MUNI

Green Transition from International and European Perspective

Course Structure and Syllabus

Lecturers

- **doc. Mgr. Filip Černoch, Ph.D.** - Associate Professor, Department of International Relations and European Studies, Masaryk University, https://www.muni.cz/en/people/65444-filip-cernoch

- **Dr. Aleksandra Novikova - Rodi** - Environmental Economist, Lead author of the 4th (2007) and the 6th (2022) Assessment Reports of the Intergovernmental Panel on Climate Change, Senior advisor to the World Bank, UNDP, the EU, EBRD, Former research scholar in Lawrence Berkeley National Laboratory, University of California, https://www.linkedin.com/in/aleksandra-novikova-82b2281

- **Oldřich Sklenář** - Research Fellow of Association for International Affairs, consultant to the Facts on Climate Change project https://www.linkedin.com/in/oldrichsklenar/

- **Prof. Igor Luksic** - Professor of Economics, University Dolna Gorica Montenegro, Former Prime Minister, Minister of Finance and Minister of Foreign Affairs of Montenegro, PwC Southeast Europe, ESG Business Development Leader, PILPG Senior Peace Fellow and WEF YGL 2013, board member of several private and academic institutions

- **Rastislav Vrbenský, MSc, Ph.D.** - Lecturer, Adviser and Business Developer in Sustainability, Climate and Innovation. Former UNDP Deputy Regional Director for Europe and Central Asia, UN Resident Coordinator and UNDP Resident Representative/ Country Director
  Linkedin: https://bit.ly/3eE4C9W, personal web: https://vrbensky.e

Course Structure and Syllabus

BLOCK I. - Green Transition – Origin, Drivers and Frameworks – Thursday 9 March 2023, 14:00–17:40, U32,

Lecture 1: Origin of green transition, key drivers, policies and implications in international and European context (Rastislav Vrbensky)
Lecture 2: Green Transition in European Union context/ European Green Deal (Filip Cernoch)

BLOCK II. - Innovation and Leadership/ Management Aspects of Green Transition – Friday 10 March 2023, 8:00–11:40, U32

Lecture 3: Innovation and new technologies for green transition (Oldrich Sklenar)
Lecture 4: Leadership, management and communication/ media aspects of green transition (Oldrich Sklenar)

BLOCK III. - Decarbonization & Business– Thursday, 30 March 2023, 14:00–17:40, U35,

Lecture 5: Intro: Why decarbonisation & business? (Alexandra Novikova)
Lecture 6: Corporate carbon accounting, science-based decarbonisation targets and corporate climate disclosure based on industry case studies (with group exercise) (Alexandra Novikova)

Course Structure and Syllabus

BLOCK IV. - Greening of Public and Private Finance - Friday 32 March 2023, 8:00–11:40, U35

Lecture 7: Climate Finance - Public Sector (Rastislav Vrbensky)
Lecture 8: Climate Finance - Private Sector (Alexandra Novikova)

BLOCK V. - Just Transition and Green Transition from the Perspective of Governments and Businesses - Thursday 4 May 2023, 14:00–17:40, U32,

Lecture 9: Just transition in European and international context (Filip Cernoch, Rastislav Vrbensky)
Lecture 10: Green transition from the perspective of Government and private sector (Igor Luksic)

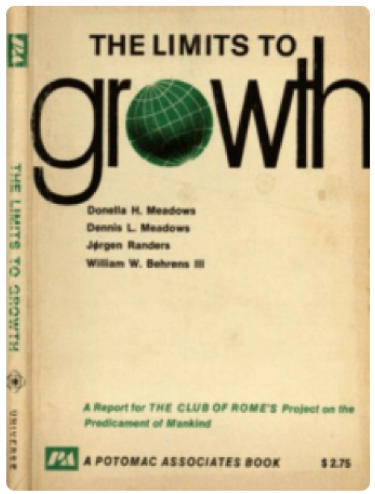
BLOCK VI. - Conference Day - - Friday 5May 2023, 8:00–11:40, U32,

Conference 1: Group presentation of research assignments/ case studies
Conference 2: Group presentation of research assignments/ case studies

Assessment – presentation + writen test

Drivers of Green Transition

The Limits to Growth



Published 1972 – The message of this book still holds today: The earth's interlocking resources – the global system of nature in which we all live – probably cannot support present rates of economic and population growth much beyond the year 2100, if that long, even with advanced technology. In the summer of 1970, an international team of researchers at the Massachusetts Institute of Technology began a study of the implications of continued worldwide growth. They examined the five basic factors that determine and, in their interactions, ultimately limit growth on this planet-population increase, agricultural production, nonrenewable resource depletion, industrial output, and pollution generation. The MIT team fed data on these five factors into a global computer model and then tested the

Overview

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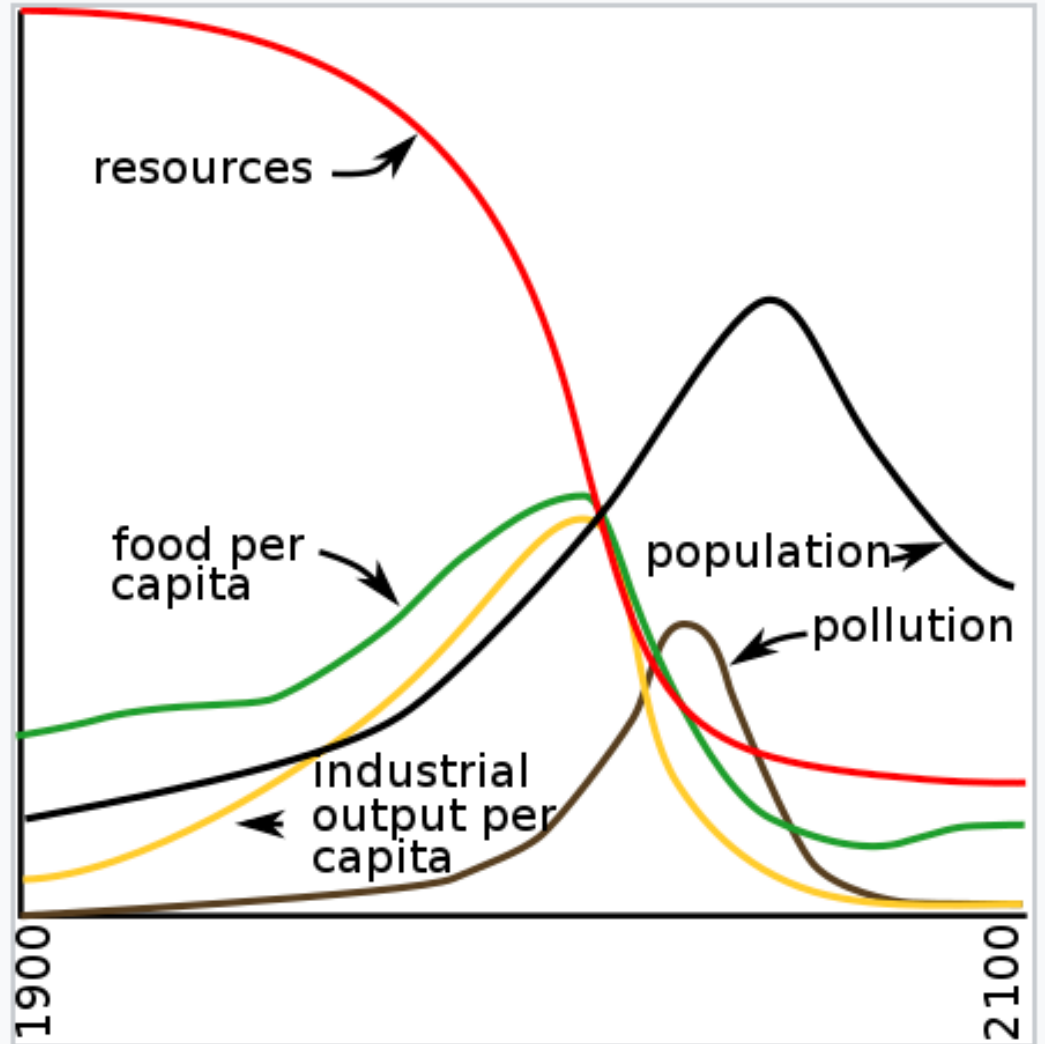
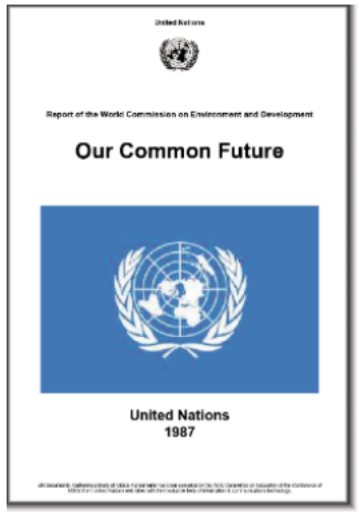
OTHER PUBLICATIONS



World3 Model Standard Run as shown in *The Limits to Growth*



Year 1987

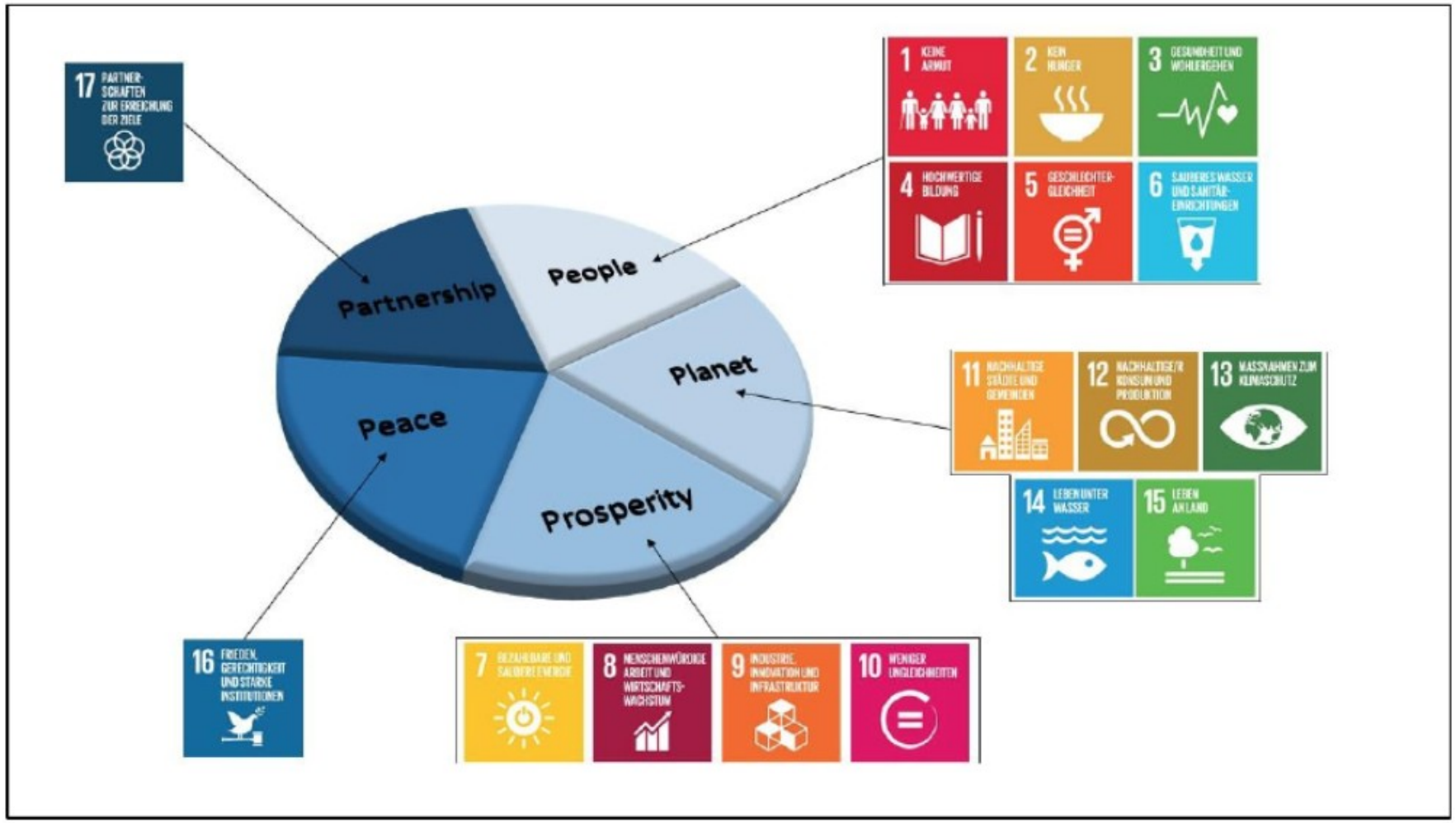
In 1987, the World Commission on Environment and Development (WCED), which had been set up in 1983, published a report entitled «Our common future». The document came to be known as the «Brundtland Report» after the Commission's chairwoman, Gro Harlem Brundtland. It developed guiding principles for sustainable development as it is generally understood today.

