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Climate & SDGs Synergies: Transformative Pathways Towards Sustainability

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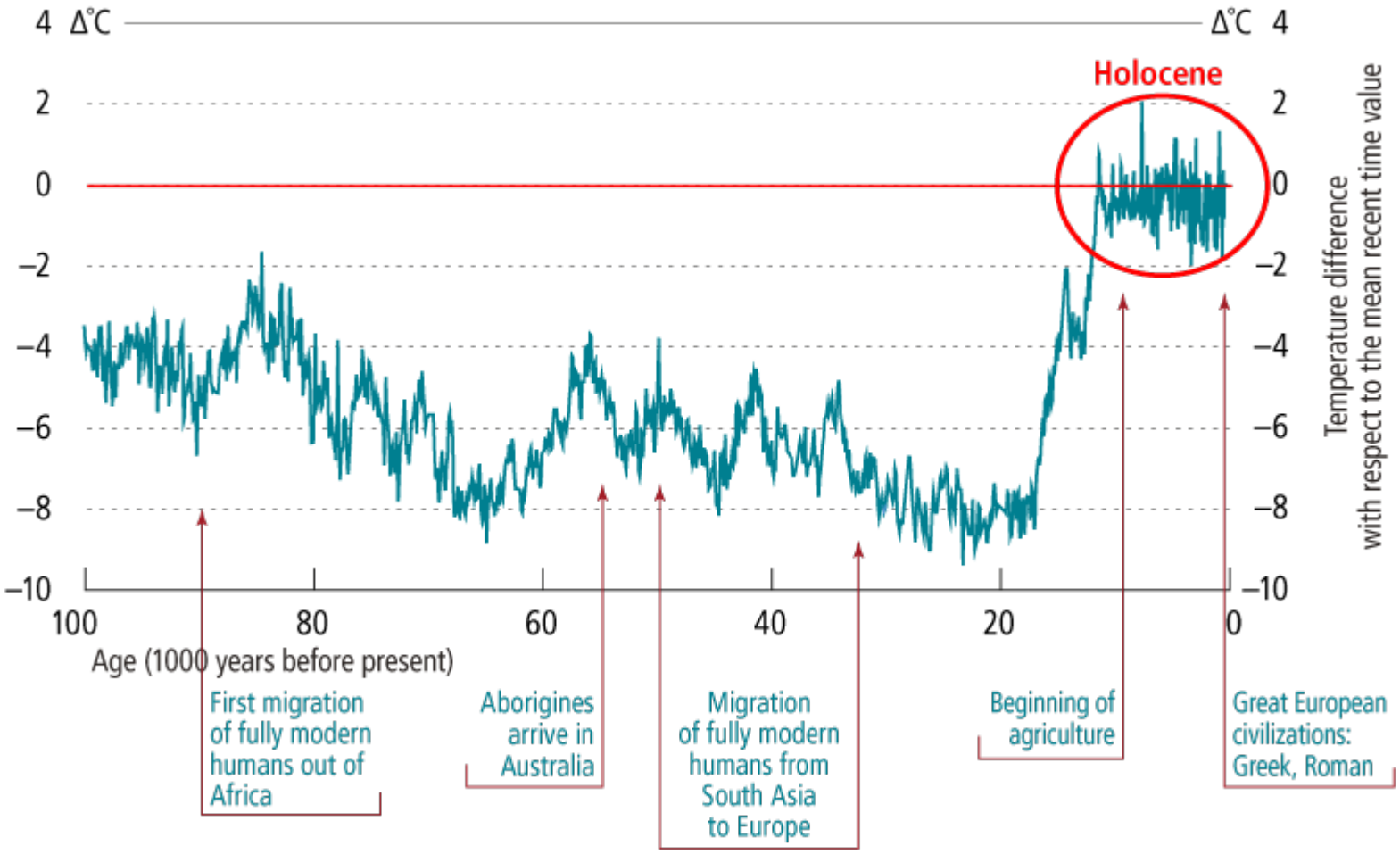
SDGs:
Prosperity
Social Inclusion
Sustainability

