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Former Deputy Director General

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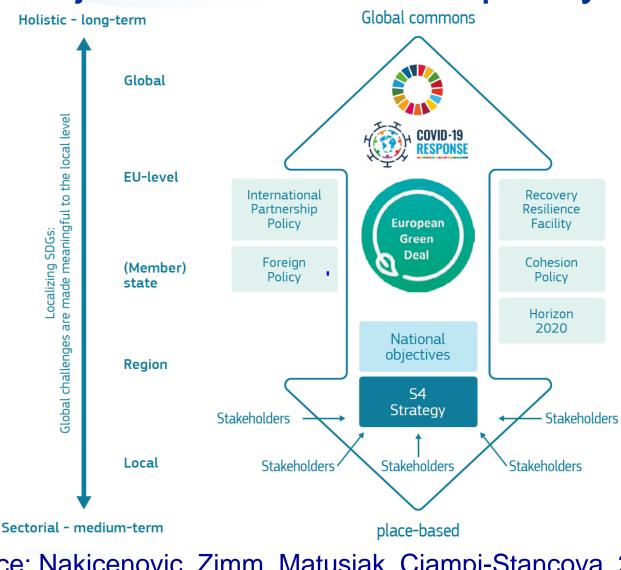
International Institute for Applied Systems Analysis www.iiasa.ac.at

> European Commission

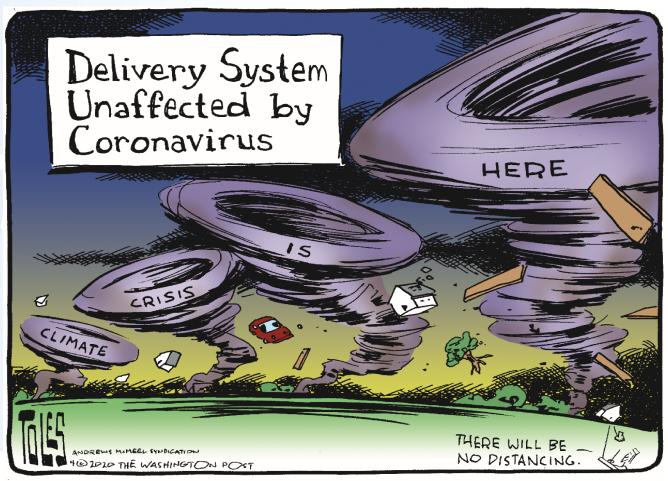
Smart Specialisation for Sustainable Development Goals e-talks webinar series



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



Source: Nakicenovic, Zimm, Matusiak, Ciampi-Stancova, 2021 The World in 2050 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

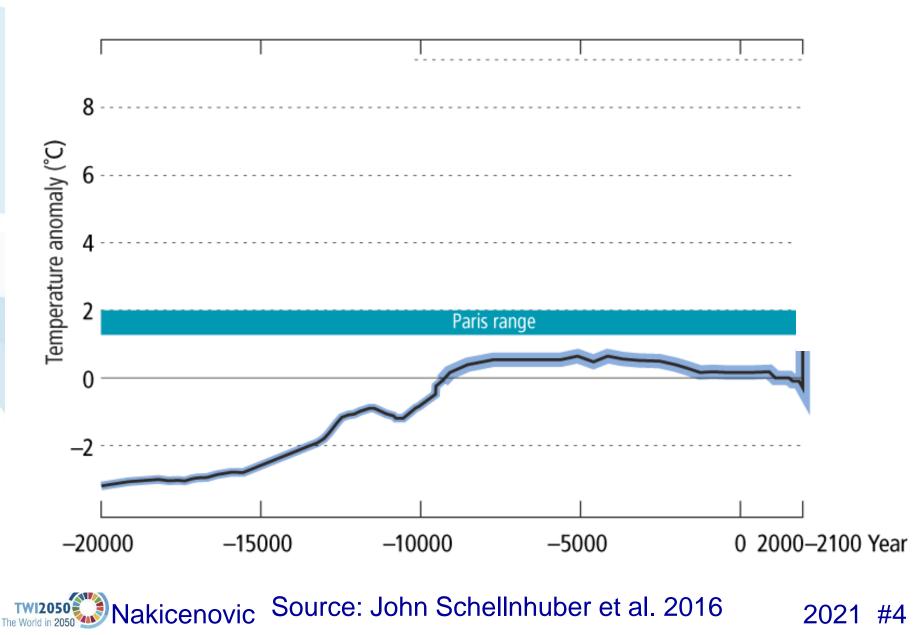


Source: TOLES © The Washington Post. Reprinted with permission of ANDREWS MCMEEL SYNDICATION. All rights reserved.