The Brundtland Report stated that critical global environmental problems were primarily the result of the enormous poverty of the South and the non-sustainable patterns of consumption and production in the North. It called for a strategy that united development and the environment – described by the now-common term «sustainable development». Sustainable development is defined as follows:«Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.»In 1989, the report was debated in the UN General Assembly, which decided to organize a UN Conference on Environment and Development.

GLOBAL DEVELOPMENT AGENDA
NEED FOR GLOBAL PUBLIC GOODS

- 1972 Stockholm Conference – on Human Environment
- 1992 Rio Conference – on Environment and Development - Earth Summit – 3 key Conventions, Agenda 21
- 2000 Millennium Summit - MDGs
- 2002 Johannesburg Summit - World Summit on Sustainable Development
- 2015 UN Sustainable Development Summit – SDGs
- 2019 UN Sustainable Development Goals Summit –Action For People and Planet
- 2023 UN SDG Summit – Mid-term Review of Implementation
- 2024 Summit of the Future – Pact of the Future

Clustering the SDGs according to the „5Ps“.



reference: Kasper (2018), p. 10

What has so dramatically changed?

https://youtu.be/OuHLkv9bJPc

- The Intergovernmental Panel on Climate Change (IPCC)
  - was established by the WMO and UNEP in 1988
  - governments at all levels with scientific information that they can use to develop climate policies
  - IPCC reports are also a key input into international climate change negotiations
- Regular Assessment Reports and Special Reports - 1990, 1995. 2001, 2007, 2013-14, AR6 - 2022
- IPCC Working Groups:
  - WGI: Physical Science Basis
  - WGII: Impacts, Adaptation, and Vulnerability
  - WGIII: Mitigation

Climate Change

IPCC 1992: Under the Business-as-Usual scenario, global-mean temperature is likely to increase by about 1 C above the present value by 2025 and 3 C before the end of the next century

IPCC 2021: Global mean temperature will hit 1.5°C already by mid-2030s and if actions are not taken will increase by 4-5 C by 2100

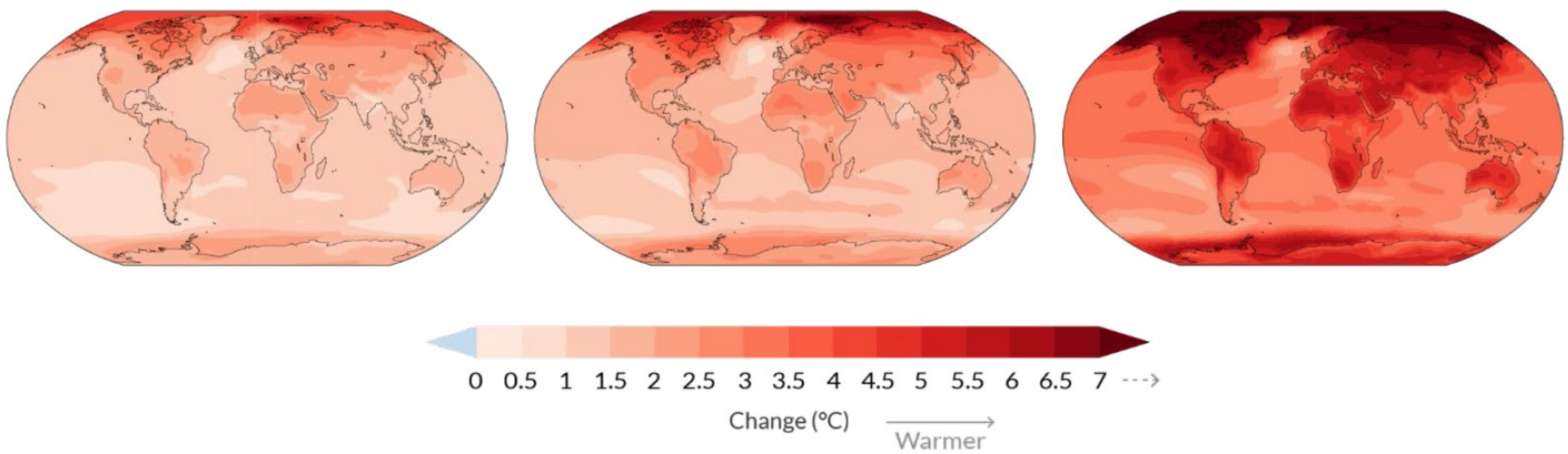
With every additional amount of global warming, changes get larger.