TWI2050
The World in 2050
www.twi2050.org

Climate & SDGs: Synergy Conference, UN City
Copenhagen, Denmark – 1-3 April 2019

100,000-year ice-core record

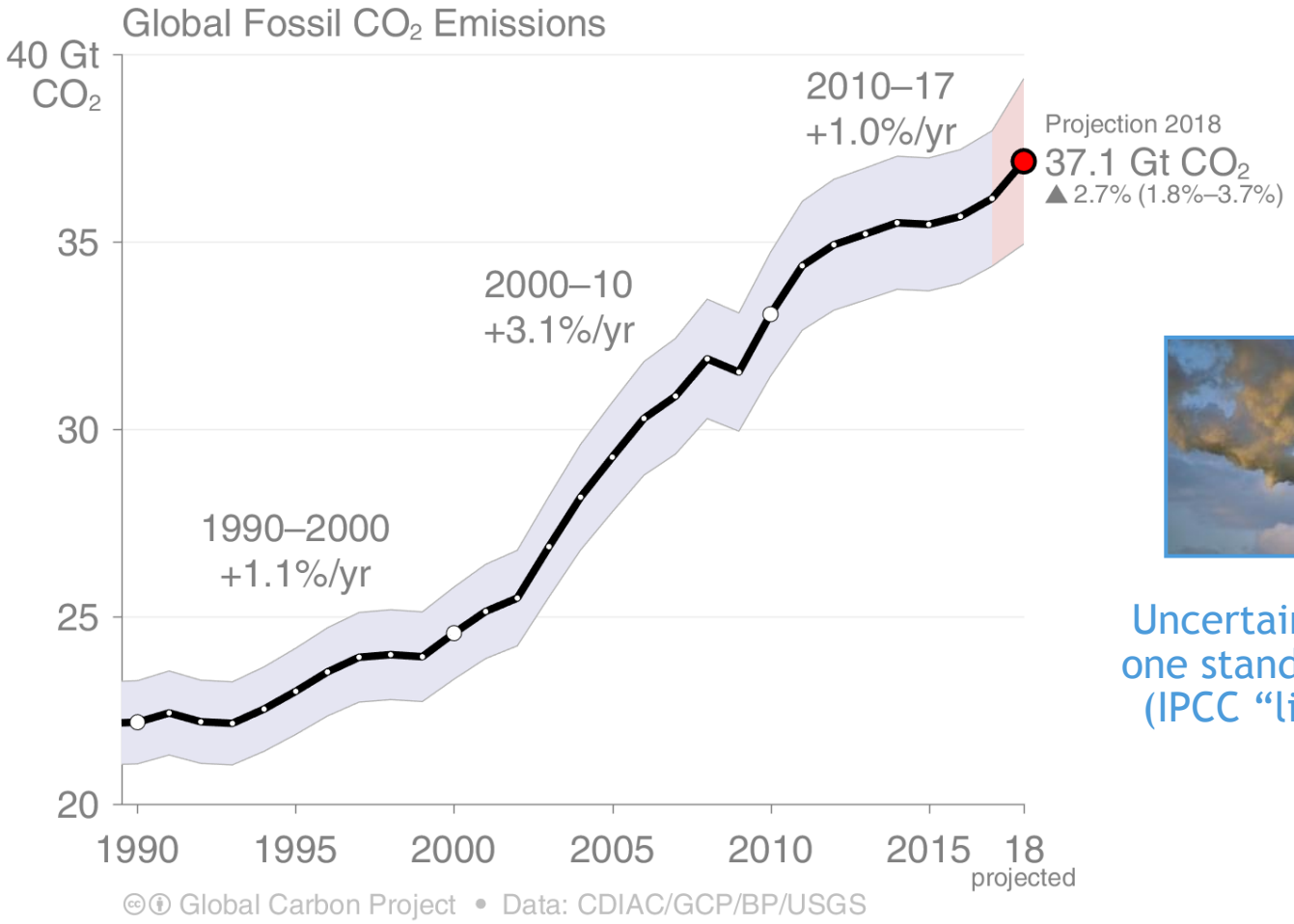


Source: Data from Petit et al. 1999, labeled as in Young and Steffen 2009.