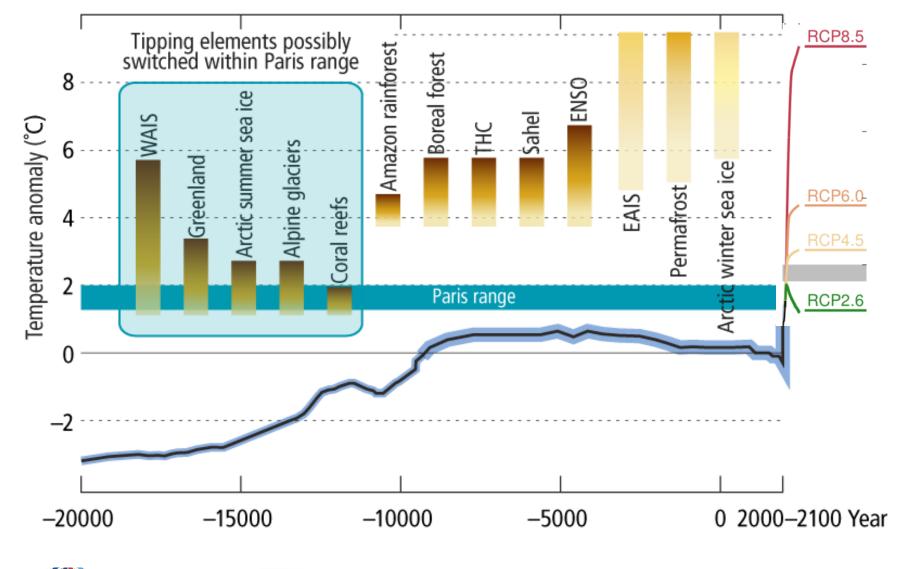
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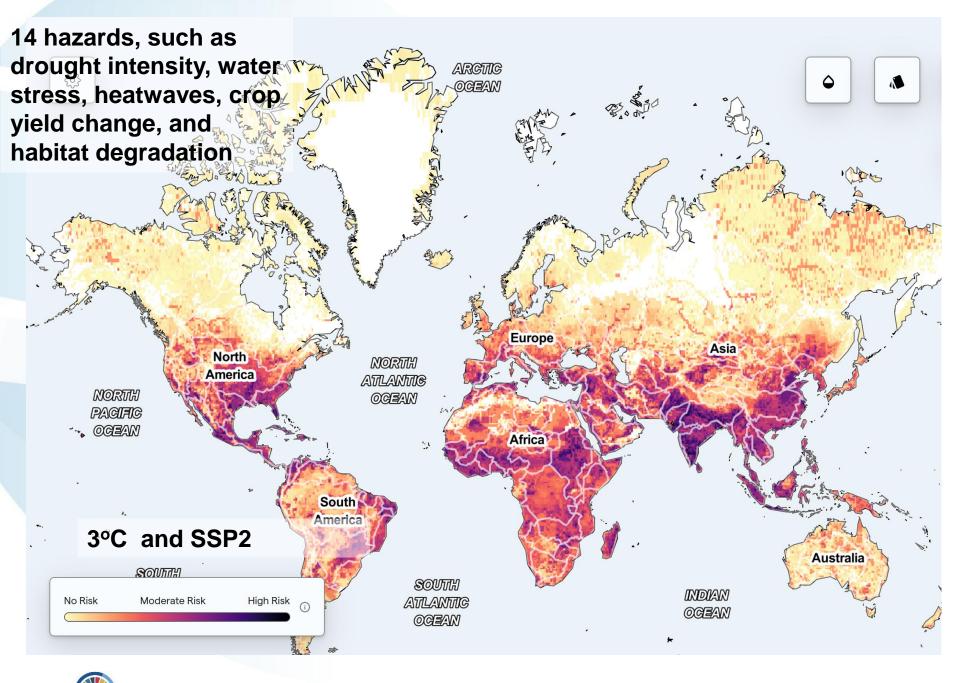
Holocene, Paris & Tipping Elements