Simulated changes…

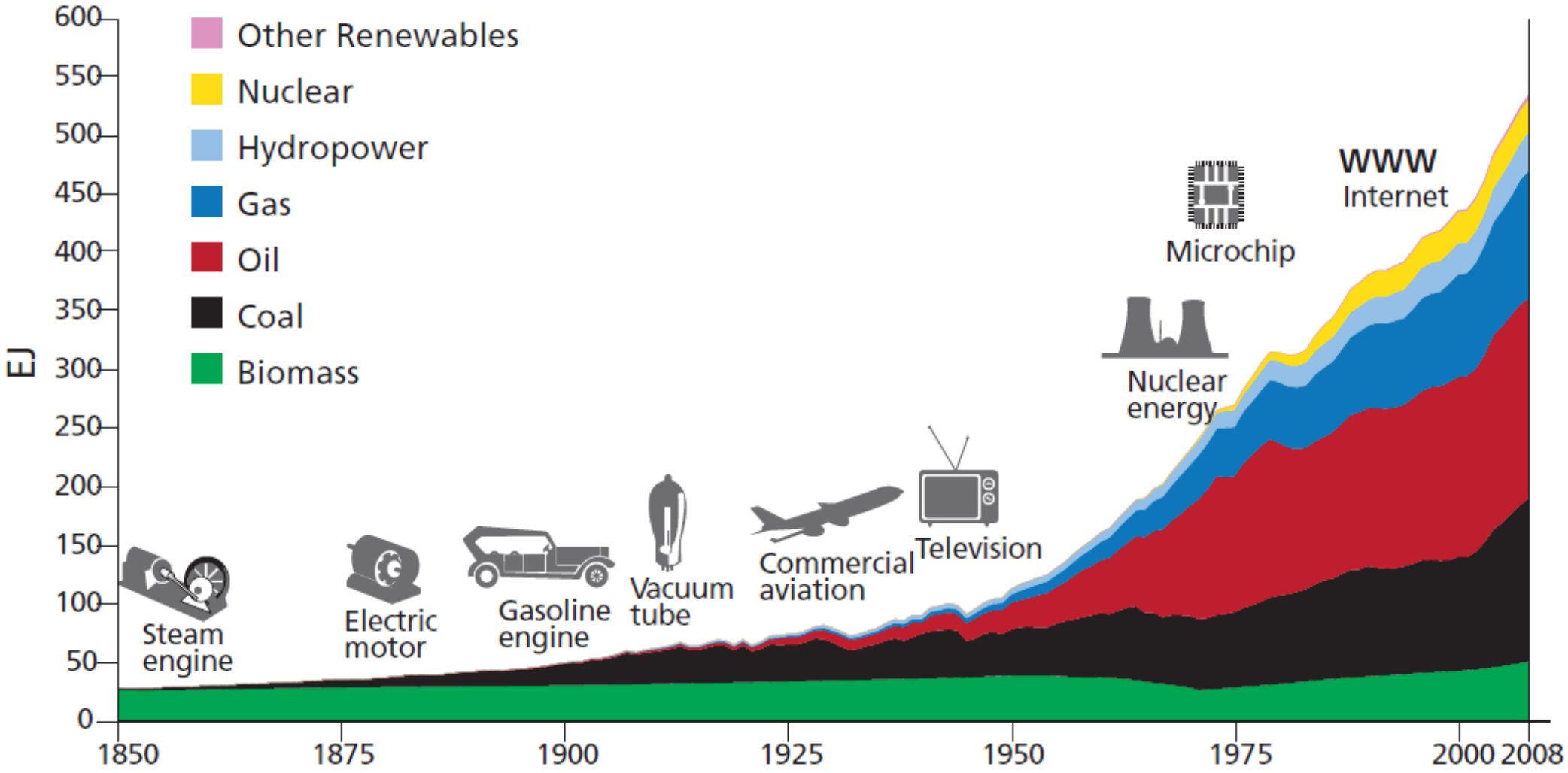
…at 1.5°C

…at 2°C

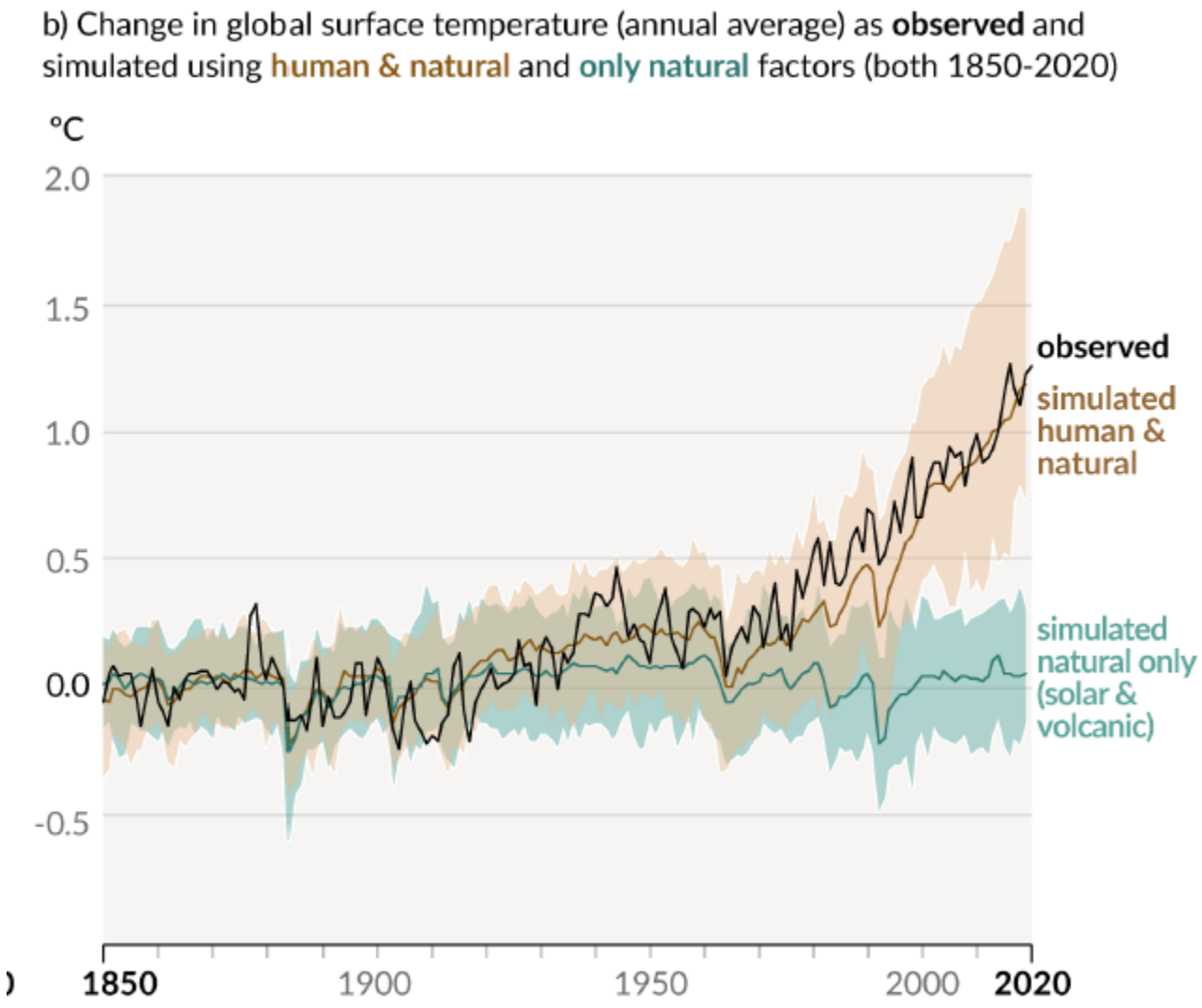
…at 4°C



The great acceleration and global primary energy use



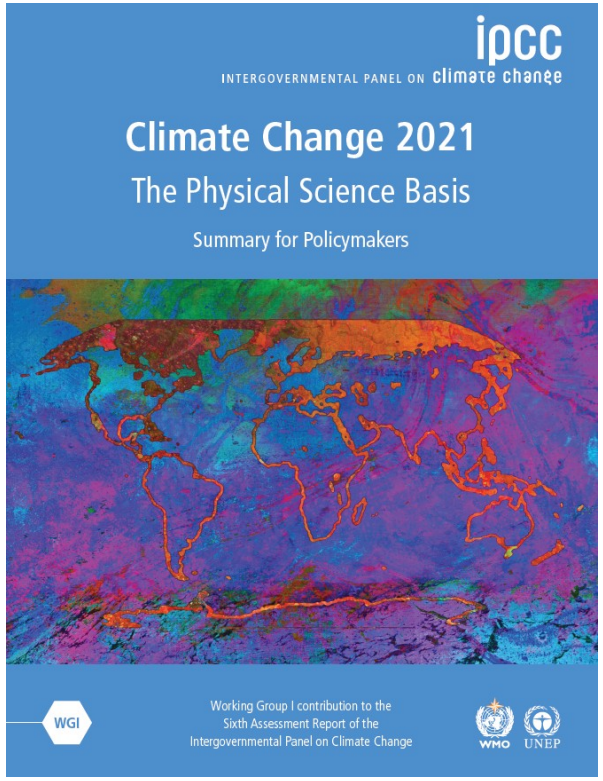
Source: Figure SPM-1 in Global Energy Assessment (GEA) 2012, updated from Nakicenovic et al., 1998 and Grubler, 2008.



IPCC 2021:

- The temperature **has already raised by 1.1 °C** above pre-industrial level
- Natural processes contributed 0.1 °C increase
- Human activities led to 1°C

The science is clear



Achieving global **net zero carbon** is the only solution to **global climate change**:

Limiting **human-induced** global warming requires **as a minimum** reaching at least net zero CO2 emissions, i.e. the level at which **anthropogenic** CO2 emissions are balanced by removals of CO2

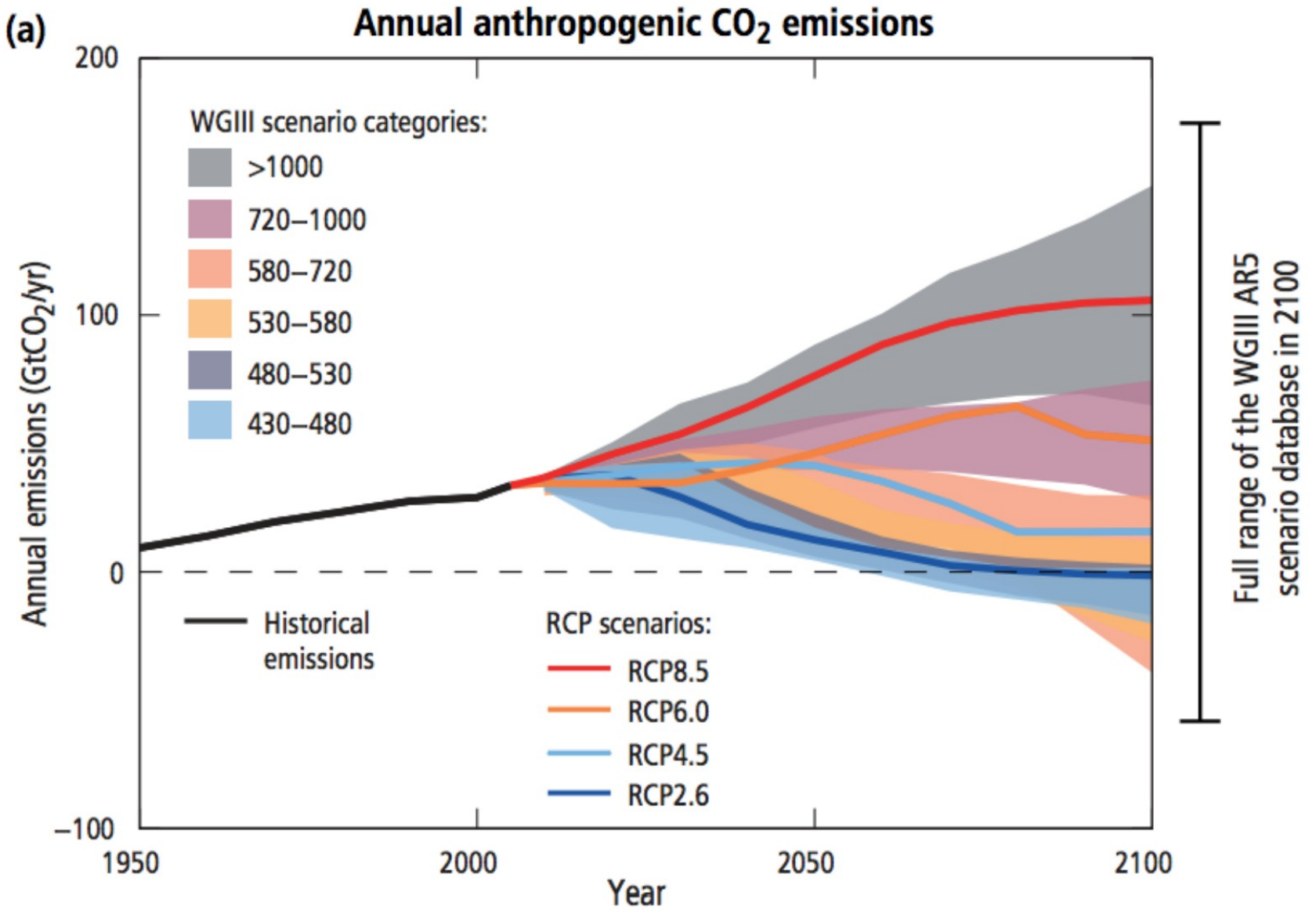
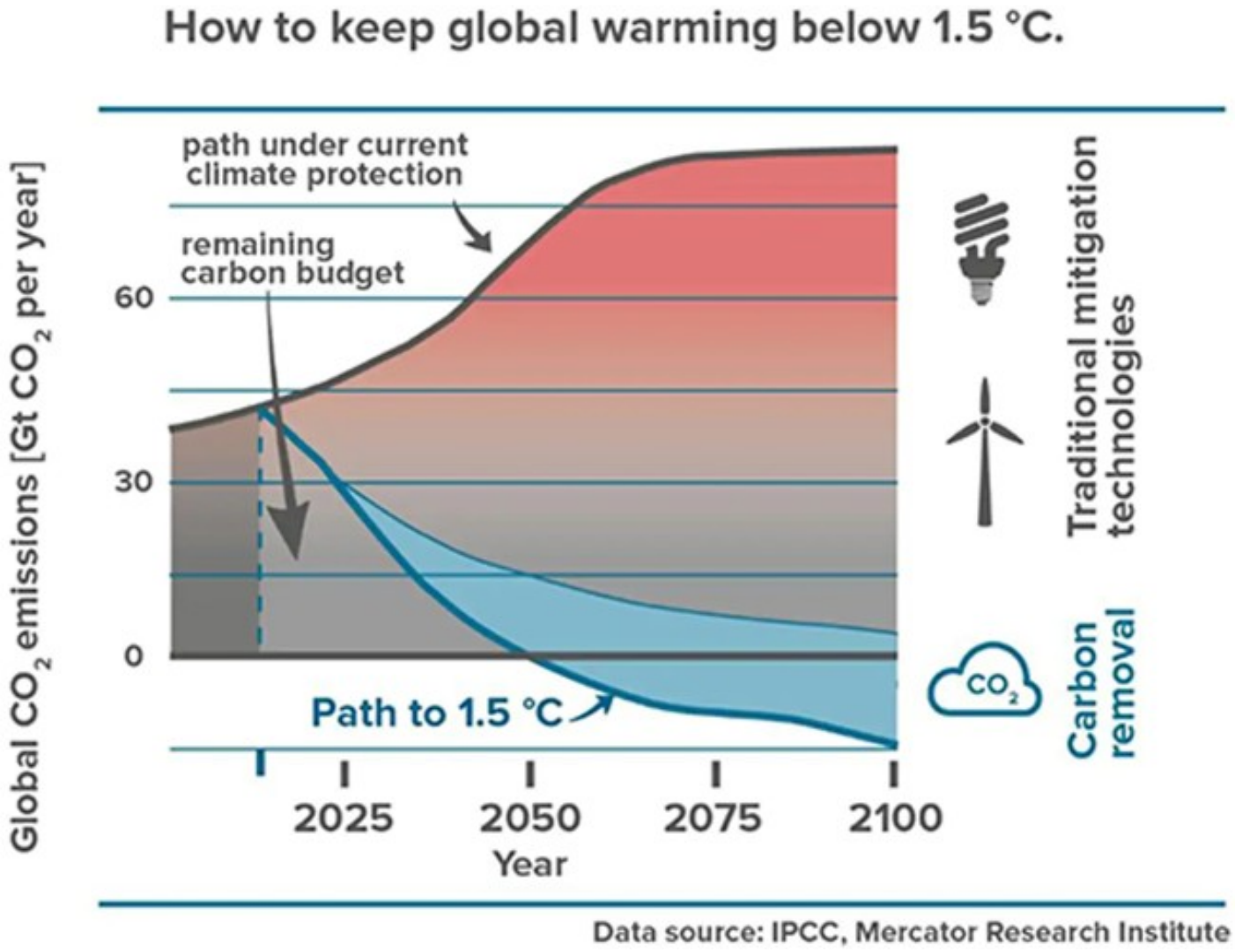
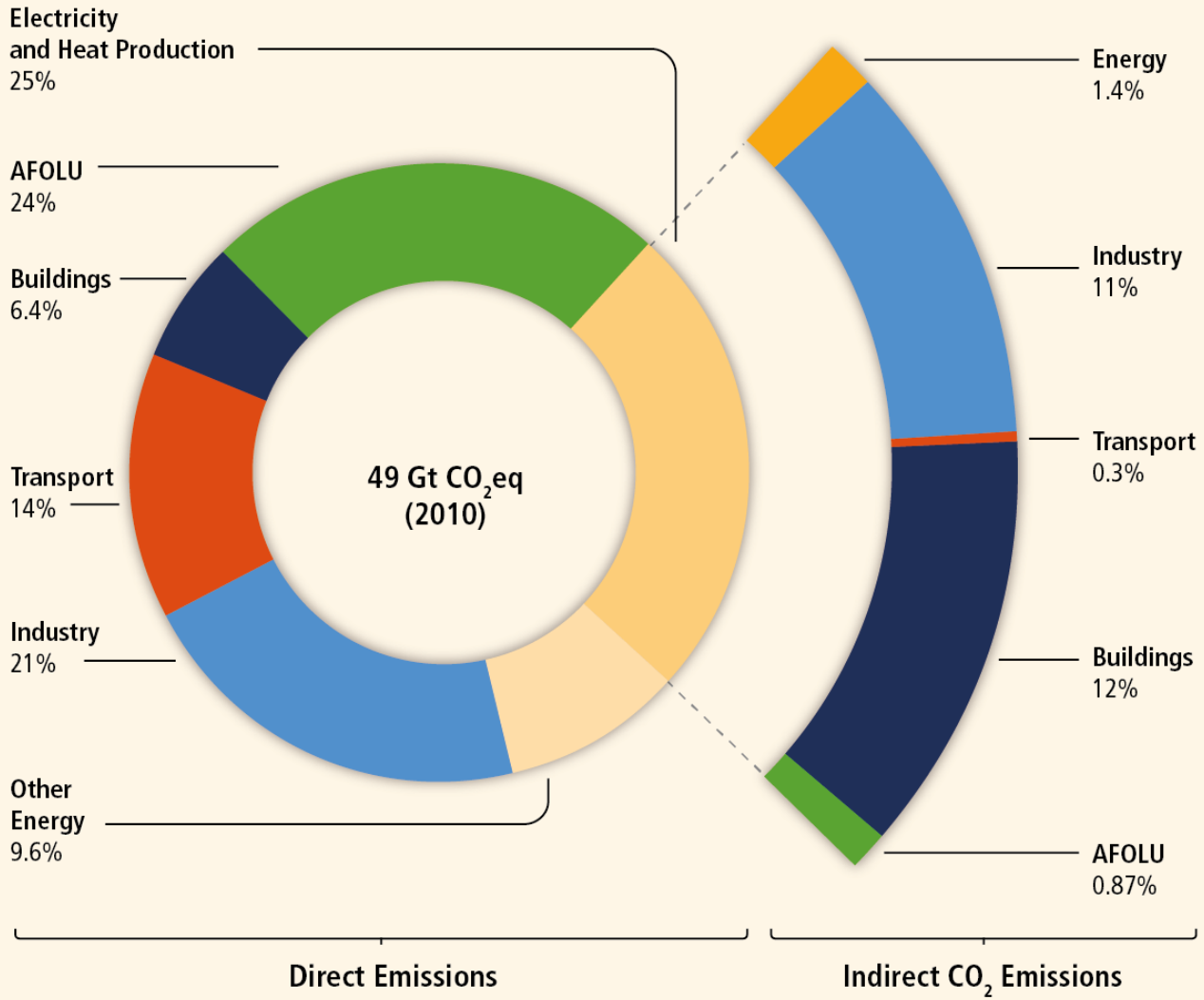