Global Fossil CO_2 Emissions

Global fossil CO_2 emissions: 36.2 ± 2 $GtCO_2$ in 2017, 63% over 1990

Projection for 2018: 37.1 ± 2 $GtCO_2$, 2.7% higher than 2017 (range 1.8% to 3.7%)

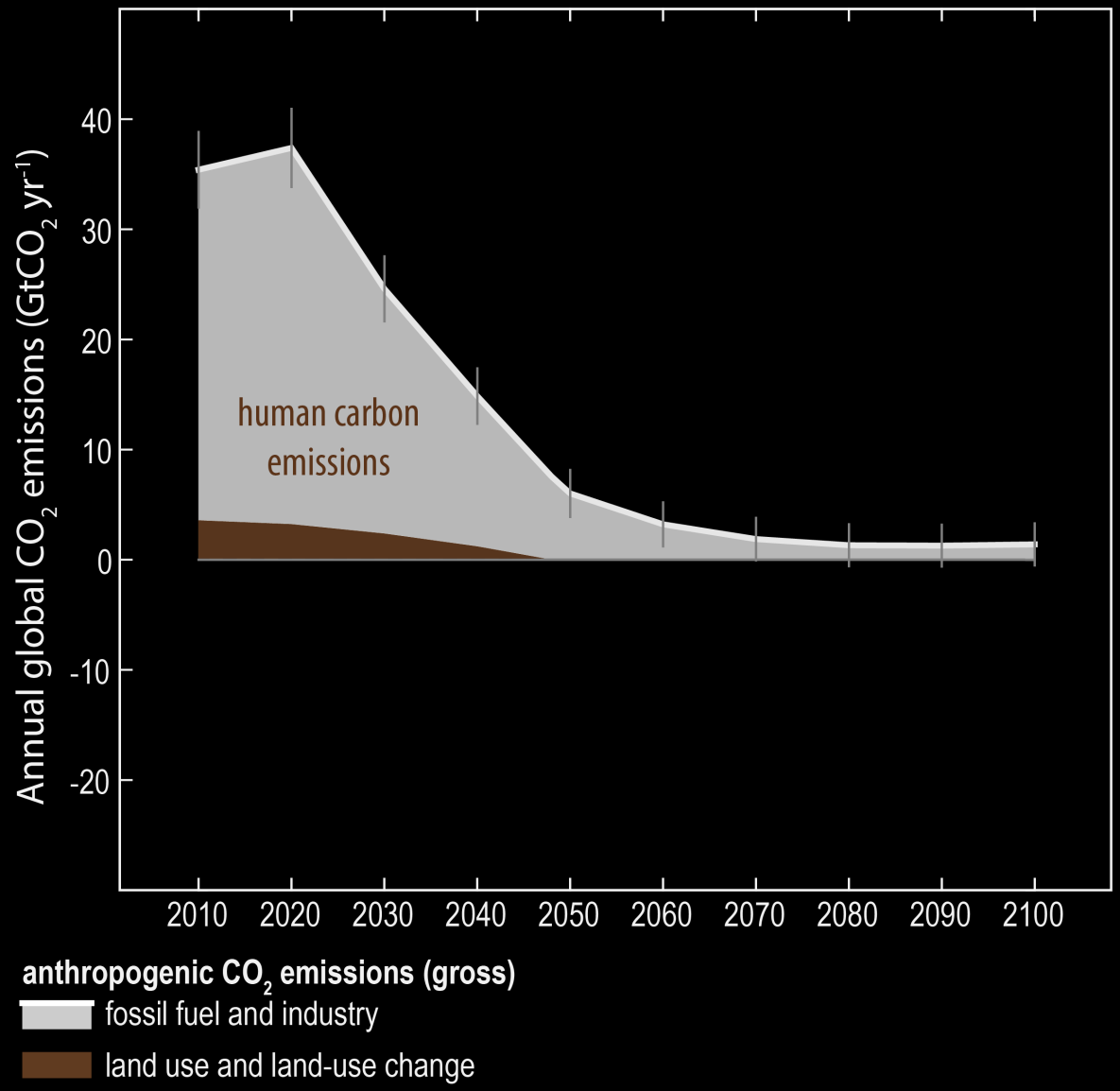


Uncertainty is ±5% for one standard deviation (IPCC "likely" range)

Estimates for 2015, 2016 and 2017 are preliminary; 2018 is a projection based on partial data.