Holocene, Paris & Tipping Elements

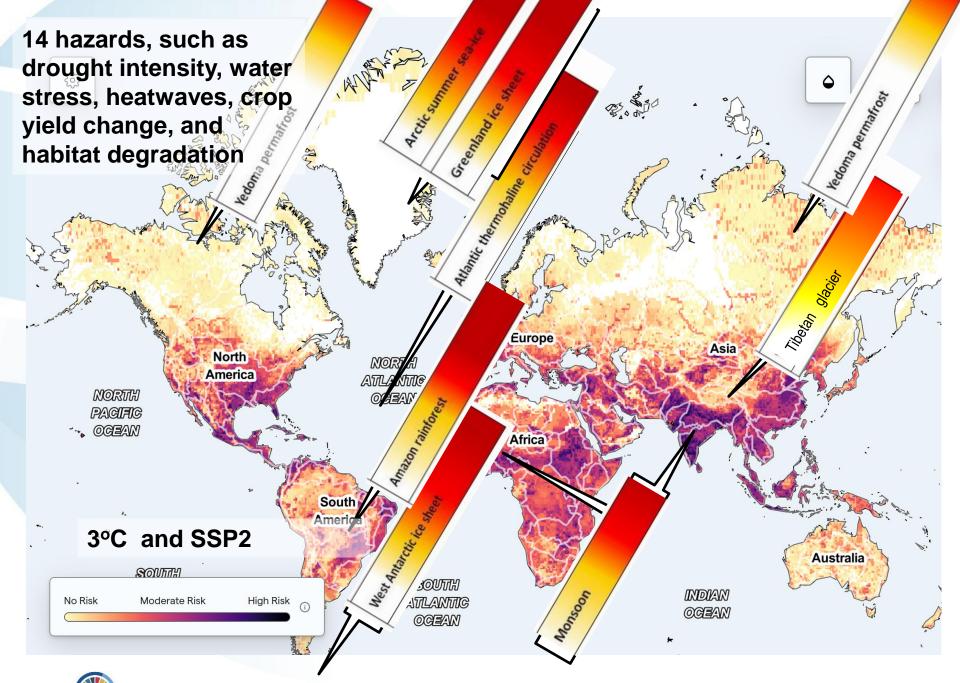


Wild in 2050 Nakicenovic Source: John Schellnhuber et al. 2016 2021



Nakicenovic IIASA https://hotspots-explorer.org

The World in 2050



Nakicenovic IIASA https://hotspots-explorer.org

in 2050

SUSTAINABLE DEVELOPMENT GOALS AFSKAF 2 RESPONSIBLE CONSUMPTION SUSTAINABLE DEVELOPMENT GOALS 13 CLIMATE ACTION 14 LIFE BELOW WATER 15 LIFE ON LAND 00 16 PEACE, JUSTICE AND STRONG INSTITUTIONS KVALITETS-UDDANNELSE 3 GOOD HEALTH 15 LIVET PALAND 111 QUALITY 5 GENDER EQUALITY -w/ 6 CLEAN WATER AND SANITATION q Ų Ø 3 SUNDHED OG TRIVSEL UN DESA and UNFCCC conference on synergies between the SDGs and the Paris Agreement - 1-3 April 2019 Copenhagen.

Į 14 BELOW WATER 13 CLIMATE ACTION 12 RESPONSIBLE CONSUMPTION AND PRODUCTION Eve Ω • QUALITY EDUCATION **3** GOOD HEALTH AND WELL-BEING 4 SUSTAINABLE GOALS **9** INDUSTRY, INNOVATION AND INFRASTRUCTURE 10 RED /ation .tur 13 KLIMA-INDSATS 13 KLIMA-INDSATS 17 PAR FOR B -STILLING MELLEM KØNNENE **10** MINDRE ULIGHED 8 DECENT WORK Ĩ \mathfrak{D} ARLIGT NSINONOSO B SBOOR STRINGE TO B ATON PARTNERSKABER FOR HANDLING