Figure from page 9 of the IPCC AR5 Summary for Policymakers: (a) Emissions of carbon dioxide (CO2) alone in the Representative Concentration Pathways (RCPs) (lines) and the associated scenario categories used in WGIII (coloured areas show 5 to 95% range). The WGIII scenario categories summarize the wide range of emission scenarios published in the scientific literature and are defined on the basis of CO2-eq concentration levels (in ppm) in 2100.

Paris Accord goal: to stay within 1,5C



Greenhouse Gas Emissions by Economic Sectors



Annual anthropogenic GHG emissions have increased by 10 GtCO2eq between 2000 and 2010, with this increase directly coming from energy supply (47 %), industry (30 %), transport (11 %) and buildings (3 %) sectors (medium confidence).

Source: IPCC AR5 Climate Change 2014: Mitigation of Climate Change

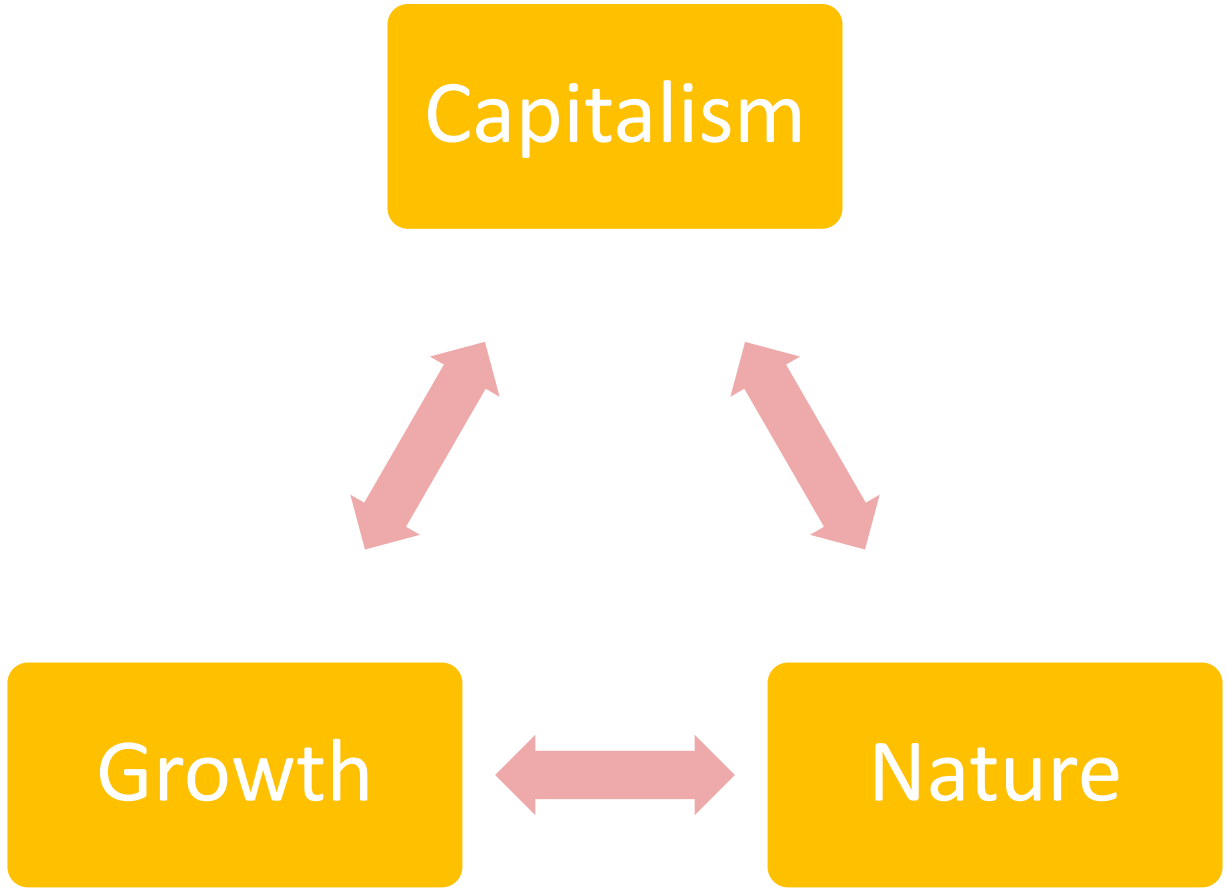
Broader Context of Green Transition

GROWTH *for* GOOD

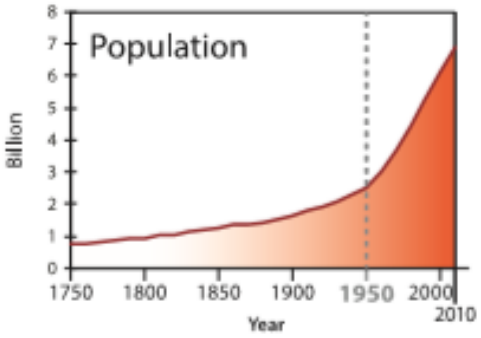
RESHAPING CAPITALISM *to* SAVE HUMANITY *from* CLIMATE CATASTROPHE