Source: CDIAC; Le Quéré et al 2018; Global Carbon Budget 2018

“Carbon Law”



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

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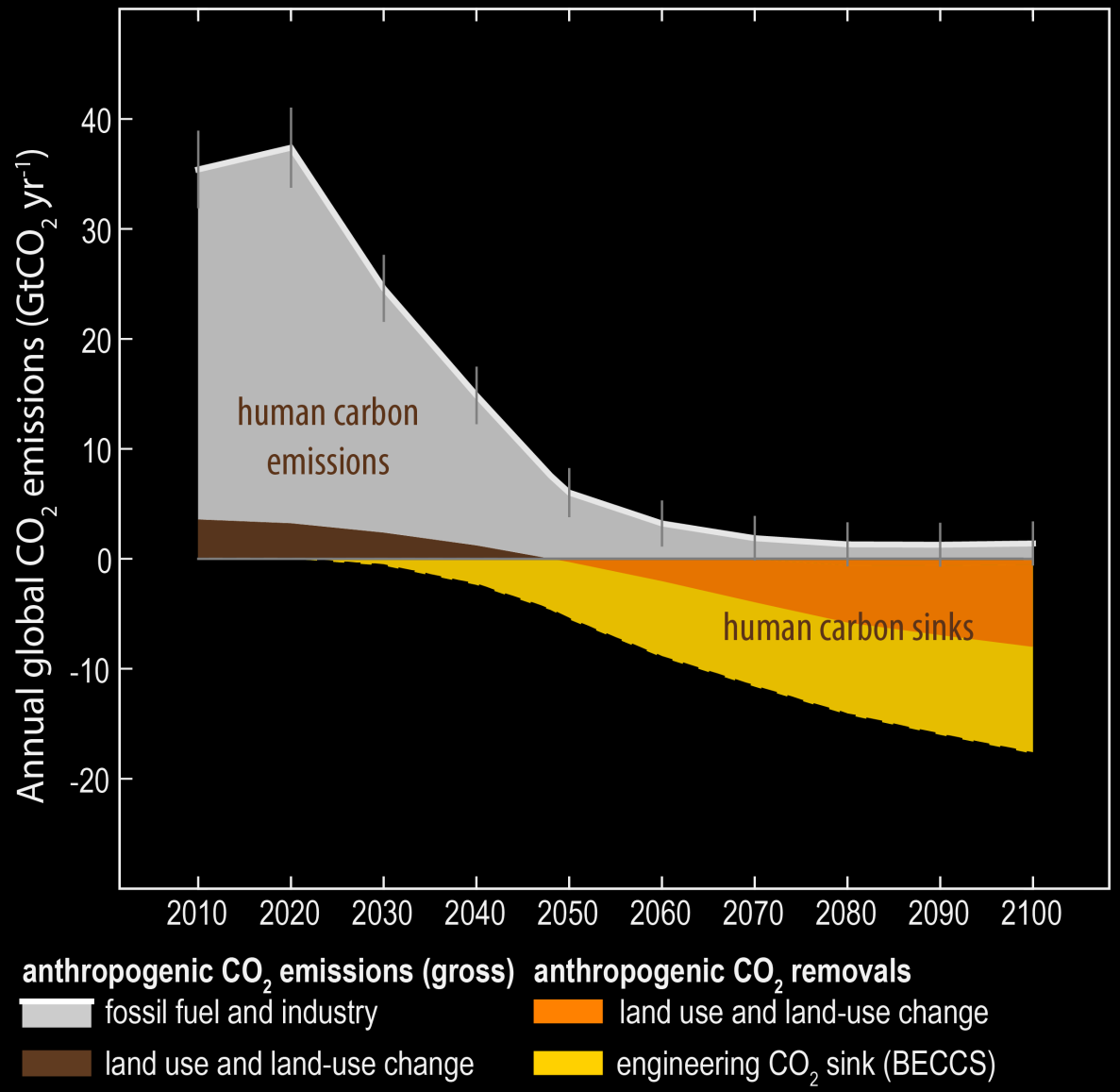