9 NORSTRAM

6 CLEAN WATER AND SANITATION

5 GENDER EQUALITY

4 QUALITY EDUCATION

11 SUSTAINABLE CITIE AND COMMUNITIES

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

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SUSTAINABLE DEVELOPMENT GOALS

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6 CLEAN WATER AND SANITATION

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SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH

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5 GENDER EQUALITY

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Six Major Transformations (TWI2050.org)

Digital Revolution

Smart Cities & Mobility

SDGs: Prosperity Social Inclusion Sustainability

COVID-19

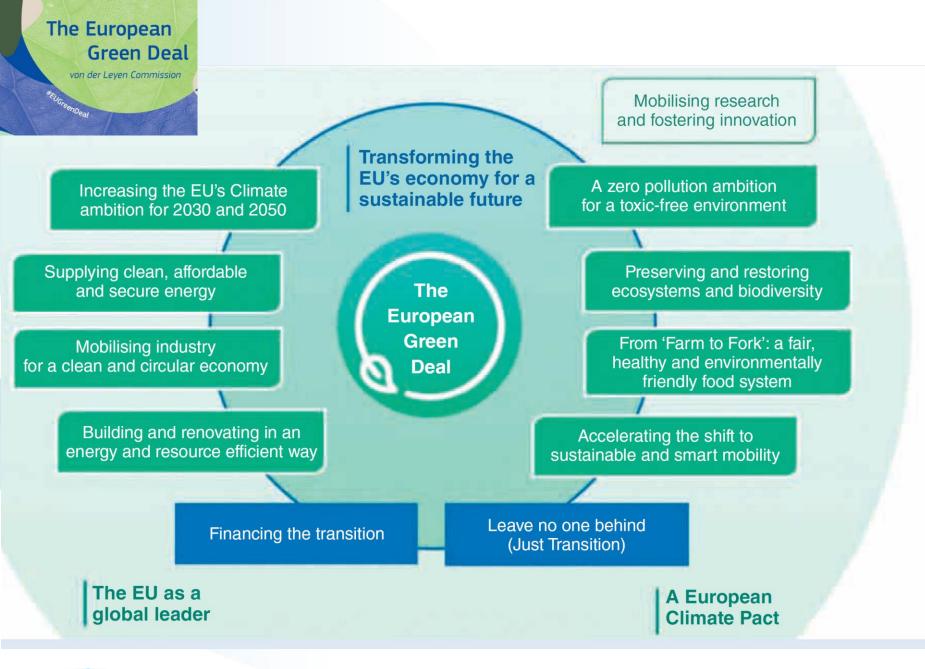
Human capacity Demography & Health

Consumption & Production

Food, Biosphere & Water



Decarbonization & Energy



The World in 2050 Nakicenovic

European Council adopts Just Transition Fund and Fit for 55 Package

09 July 2021

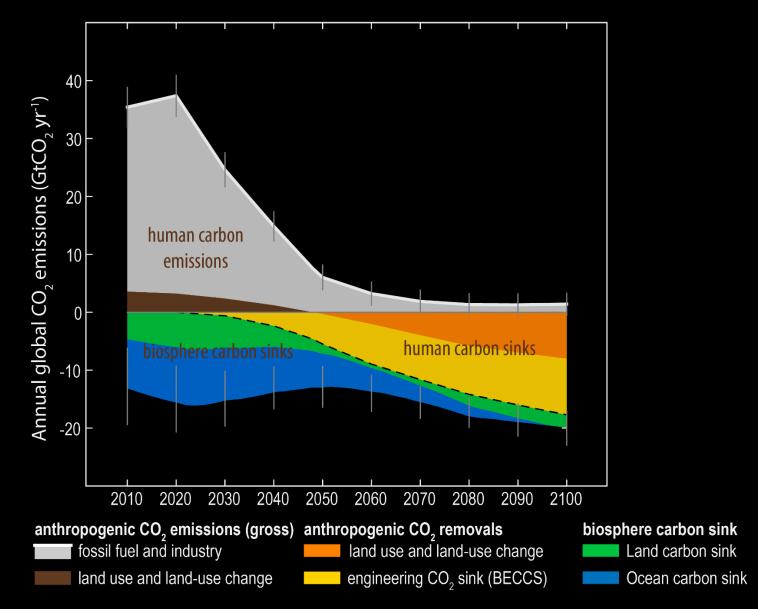
A broad legislative package to align existing EU policy with the new emissions reduction goal of 55% by 2030.

