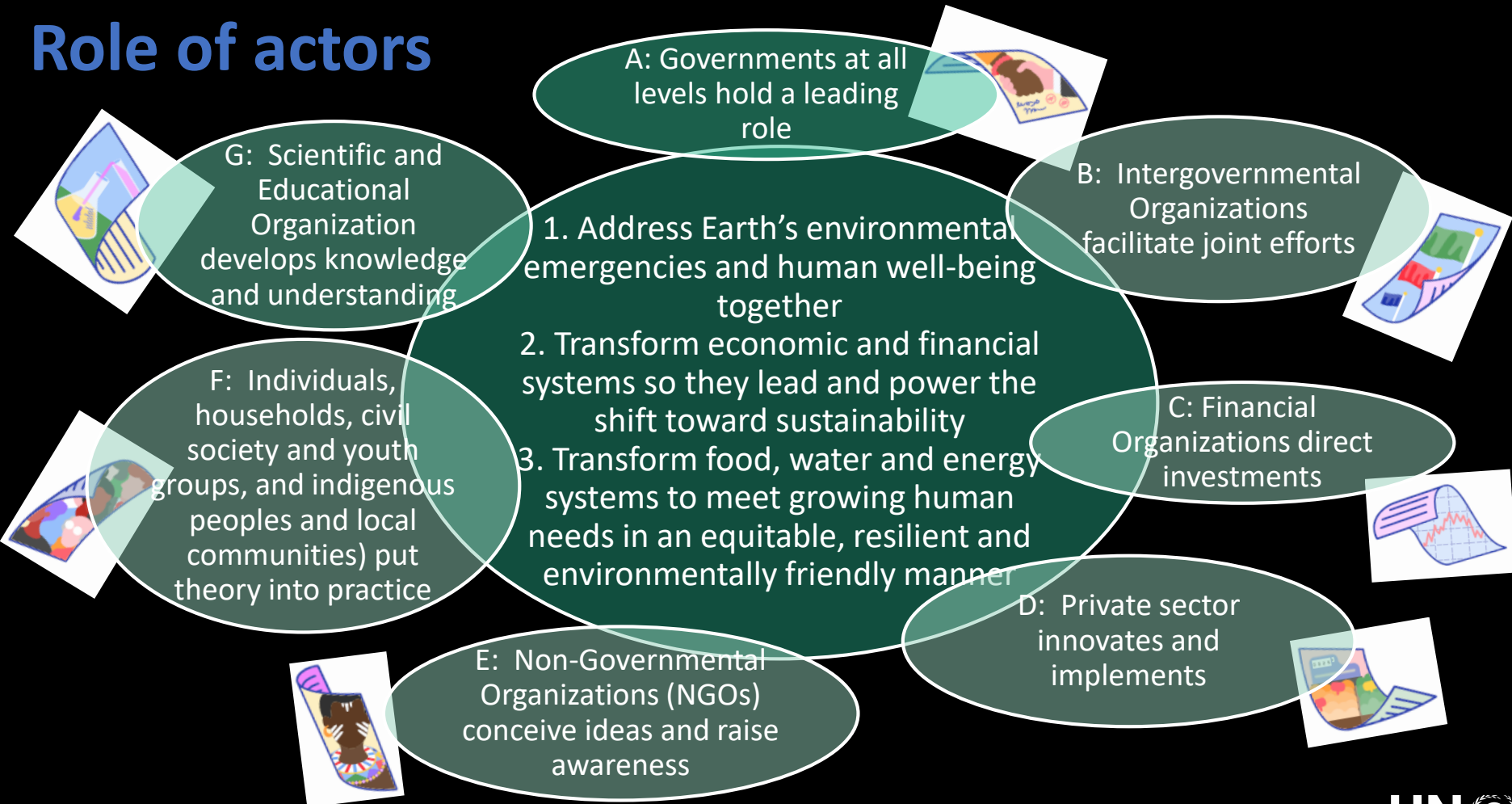
- ➔ Agreement on an **integrated** vision is fundamental
- ➔ Stakeholder **inclusion** - many different constituents: who is doing what?
- ➔ Ministries, authorities, research institutes, universities, industry, civil society, diaspora, etc.
- ➔ Focus: Integrative beyond sector plans and policies/technology/science/research/etc.
- ➔ Government cycles vs research cycles