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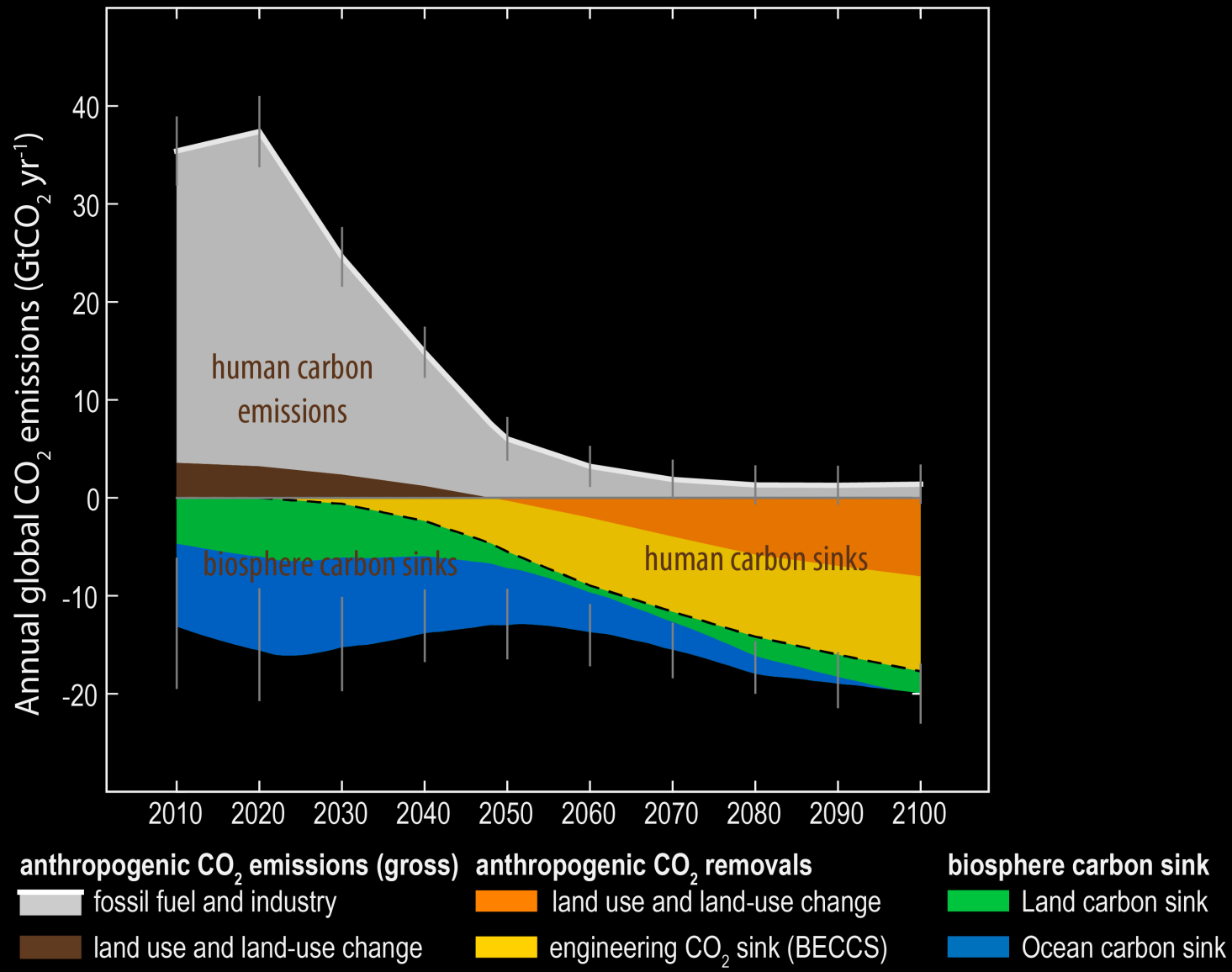