The World in 2050 Nakicenovic

Source:

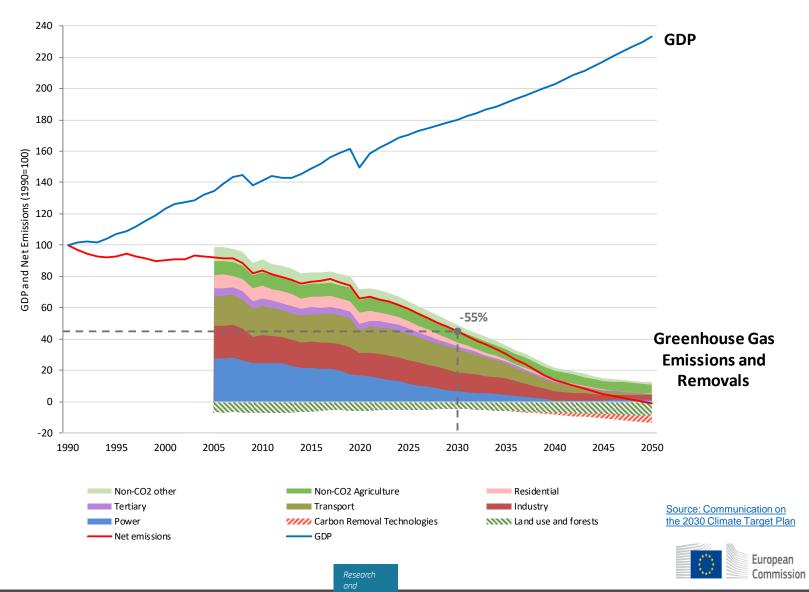


"Carbon Law"



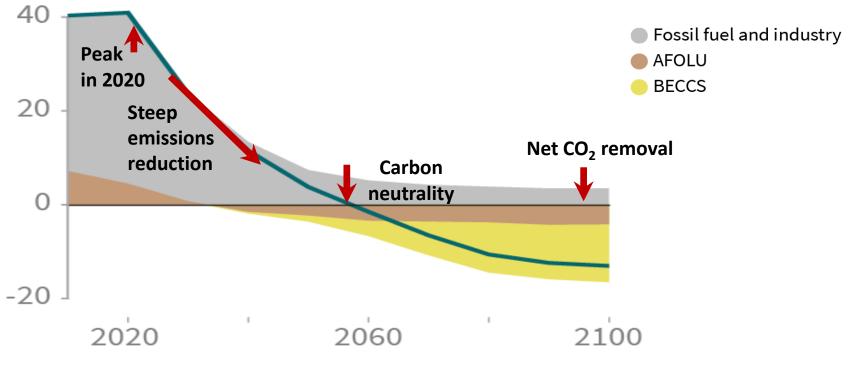
Rockström, Gaffney, Rogelj, Meinshausen, Nakicenovic, Schellnhuber. Science 24 March 2017

EU pathway to prosperity & climate neutrality Fit for 55 package under EGD



Sequence of Systems Transition

Billion tonnes CO₂ per year (GtCO2/yr)