# Recognize and empower all actors in the **S4** transformation

- *Support direct participation of different actors, including the public and subnational levels, to the implementation of the energy transition.*
- *Provide support, coordination and information for initiatives at local, regional and national level that stimulate the avoidance of carbon-intensive practices and support energy generation and efficiency.*
- *Support the creation of an 'energy environment' that facilitates choosing a low-carbon lifestyle and relevant technology, by implementing innovations and policies designed to be inclusive.*



# Role of actors



Norwegian Ministry  
of Climate and Environment

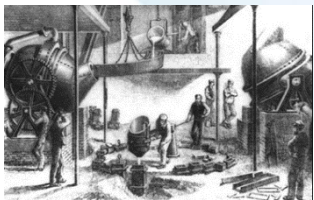
Making Peace with Nature

**UN**  
environment  
programme

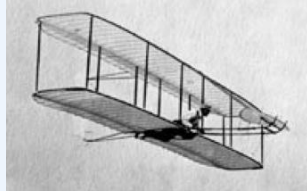


# Transformational Change

1850



1900



1950

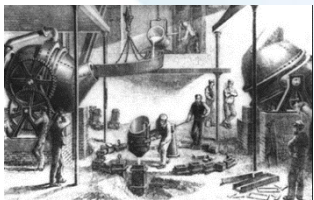


2000

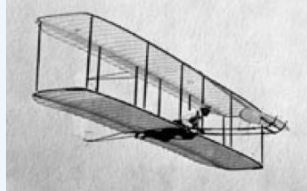


# Transformational Change

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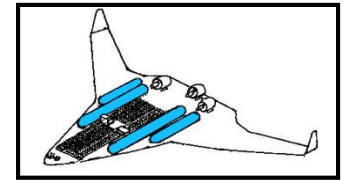
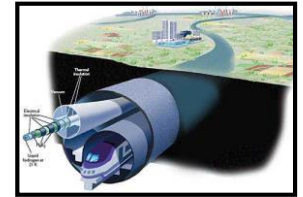
1950