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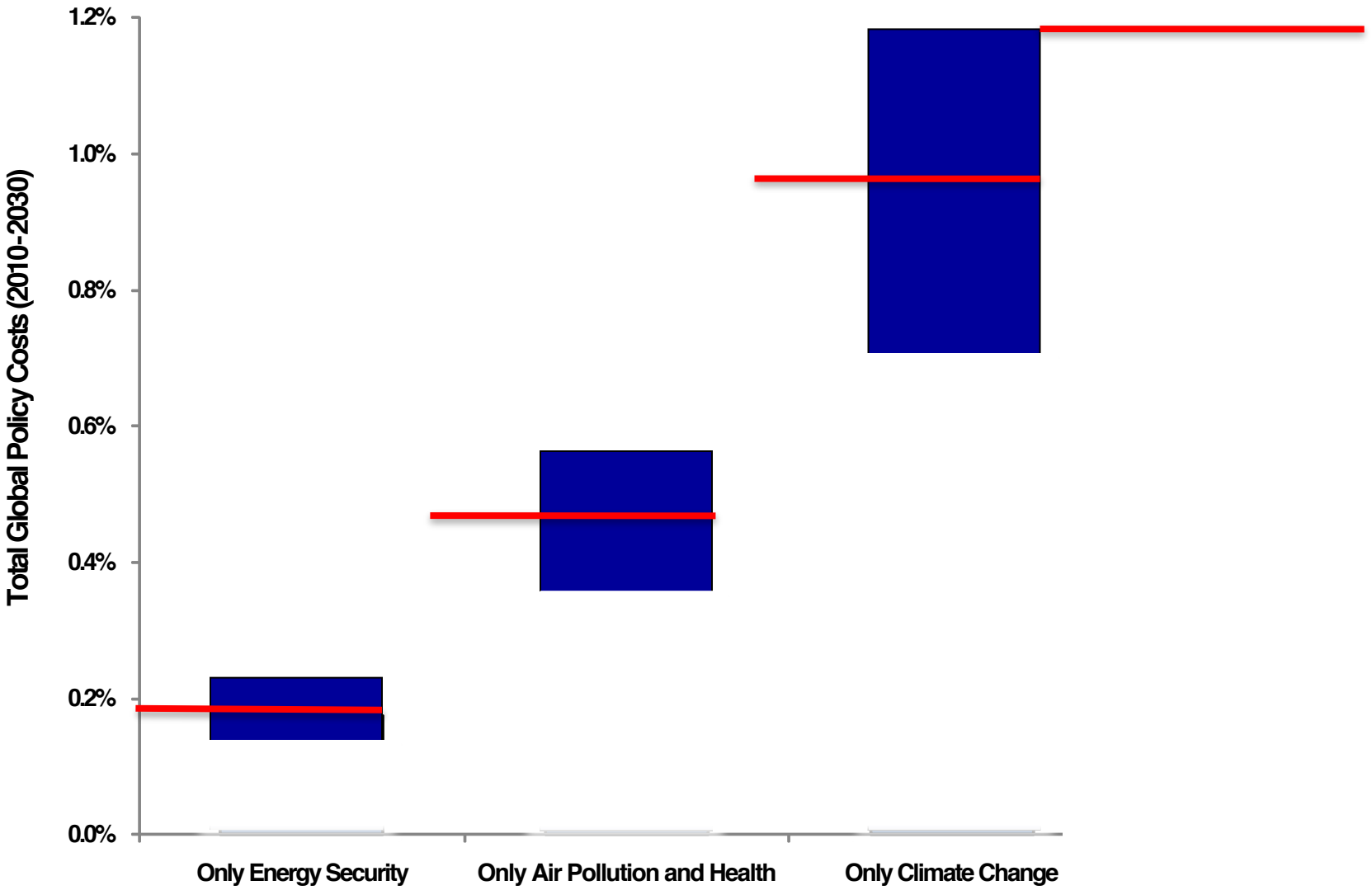
Greenhouse gas emissions pathways

SDGs:
Prosperity
Social Inclusion
Sustainability

- To limit warming to 1.5°C, CO_2 emissions fall by about 45% by 2030 (from 2010 levels)
- To limit warming to 1.5°C, CO2 emissions would need to reach 'net zero' around 2050
- Reducing non-CO2 emissions would have direct and immediate health benefits