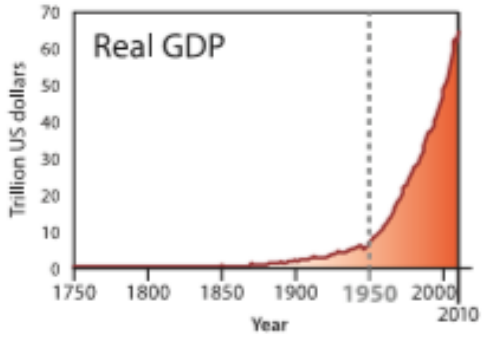
ALESSIO TERZI

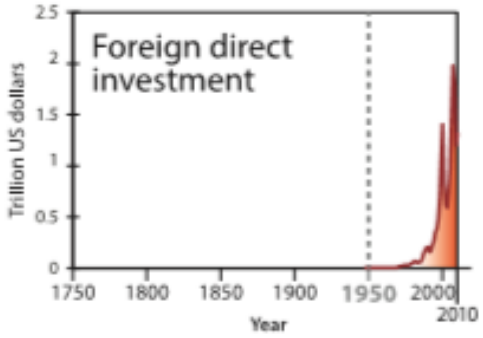
The (un?-)holy trinity

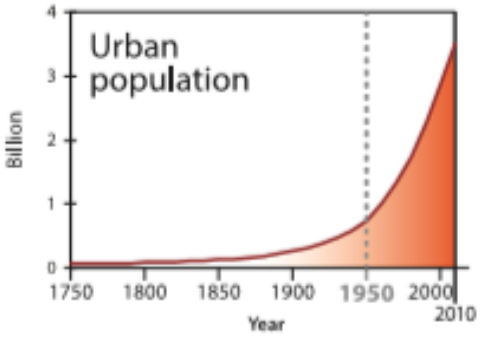


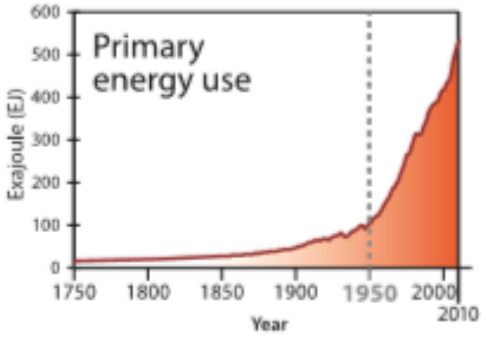
Great Acceleration

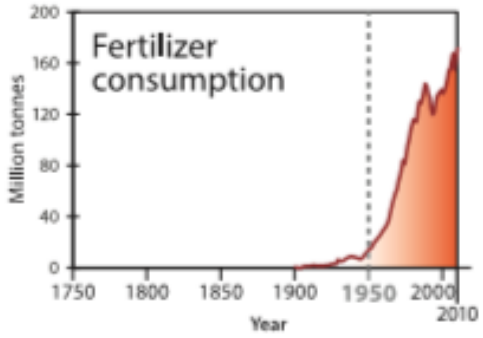


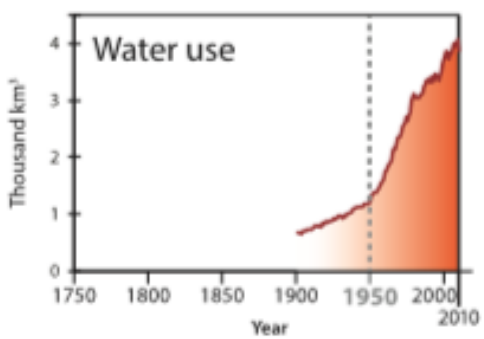


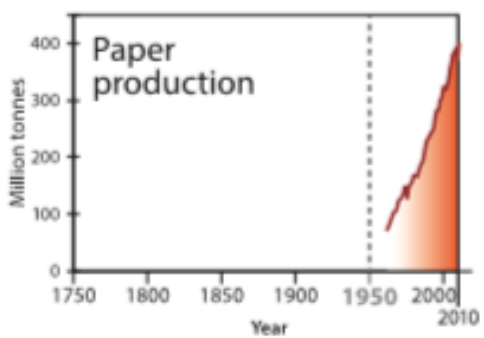


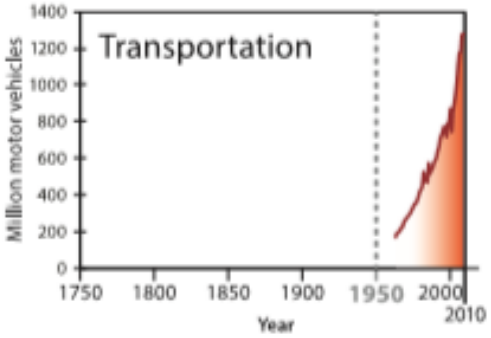


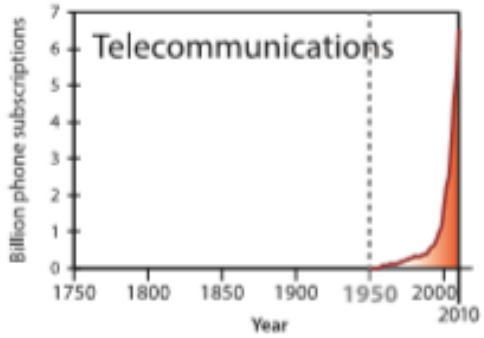


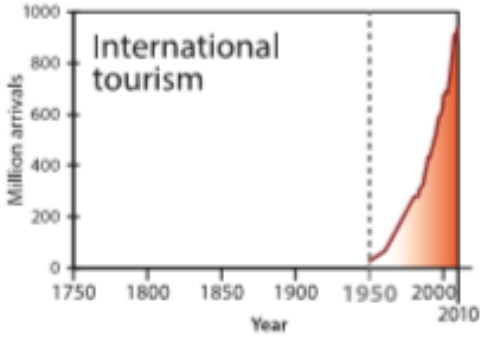






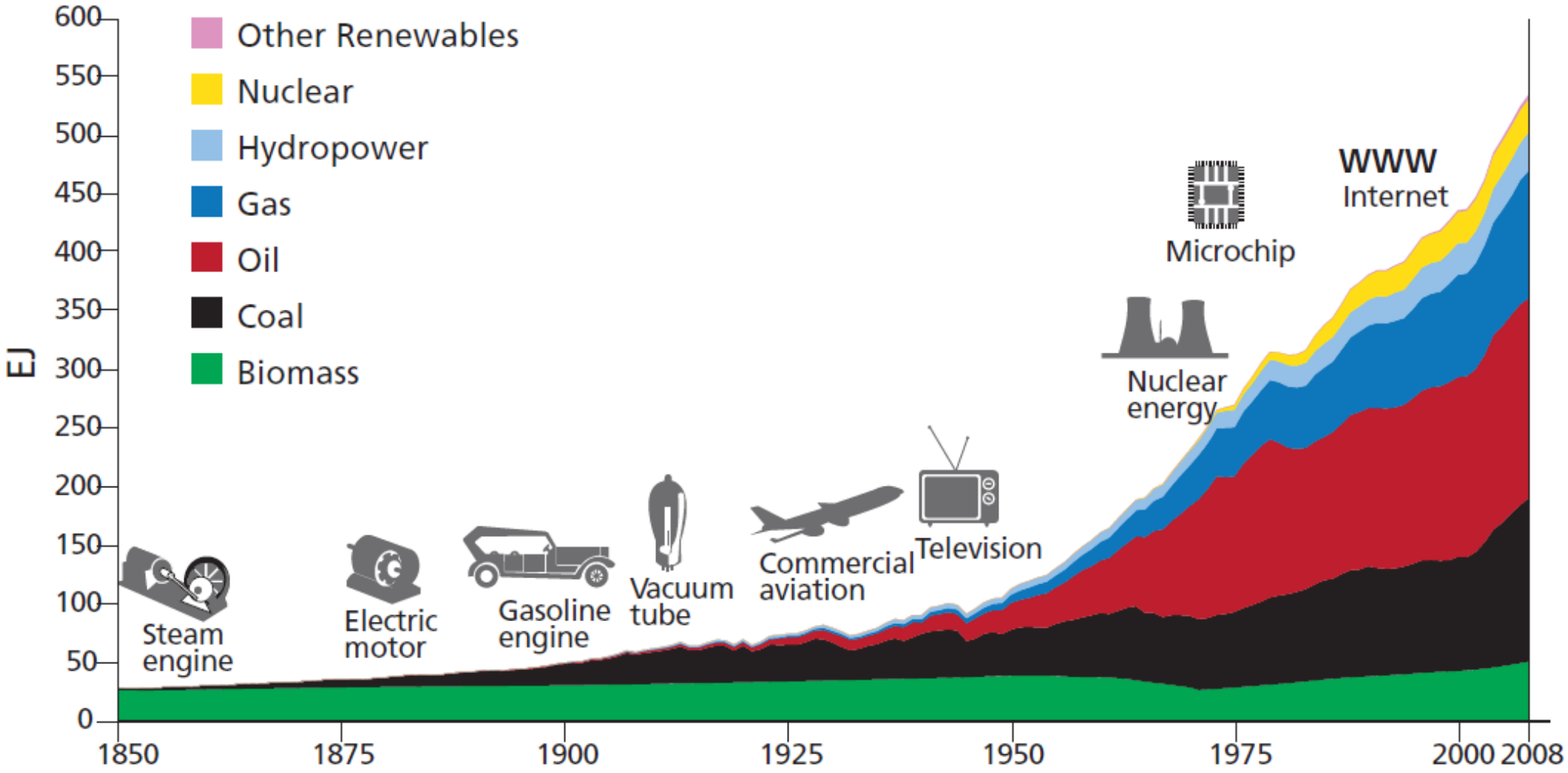






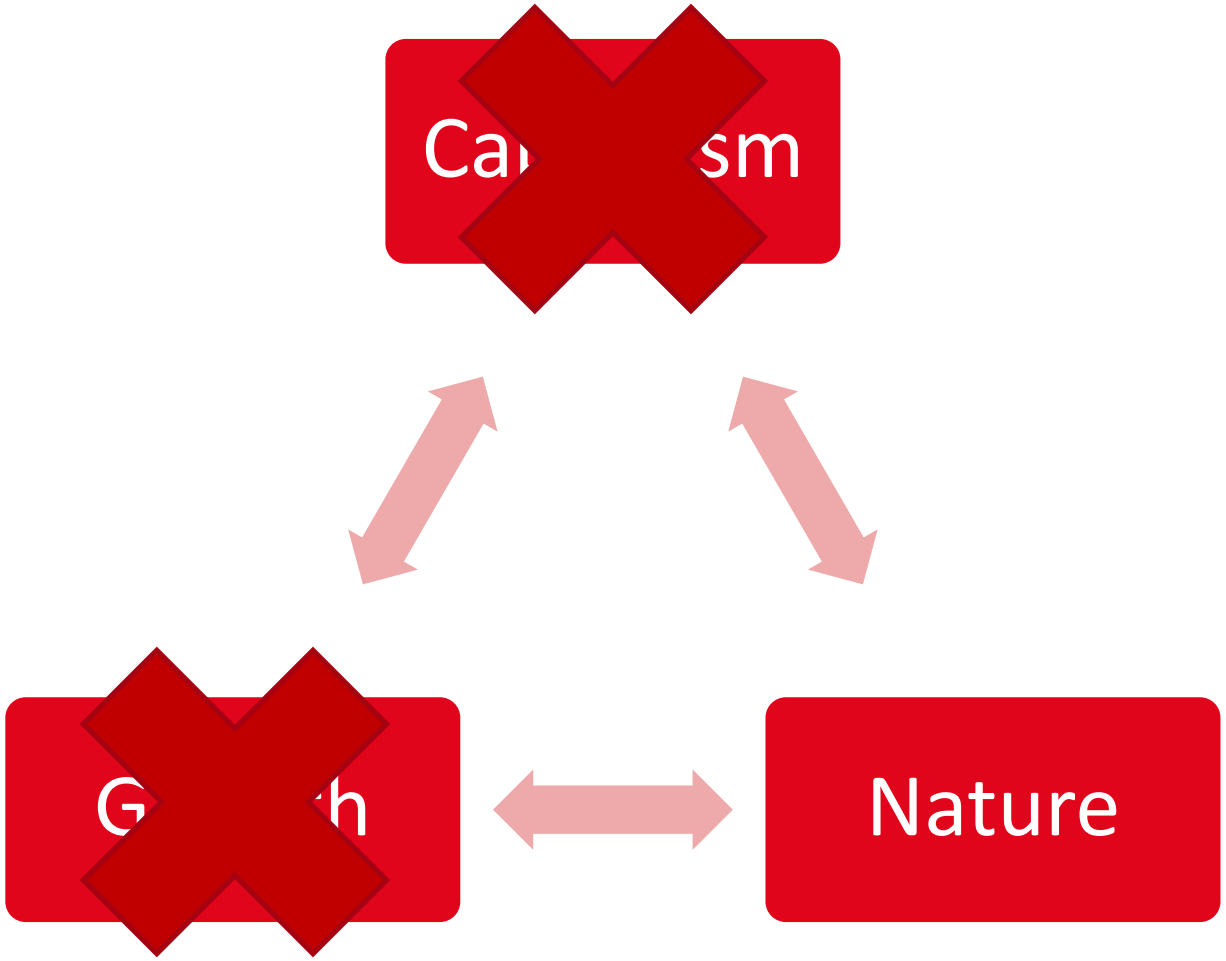
Source: Steffen, Will, et al. "The trajectory of the Anthropocene: the great acceleration." The Anthropocene Review 2.1 (2015): 81-98.

The great acceleration in global primary energy use



Source: Figure SPM-1 in Global Energy Assessment (GEA) 2012, updated from Nakicenovic et al., 1998 and Grubler, 2008.