2000



2050



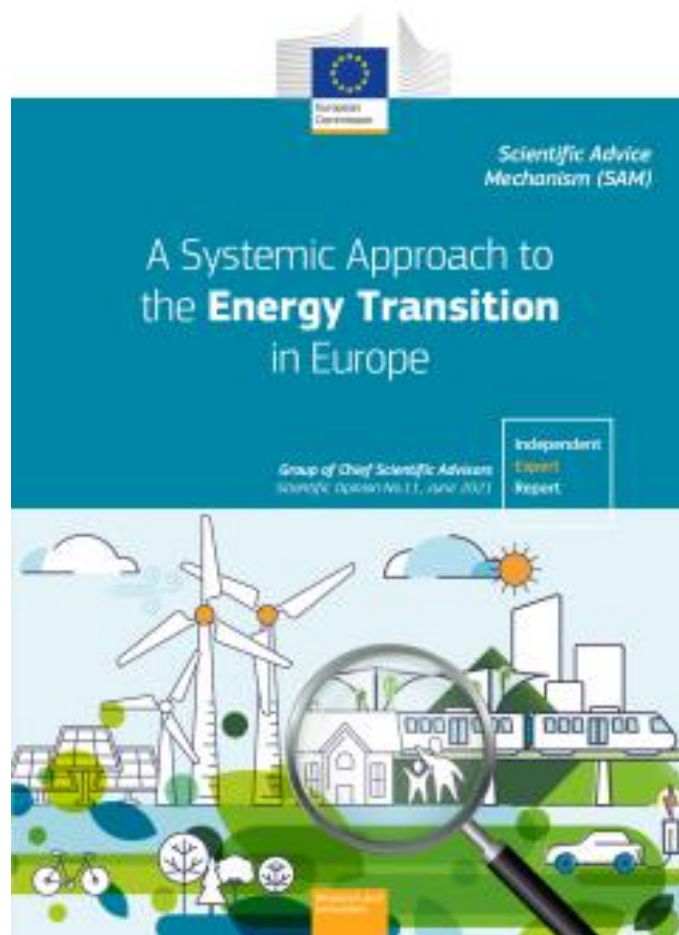
Source: After Granger Morgan, 2013

2021 #22



# THANK YOU

science for global insight



[www.TWI2050.org](http://www.TWI2050.org) SAM

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# **Smart Specialisation, Sustainable Development Goals and environmental commons**

Conceptual framework in the context of EU policy

Nebojsa Nakicenovic, Caroline Zimm (International Institute for Applied Systems Analysis, Laxenburg, Austria)  
Monika Matusiak, Katerina Ciampi Stancova (European Commission, Joint Research Centre)

[zimmc@iiasa.ac.at](mailto:zimmc@iiasa.ac.at)

9 November 2021 eTalk