SUSTAINABLE DEVELOPMENT GOALS
1 FIN DE LA POBREZA
2 HAMBRE CERO
3 SALUD Y BIENESTAR
4 EDUCACIÓN DE CALIDAD
5 IGUALDAD DE GÉNERO
6 AGUA LIMPIA Y SANEAMIENTO
7 ENERGÍA ASEQUIBLE Y NO CONTAMINANTE
8 TRABAJO DECENTE Y CRECIMIENTO ECONÓMICO
9 INDUSTRIA, INNOVACIÓN E INFRAESTRUCTURA
10 REDUCCIÓN DE LAS DESIGUALDADES
11 CIUDADES Y COMUNIDADES SOSTENIBLES
12 PRODUCCIÓN Y CONSUMO RESPONSABLES
13 ACCIÓN POR EL CLIMA
14 VIDA SUBMARINA
15 VIDA DE ECOSISTEMAS TERRESTRES
16 PAZ, JUSTICIA E INSTITUCIONES SÓLIDAS
17 ALIANZAS PARA LOGRAR LOS OBJETIVOS
OBJETIVOS DE DESARROLLO SOSTENIBLE

Multiple Benefits of Integrated Policies



Source: McCollum et. al, 2012; IPCC, 2014

Interactions between SDG 7 & other SDGs

Sustainable Development Goals

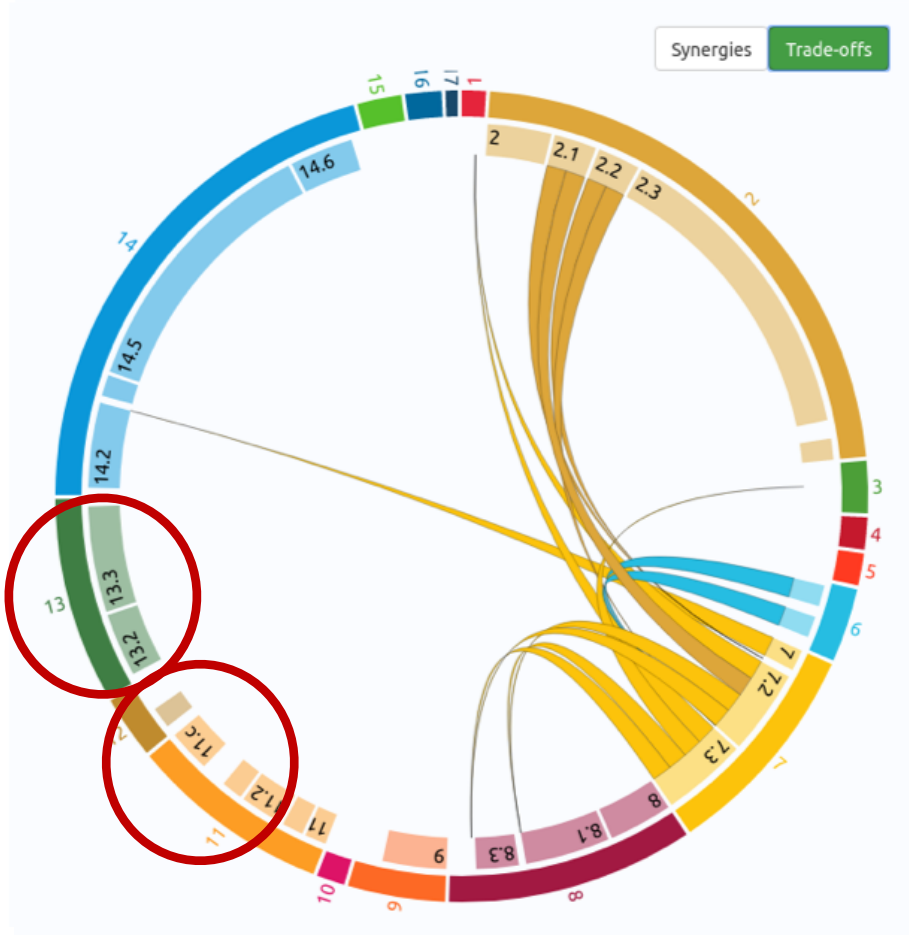
1 – No Poverty
2 – Zero Hunger
3 – Good Health and Well-being
4 – Quality Education
5 – Gender Equality
6 – Clean Water and Sanitation
7 – Affordable and Clean Energy
8 – Decent Work and Economic Growth
9 – Industry, Innovation and Infrastructure
10 – Reduced Inequalities
11 – Sustainable Cities and Communities
12 – Responsible Consumption and Production
13 – Climate Action
14 – Life below Water
15 – Life on Land
16 – Peace, Justice and Strong Institutions
17 – Partnerships for the Goals

Interlinkages among the SDGs

Using knowledge on interlinkages to **exploit synergies and minimize trade-offs** in the policy process can contribute to overall policy coherence