Degrowth, Ecosocialism & steady state economy



& a better sharing of available/limited resources embracing sufficiency

De-growth policy

Abandon economic growth and hyper-consumerism in advanced economies

Leave space for further economic growth in poor countries

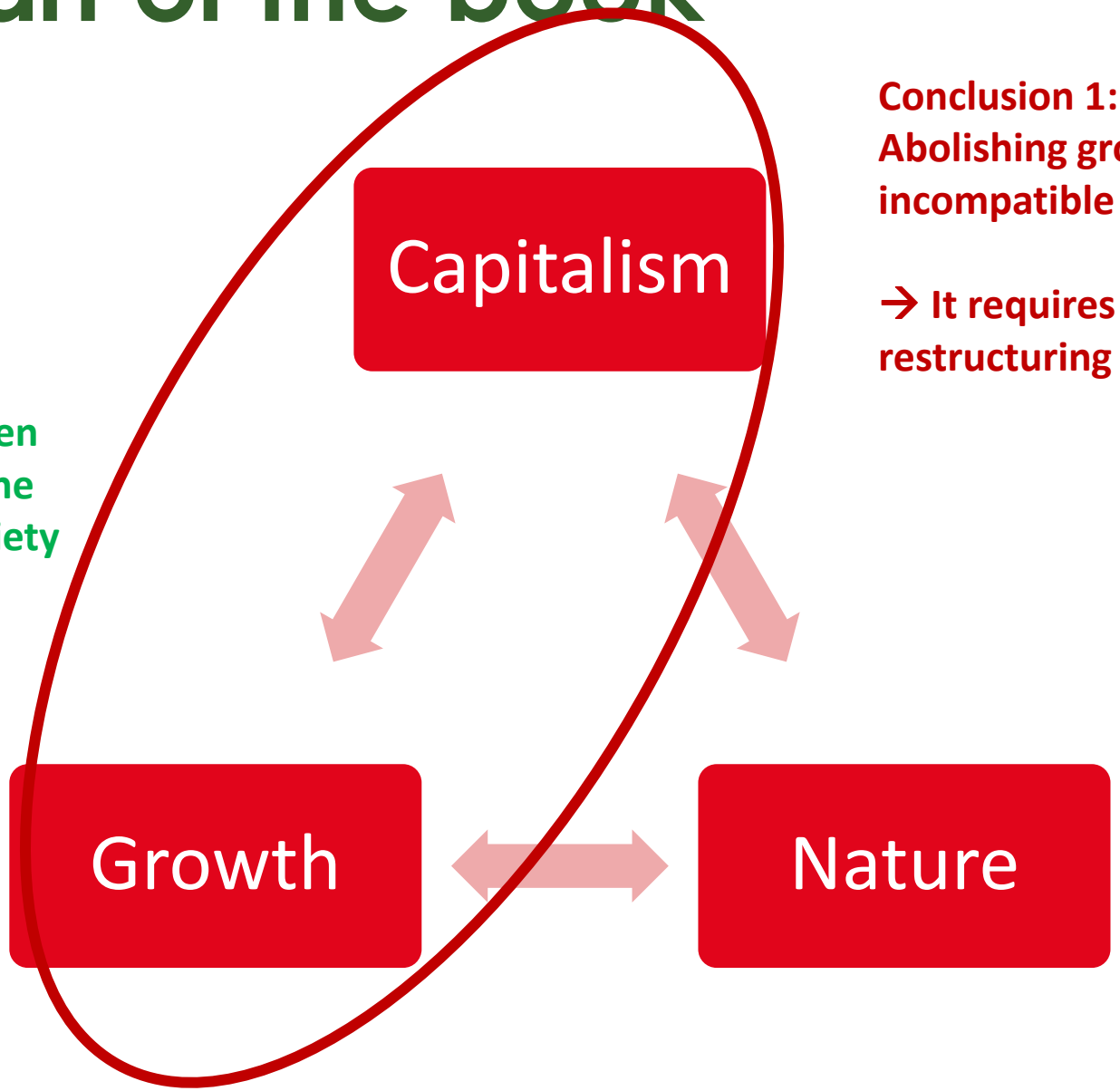
Continue R&D, but (centrally) focused on green transition

Embrace a life-style of sufficiency (e.g. Eco-villages)

Produce locally

Direct/collegial democracy

The first part of the book



Conclusion 1:
Abolishing growth would be incompatible with capitalism

→ It requires a complete societal restructuring

Implication:
If you call to abolish growth, then you must be ready to provide the blueprint for an alternative society

Book further argues …

1. **Growth and inequality**: a steady state environment exacerbates conflict within and between societies over limited resources

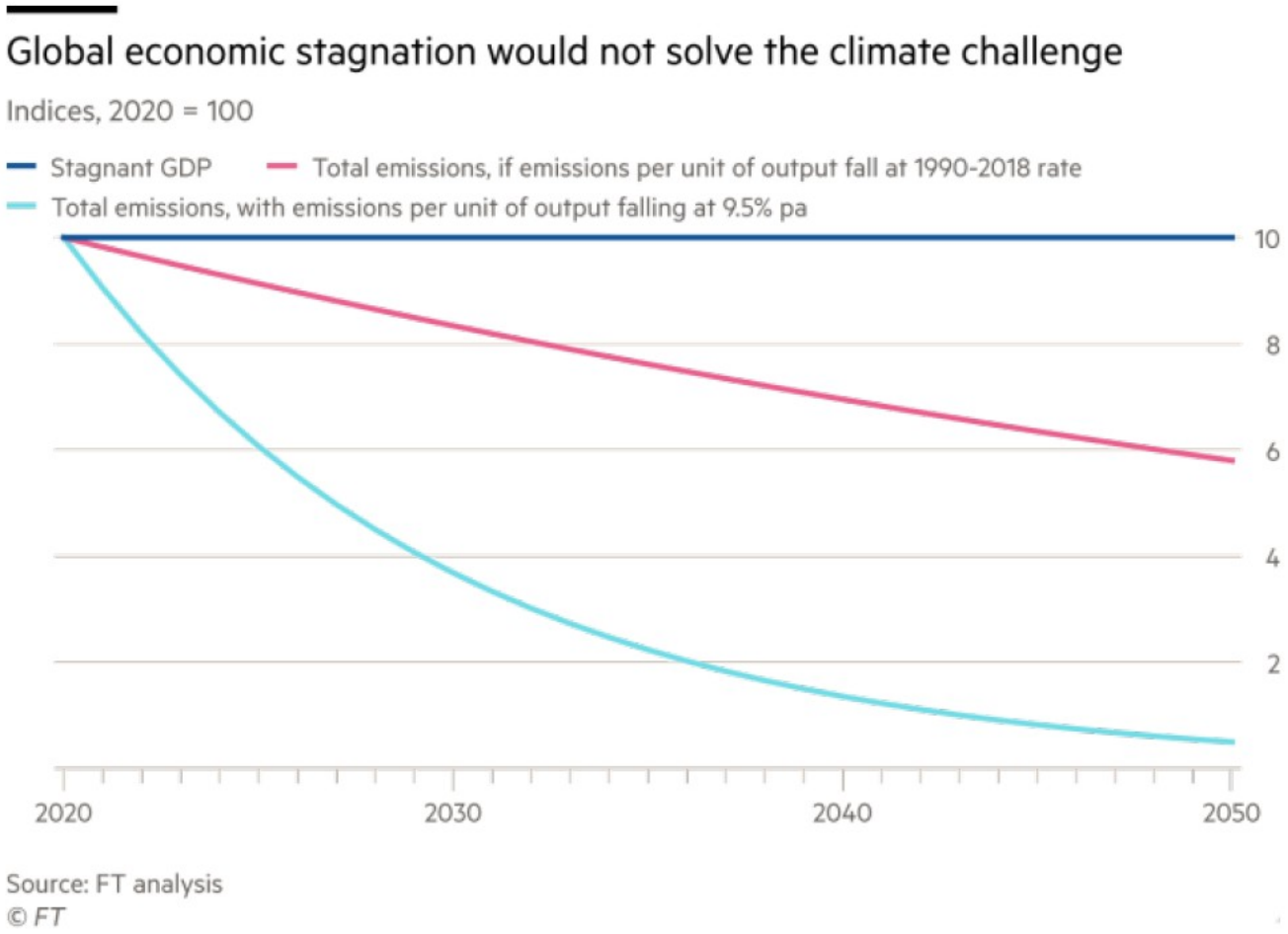
   this is because..

2. **The growth imperative:** is not an imposition of "the system" over otherwise indifferent people. But rather, humans have an inbuilt 'desire for more'..

   Which ultimately originates from…

3. **Growth and technology:** the desire to use technology and knowhow to shape the world, and therefore self-determination as a species.

Tech acceleration even in steady state



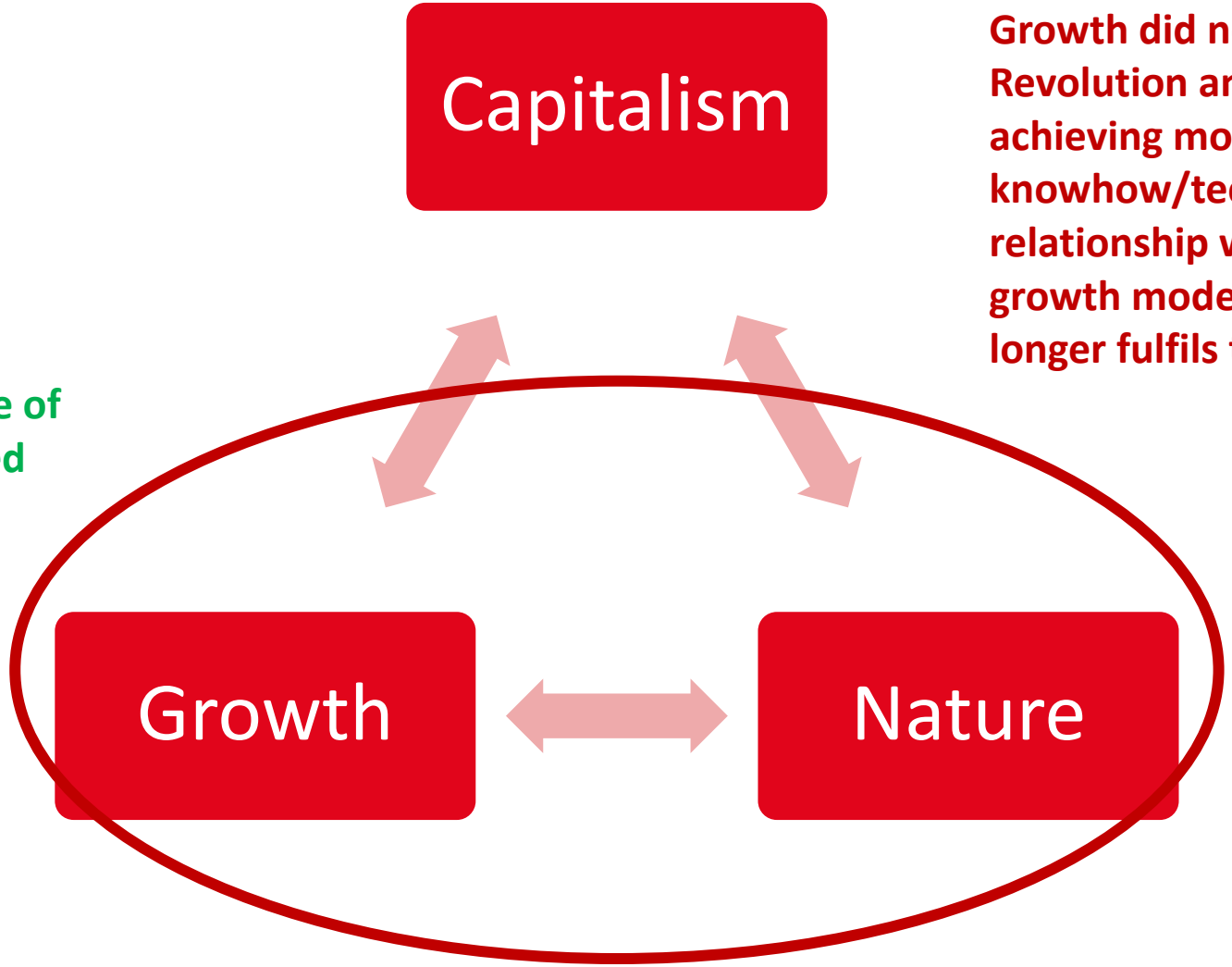
Halting economic growth alone will hardly suffice to achieve net zero

This can only imply two things:

- Either you need a sharp reduction in GDP per capita in rich countries (in the order of magnitude of -60%, as estimated by degrowth economist Peter Victor, 2012)
- Or, you need to continue accelerating on green R&D and adoption