# Key Messages

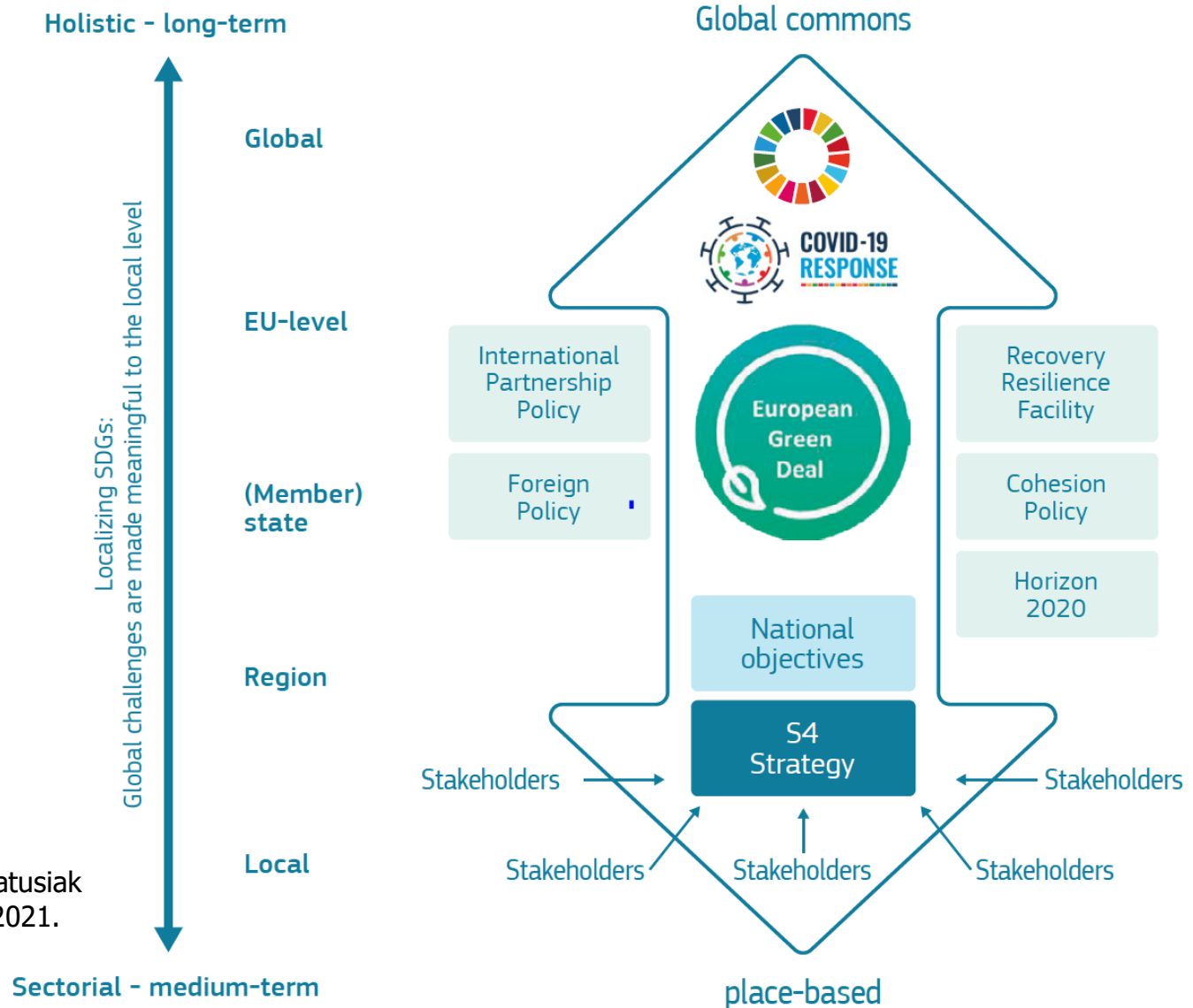
1. **Broaden the narrative of** Smart Specialisation and direct the focus: S3 for **sustainable innovation strategies**.
2. **Policy coherence and coordination** are key to leveraging synergies and avoiding negative trade-offs.
3. **Mainstream** the full approach and project cycle.
4. Harness experiences from different perspectives through **local stakeholder engagement**.
5. Design a **process that is inclusive and usable** for (less-resources) regions.
6. Use **pandemic recovery as an opportunity for building a sustainable future** for all and reorienting ongoing initiatives.