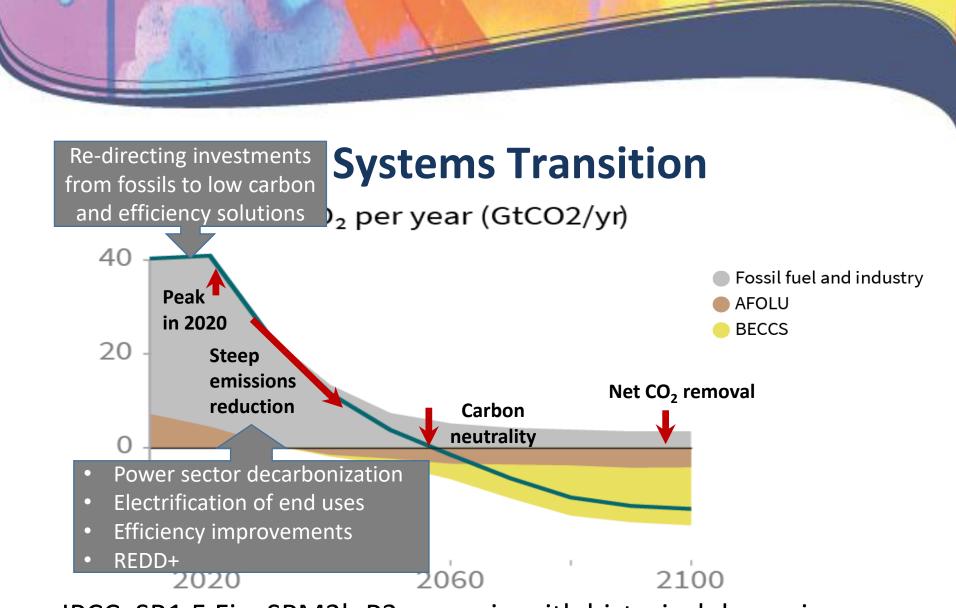


IPCC, SR1.5 Fig. SPM3b P3 scenario with historical dynamics.

Source: IPCC 1.5SR, 2019 and Kriegler, 2019



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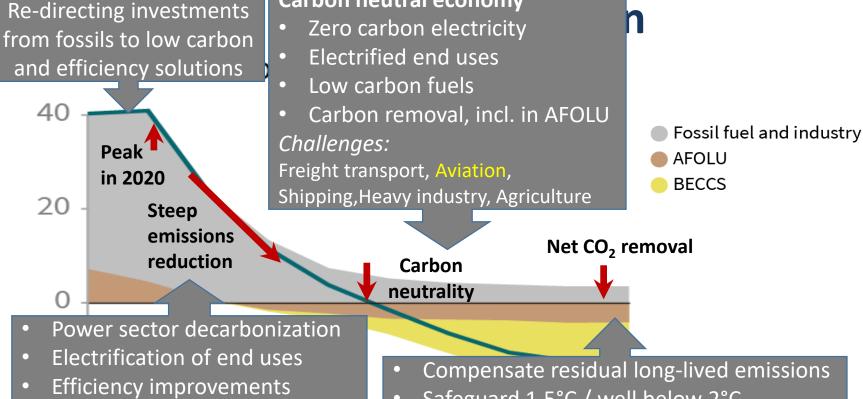


IPCC, SR1.5 Fig. SPM3b P3 scenario with historical dynamics.

Source: IPCC 1.5SR, 2019 and Kriegler, 2019

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- Safeguard 1.5°C / well below 2°C
- temperature limit

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

Source: IPCC 1.5SR, 2019 and Kriegler, 2019

REDD+

2020

TAL PANEL ON CLIMATE CHARGE



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:

Vakicenovic

- "Horizontal" support of all sectors and domains
- "Central planning" by decision makers (public or private)

Source: After Foray, 2012

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

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Source: OECD 2016, IEA 2015

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

G: Scientific and Educational Organization develops knowledge and understanding

F: Individuals, households, civil society and youth groups, and indigenous peoples and local communities) put theory into practice A: Governments at all levels hold a leading role

 Address Earth's environmental emergencies and human well-being together
Transform economic and financial systems so they lead and power the shift toward sustainability
Transform food, water and energy systems to meet growing human needs in an equitable, resilient and environmentally friendly manner B: Intergovernmental Organizations facilitate joint efforts

C: Financial Organizations direct investments

D: Private sector innovates and implements

E: Non-Governmental Organizations (NGOs) conceive ideas and raise awareness

*** * * ** Norwegian Ministry of Climate and Environment Making Peace with Nature



Transformational Change













1900





1950





2000









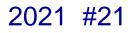












Source: After Granger Morgan, 2013

Transformational Change



1850











1900





1950





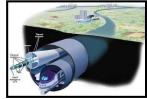


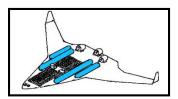


























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THANK YOU



www.TWI2050.org SAM





European Commission



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

9 November 2021 eTalk



- **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.