- Survey of existing publications
- A tool to visualize the cumulated interlinkages from a set of publications
- Meta analysis of the main studies on interlinkages

interlinkages among Goals and targets



Source: Miola, 2019

European Commission

TWI2050 Report (www.TWI2050.org)

Key Messages

Synthesis

1. Framing and Introduction
2. The Challenges Ahead
3. Sustainable Development Pathways
4. Governing the Transformation

➢ >60 authors from ~20 organizations

➢ >150 contributors and participants

TWI2050 Writing Meeting
5-7 March 2018, IIASA

Six Major Transformations (TWI2050.org)

Digital revolution
Artificial intelligence, big data, biotech, nanotech, autonomous systems

Human capacity & demography
Education, health, ageing, labor markets, gender, inequalities

Smart cities
Decent housing, mobility, sustainable infrastructure, pollution

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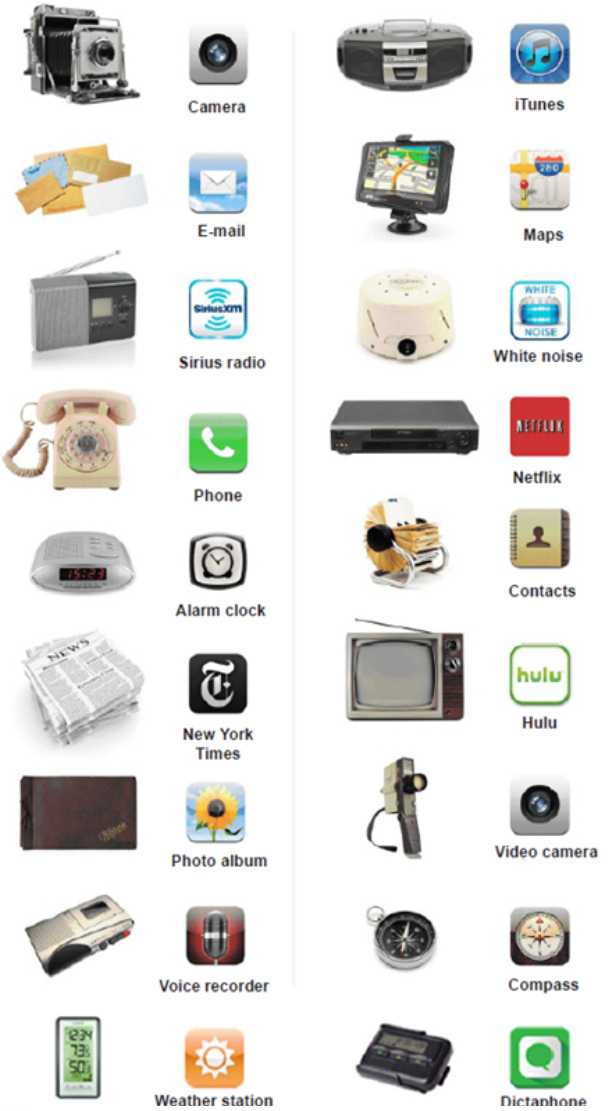
Consumption & production
Resource use, circular economy, sufficiency, pollution

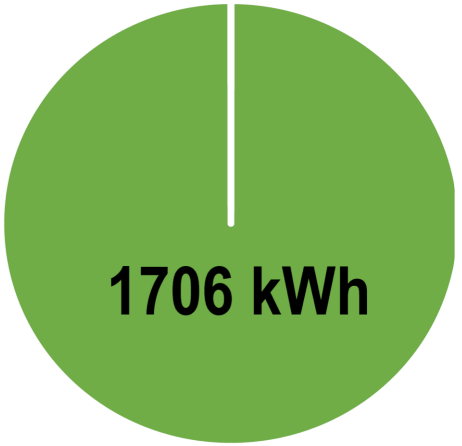
Food, biosphere & water
Sustainable intensification, biodiversity, forests, oceans, healthy diets, nutrients

Decarbonization & energy
Energy access, efficiency, electrification, decent services

Impact of IC Technology Convergence

Uticaj konvergencije informacijskih i komunikacijskih tehnologija





Embodied energy

Weight

Source: Grubler et al., 2018

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THANK YOU

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