## Key Messages

- 1. Broaden the narrative of** Smart Specialisation and direct the focus: S3 for **sustainable innovation strategies**.
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- Harness experiences from different perspectives through **local stakeholder engagement**.
- Design a **process that is inclusive and usable** for (less-resources) regions.
- Use **pandemic recovery as an opportunity for building a sustainable future** for all and reorienting ongoing initiatives.



# A broader and directed narrative for change



Nakicenovic, Zimm, Matusiak and Ciampi Stancova 2021.

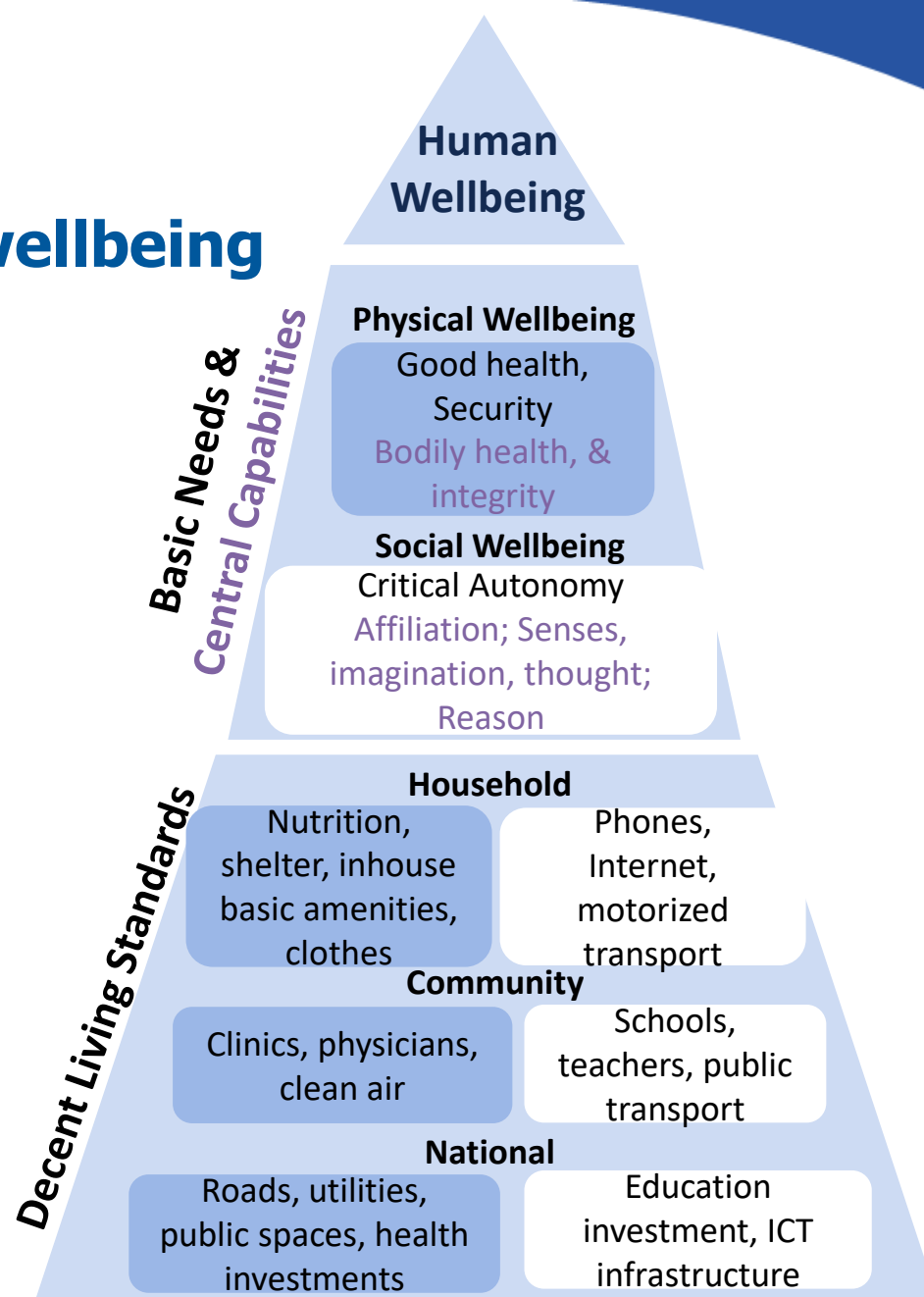
## Advancing policy coherence

- SDG proofing of budgets
- Reduction of environmental impacts at all levels by harnessing synergies – service and human needs focus



# Focusing on human needs & wellbeing

Innovation needed to reduce resource-intensive lifestyles.

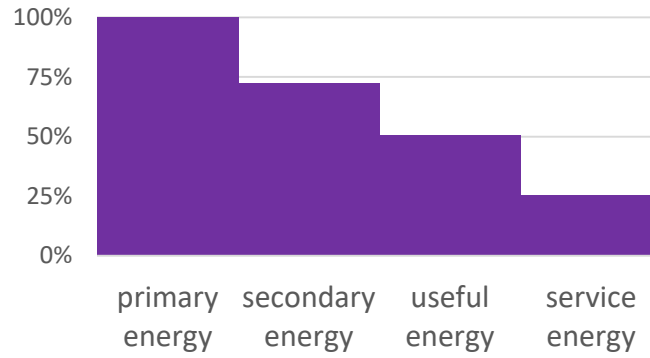


# Needs and demand perspective

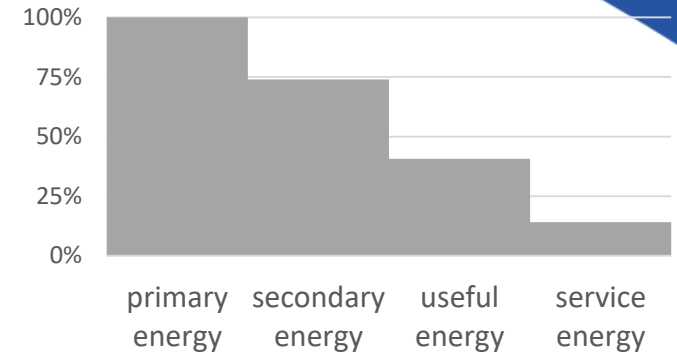
Reduction of environmental impacts at all levels by harnessing synergies.