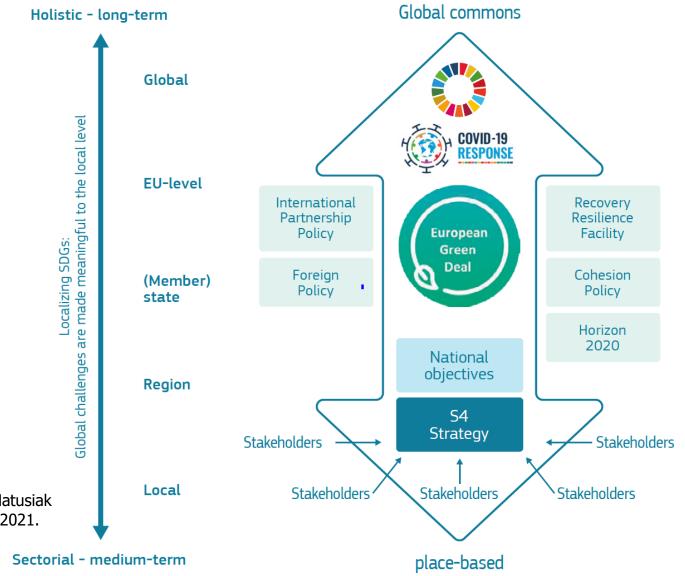




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A broader and directed narrative for change



Nakicenovic, Zimm, Matusiak and Ciampi Stancova 2021.



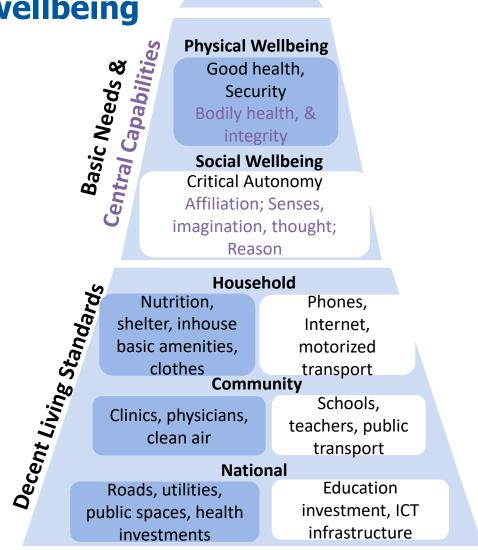
Advancing policy coherence

- 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 resourceintensive lifestyles.



Human

Wellbeing

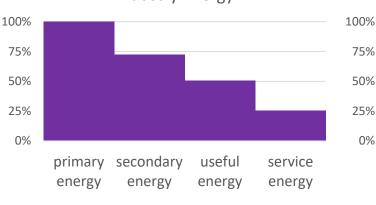
Adapted from Rao and Min 2018.

Needs and demand perspective A-Industry Energy

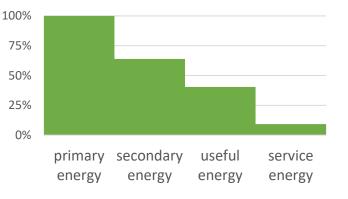
Reduction of environmental impacts at all levels by harnessing synergies.

Efficiency cascades of resource use.

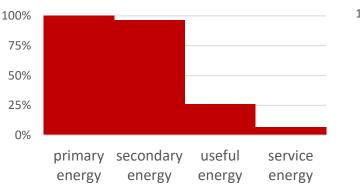
Graphic courtesy of Arnulf Grubler and Benigna Boza-Kiss, cf. TWI2050 (2018), Figure 2.24.