Growth and nature

Conclusion:
Growth did not start with the Industrial Revolution and has always been about achieving more needs/wants using knowhow/tech, while managing our relationship with nature. The *current* growth model (based on fossil fuels) no longer fulfils this condition



Implication:
A *different* / reshaped type of capitalism & growth is needed

Potential Responses

Answer: Green Transition

- **A *different* / reshaped type of economic model & growth is needed**
- Avoiding a climate disaster goes through a restructuring of the whole economy and a switch to green technology
- However, this will not happen on its own, and surely not at the speed required (climate neutral by 2050)
- Actions required by governments (but also pioneering businesses and engaged citizens)
- Some areas/regions/professions will be left behind. Cultural views will be shattered

→ **Green policy and inclusive social policy must proceed hand in hand or people will oppose the transition**

The Green Deal economy

- Typically, the green transformation is modelled as a tax shift, from labour to carbon
- Green Deals are however much more, encompassing large public investment plans, subsidies to green R&D, carbon border adjustment, etc.
- More broadly, the green transition will require a complete transformation of basically all of production, consumption, agriculture, housing, transport and in essence the whole structure of the economy
- Innovation, leadership and communication

Examples

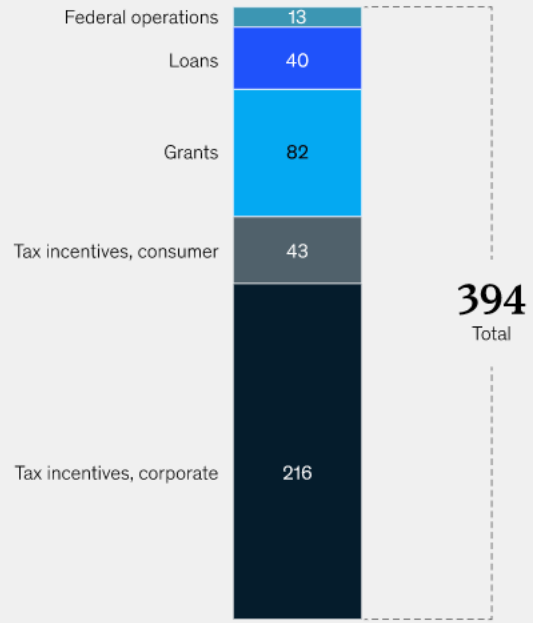

Designing
deeply
transfo
polici

US Inflection Reduction Act – 737 billion USD

The Inflation Reduction Act of 2022 (IRA), signed into law on August 16, 2022, directs new federal spending toward reducing carbon emissions, lowering healthcare costs, funding the Internal Revenue Service, and improving taxpayer compliance.[1]

Corporations, individuals, and state and local governments are all eligible to receive funding in the energy portion of the Inflation Reduction Act.

Energy and climate change funding in the Inflation Reduction Act, $ billion



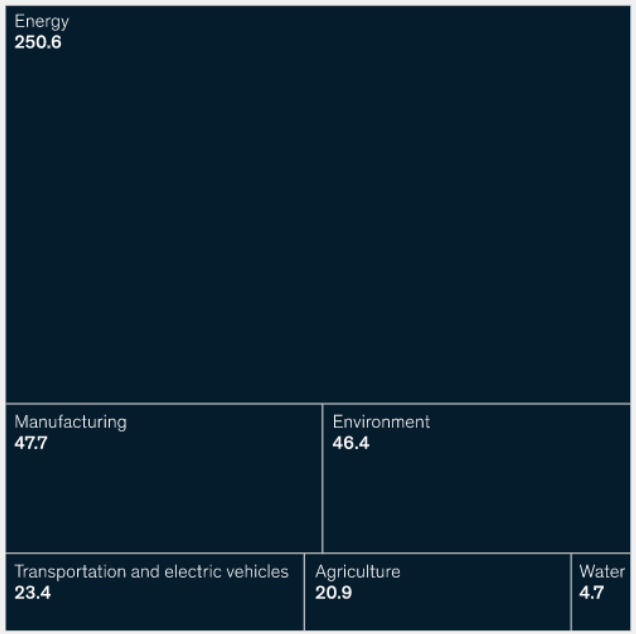
Note: This exhibit reflects analysis of the appropriation figures contained in the Inflation Reduction Act, as well as those reported by the Congressional Budget Office and Joint Committee on Taxation. This analysis may differ from other analyses due to differences in methodology.
Source: Inflation Reduction Act of 2022, H.R. 5376, 117th Cong. (2021–22)

McKinsey & Company

The Inflation Reduction Act makes investments across a wide range of sectors.

Inflation Reduction Act investments by sector, $ billion

Total = 393.7



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Source: Inflation Reduction Act of 2022, H.R. 5376, 117th Cong. (2021–22); McKinsey analysis

McKinsey & Company

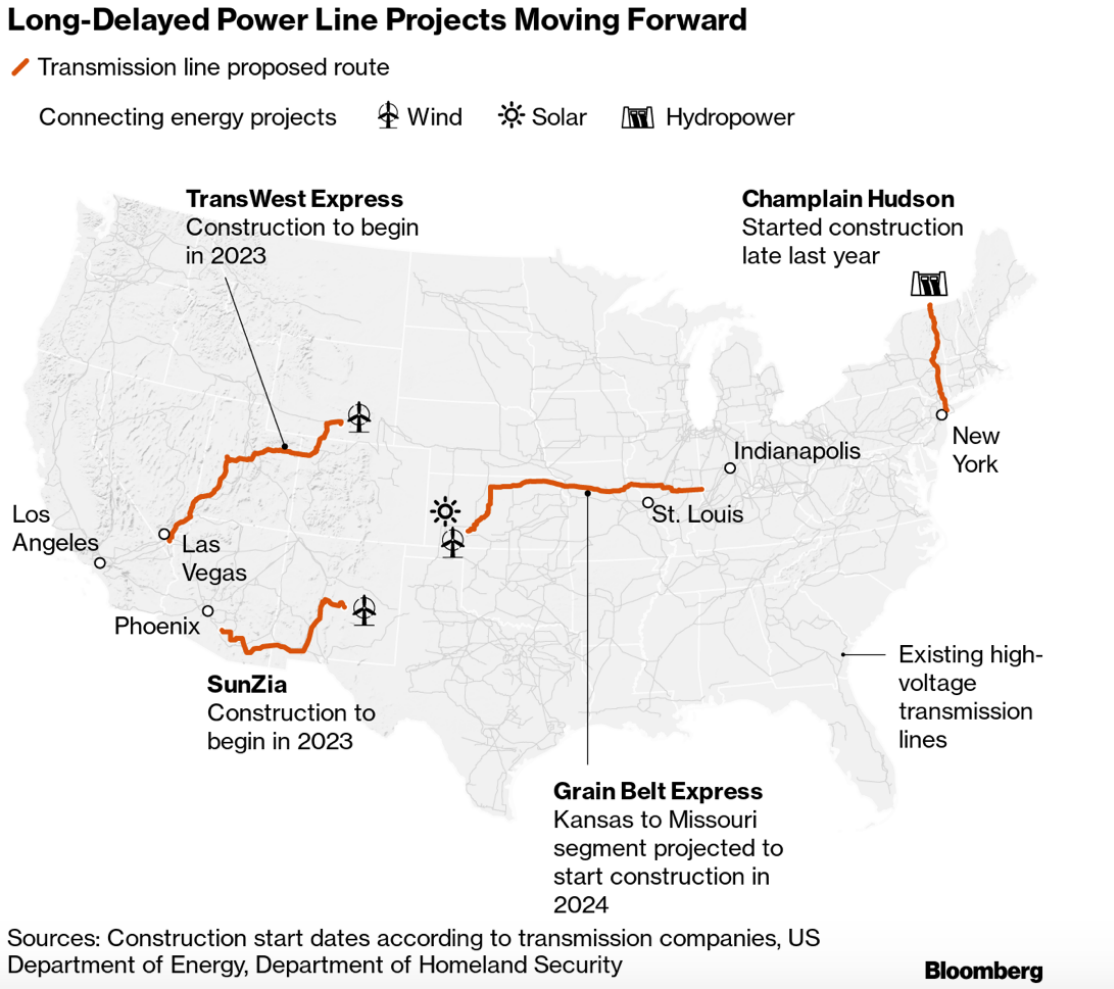
Bloomberg

Green Daily

By Brian Eckhouse, Naureen S Malik and Dave Merrill

The most important clean energy investment is having a moment

The biggest impediment to the US achieving a cleaner power grid isn't climate deniers or fossil-fuel lobbies; it's a lack of transmission lines. The country badly needs more conduits to cart wind and solar energy and hydropower to cities.



Japan Green Growth Strategy

In October 2020, the Japanese government announced its plans to achieve net zero carbon emissions by 2050. Moreover, in April 2021, it raised its previously set goal of reducing emissions by 2030 to an ambitious 46% from its 2013 levels, stepping up its efforts to reach carbon neutrality. Tackling global warming is no longer seen as a cost, but more as a great opportunity whereby such proactive measures will bring about strong economic growth. To create such a "virtuous cycle of economy and environment," the government launched the "Green Growth Strategy through Achieving Carbon Neutrality in 2050."

The Green Growth Strategy sets out 14 promising fields (see chart) in which future growth is expected, and where efforts are essential for achieving the reduction of greenhouse gas emissions. All available policy measures—from budget and taxation to regulatory reform—will be called upon to stimulate innovation in each of the different fields. Notable among these measures is the establishment of a 2-trillion-yen (18.2-billion-dollar) Green Innovation Fund, which will provide continuous support for a series of efforts from ambitious R&D to social implementation over the next 10 years. "We will provide continuous supports, but at the same time we can call on companies to aspire toward high-reaching goals for 2030 and a strong commitment to them. By introducing such supportive mechanisms, and using 2 trillion yen of governmental funds as pump priming, private companies are expected to increase their R&D and capital investment," explains Kawahara.

International/ Government Response Regulatory Framework

The Paris Agreement

International agreement

- December 2015: Global temperature increase should be kept well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees

COP21 - CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE

Functioning

- Countries submit NDCs with their climate pledges

Art.2 sets the objectives:

a) Hold the increase in the global average temperature to well below 2 C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 C above pre-industrial levels;

b) Increase the **ability to adapt** to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;

c) Make **finance flows** consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

ontent

Nationally Determined Contributions (NDCs).

The Paris Agreement and NDCs

Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of its long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

What does this mean?

Related news

NDC Registry

NDC Spotlight

United Nations Climate Change | Nationally Determined Contributions Registry

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NDC Registry.

In accordance with Article 4, paragraph 12 of the Paris Agreement, NDCs communicated by Parties shall be recorded in a public registry maintained by the secretariat.