Efficiency cascades of resource use.

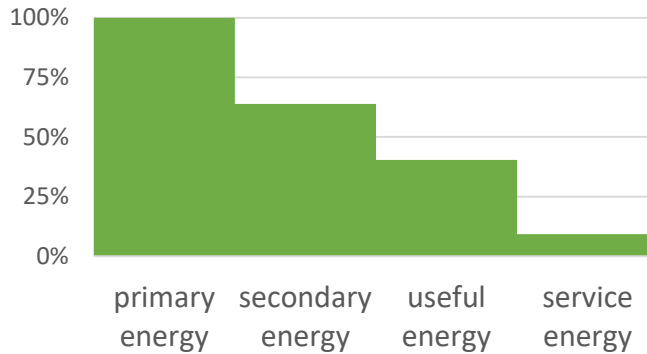
A-Industry Energy



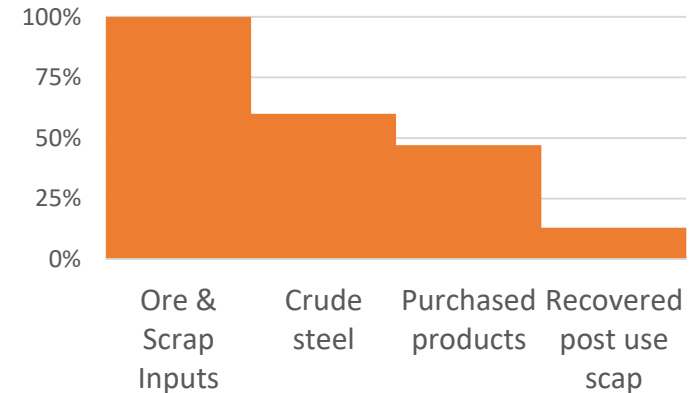
D-TOTAL Energy



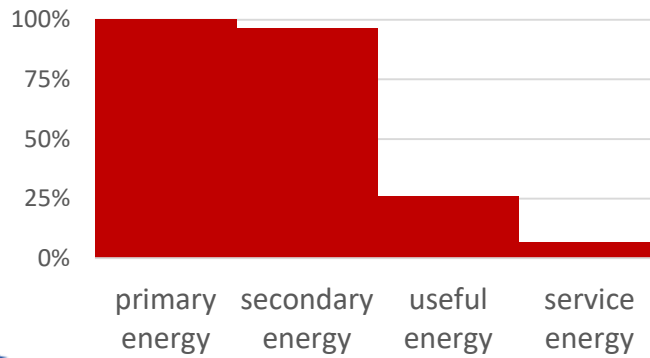
B-Building Energy