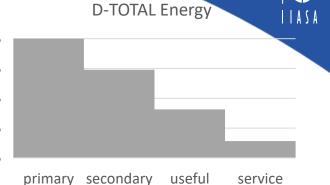


B-Building Energy



C-Transport Energy





energy energy energy energy

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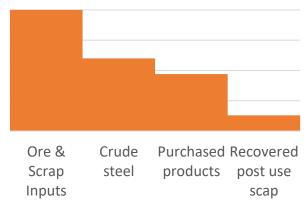
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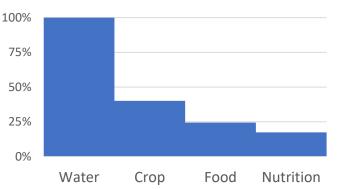
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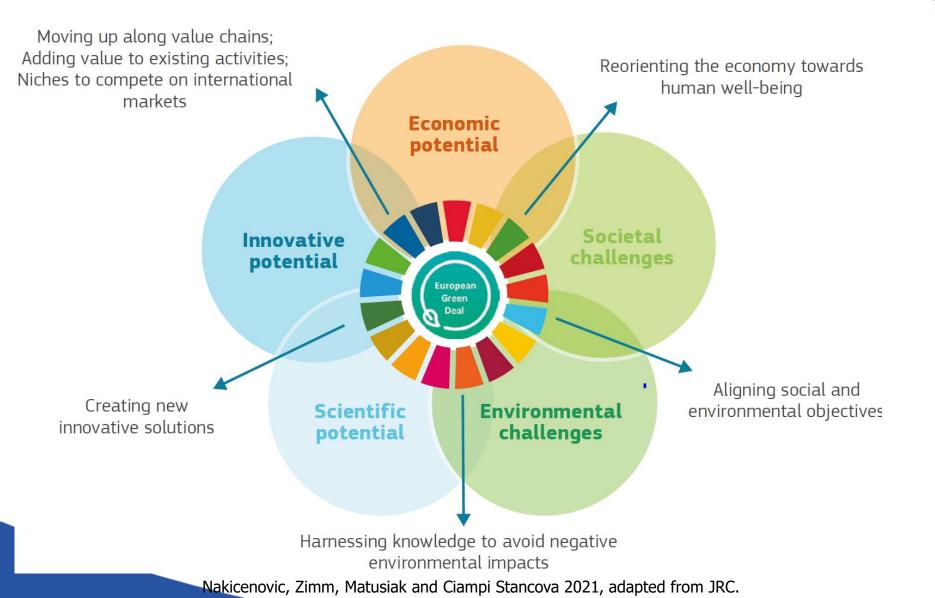
E-Materials: Example Steel



F-Irrigation Water



Mainstreaming Sustainable Development & Smart Specialisation



I A S A



The future of Smart Specialisation...

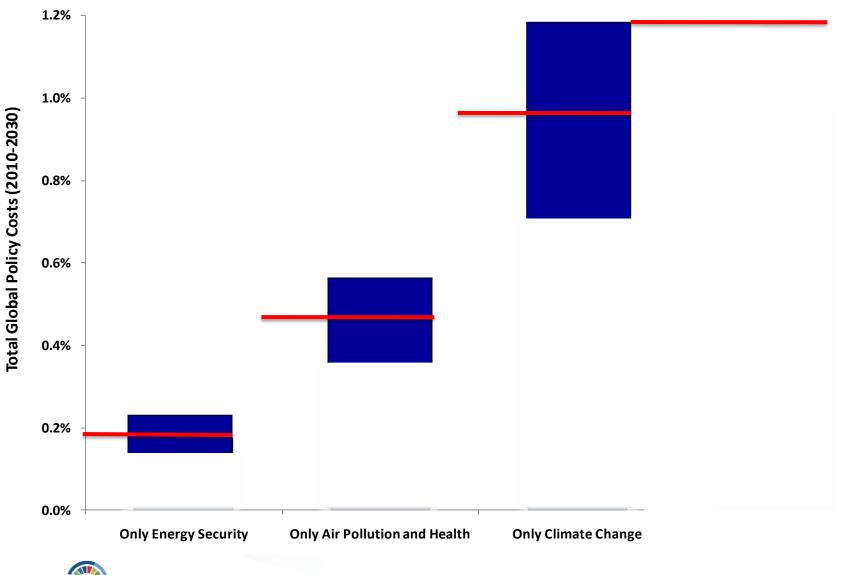


Nakicenovic, Zimm, Matusiak and Ciampi Stancova 2021.



Thank you for your time.

Multiple Benefits of Integrated Policies



TWI2050 Nakicenovic Source: McCollum et. al, 2012; IPCC, 2014 2021 #34

Basic needs, Decent living & Sufficiency