Credit: Axel Fassio/CIFOR

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Party	Title	Language	Translation	Version	Status	Submission Date	Additional documents
Afghanistan	Afghanistan First NDC	English		1	Active	23/11/2016	
Albania	Albania First NDC (Updated submission)	English		2	Active	12/10/2021	
Algeria	Algeria First NDC	French	Algeria First NDC Translation	1	Active	20/10/2016	
Andorra	Andorra First NDC (Updated submission)	Spanish		2	Active	20/05/2020	
Angola	Angola First NDC (Updated submission)	English		2	Active	31/05/2021	
Antigua and Barbuda	Antigua and Barbuda First NDC (Updated submission)	English		2	Active	02/09/2021	
Argentina	Argentina Second NDC (Updated submission)	Spanish		3	Active	02/11/2021	
Armenia	Armenia First NDC (Updated submission)	English		2	Active	05/05/2021	Letter of the Minister of Environment in relation to the updated first NDC
Australia	Australia NDC 2022 Update	English		4	Active	16/06/2022	Australia NDC Letter to UNFCCC

Current status of climate commitments

Climate Action Tracker

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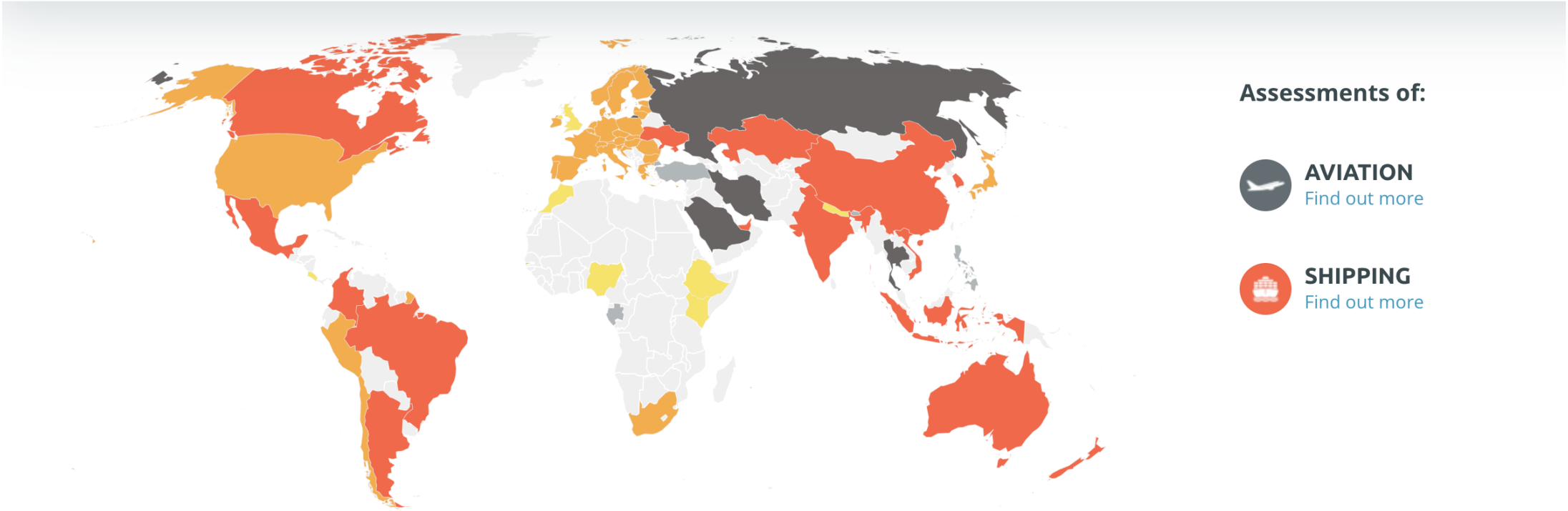


The maps displayed are for reference only.

LAST UPDATE: *October 2021*

CRITICALLY INSUFFICIENT | HIGHLY INSUFFICIENT | INSUFFICIENT | ALMOST SUFFICIENT | 1.5°C PARIS AGREEMENT COMPATIBLE

CRITICALLY INSUFFICIENT	HIGHLY INSUFFICIENT	INSUFFICIENT	ALMOST SUFFICIENT	1.5°C PARIS AGREEMENT COMPATIBLE
IRAN	ARGENTINA	CHILE	COSTA RICA	THE GAMBIA
RUSSIA	AUSTRALIA	EU	ETHIOPIA	
SAUDI ARABIA	BRAZIL	GERMANY	KENYA	
SINGAPORE	CANADA	JAPAN	MOROCCO	
THAILAND	CHINA	NORWAY	NEPAL	
	COLOMBIA	PERU	NIGERIA	
	INDIA	SOUTH AFRICA	UK	
	INDONESIA	SWITZERLAND		
	KAZAKHSTAN	USA		
	MEXICO			
	NEW ZEALAND			
	SOUTH KOREA			
	UAE			
	UKRAINE			
	VIET NAM			

Climate Action Tracker

OVERALL RATINGS

Overall Climate Action Tracker ratings

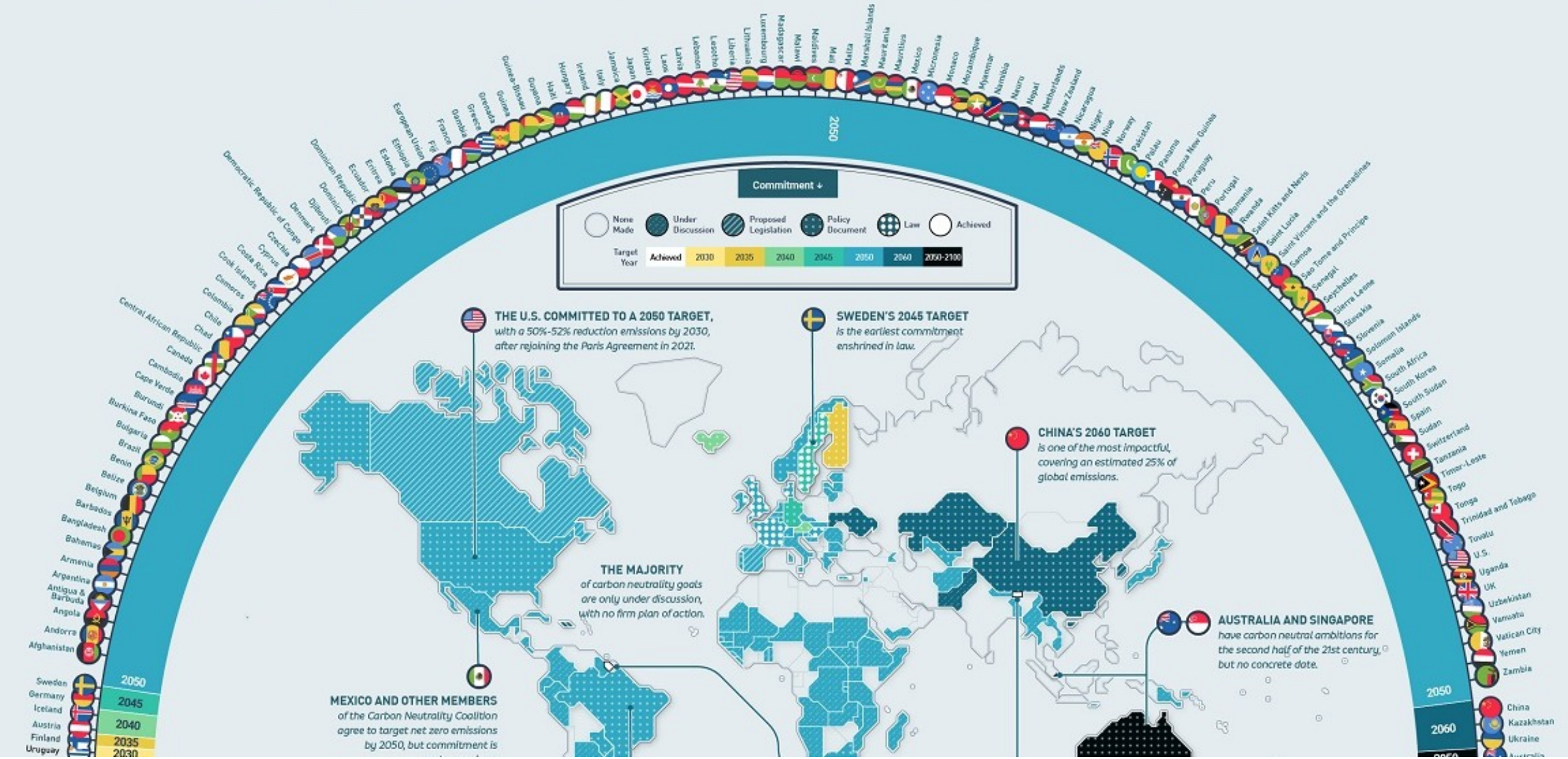
Sept 2021

Update

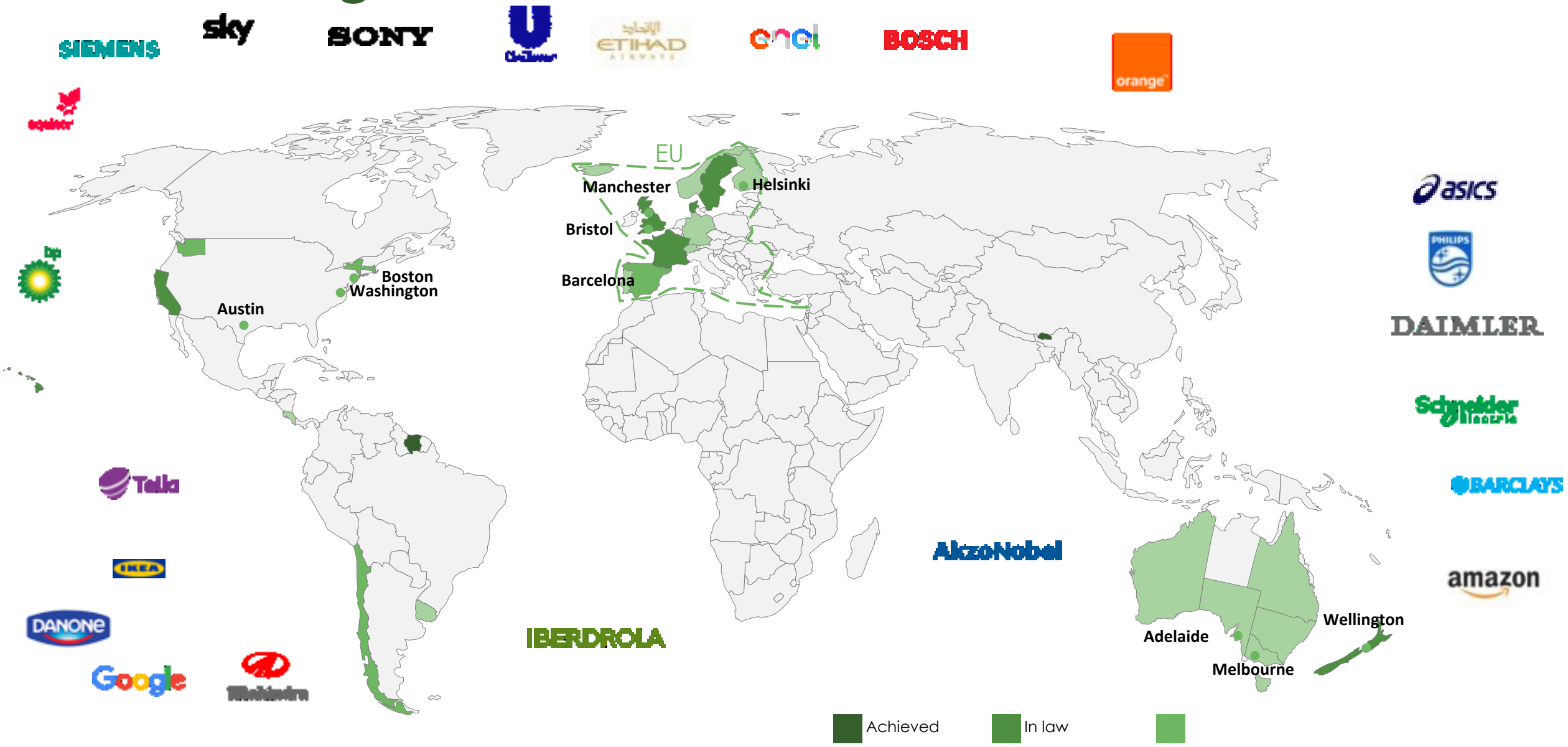
RACE TO NET ZERO

CARBON NEUTRAL GOALS BY COUNTRY

Which countries have made a carbon neutral pledge?
This map breaks down pledges by target year and level of commitment.



Net Zero targets worldwide



Source: Non-profit organisation Energy and Climate Intelligence Unit