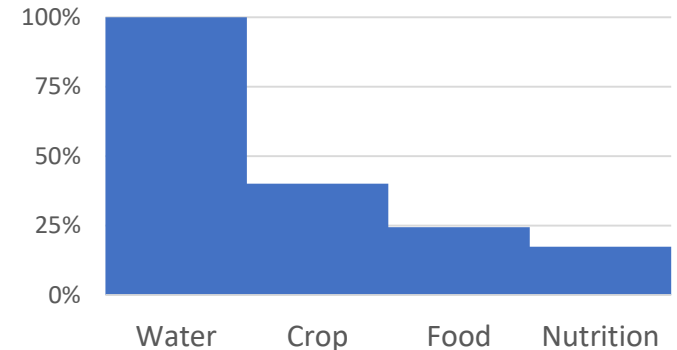
E-Materials: Example Steel



C-Transport Energy



F-Irrigation Water



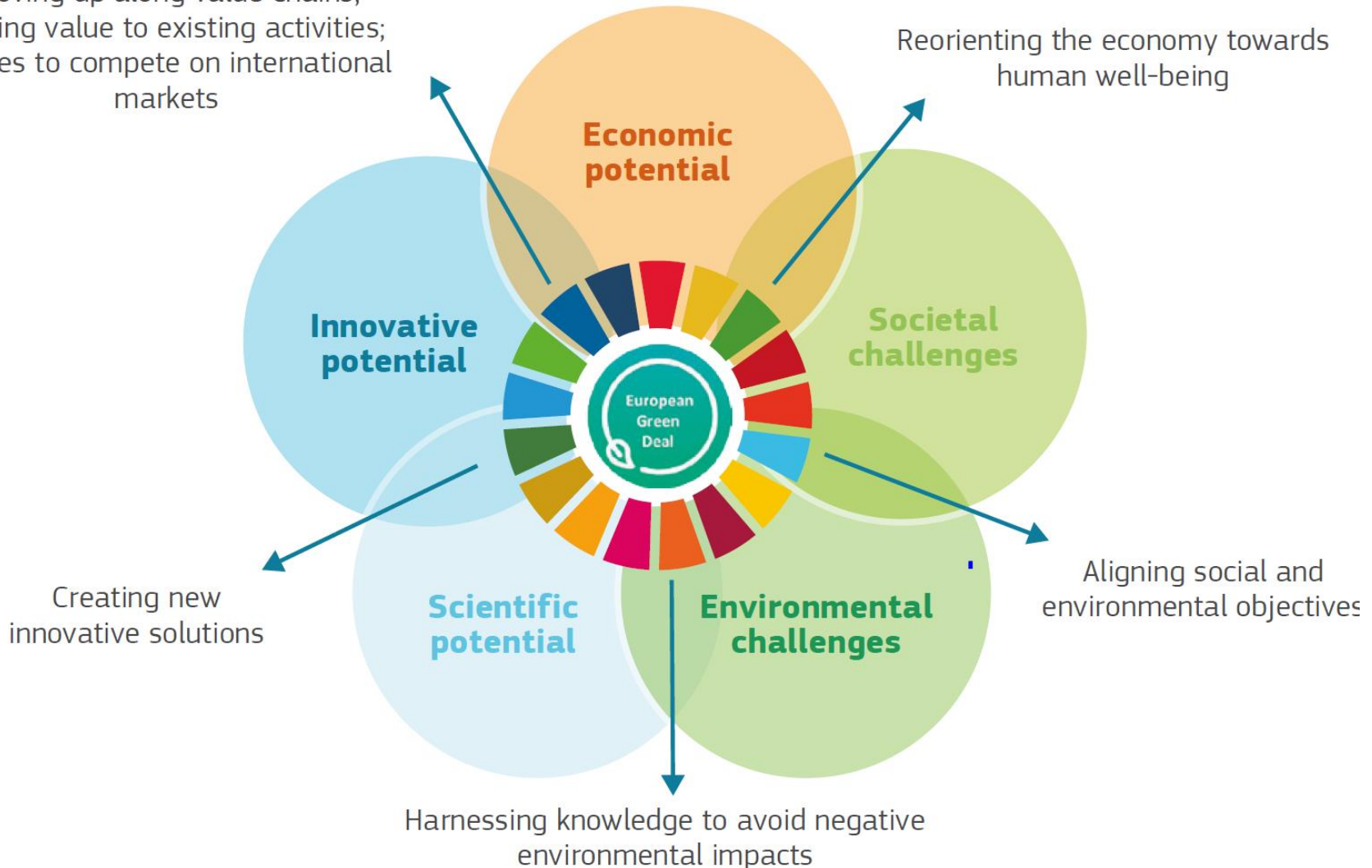
Graphic courtesy of Arnulf Grubler and Benigna Boza-Kiss, cf. TWI2050 (2018), Figure 2.24.



# Mainstreaming Sustainable Development & Smart Specialisation

Moving up along value chains;  
Adding value to existing activities;  
Niches to compete on international  
markets

Reorienting the economy towards  
human well-being

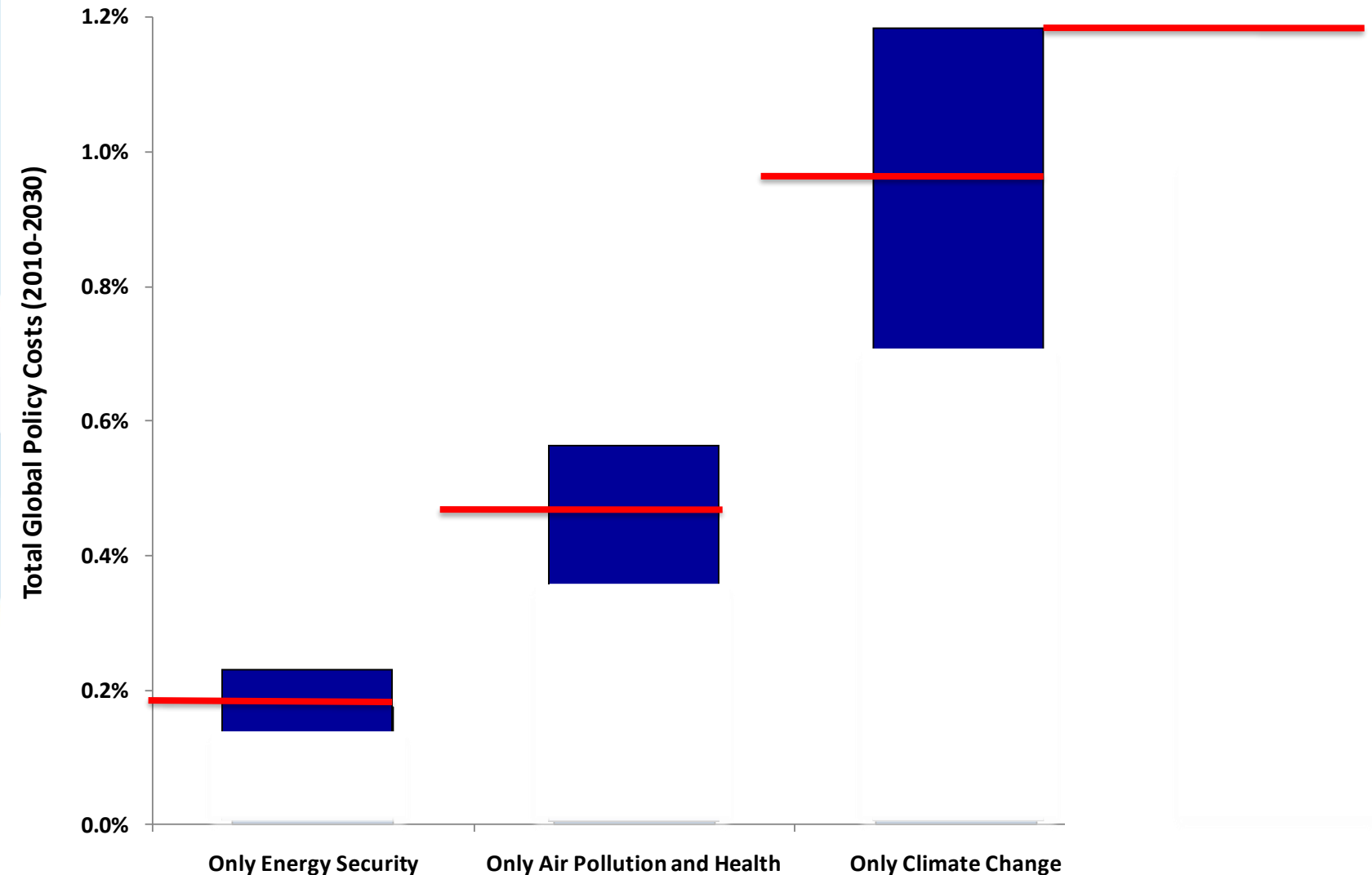


# The future of Smart Specialisation...



**Thank you for your time.**

# Multiple Benefits of Integrated Policies





# Basic needs, Decent living & Sufficiency

