

Climate Urgency and the Need to Reduce Net Global Emissions ASAP to ZERO in the SDG Framework

Prof. Jean-Pascal van Ypersele

Université catholique de Louvain (UCLouvain)

Former IPCC Vice-Chair (2008-2015)

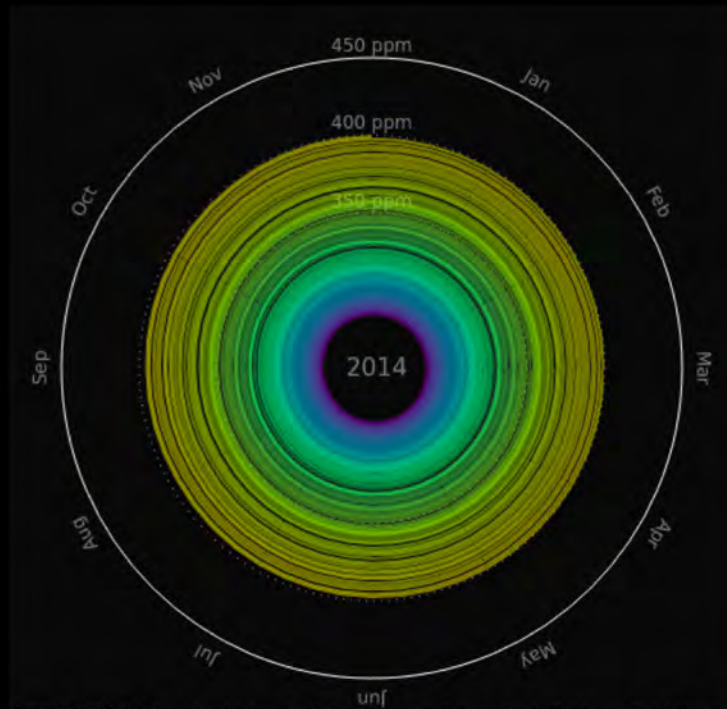
GSDR2019 Co-author

Twitter: @JPvanYpersele

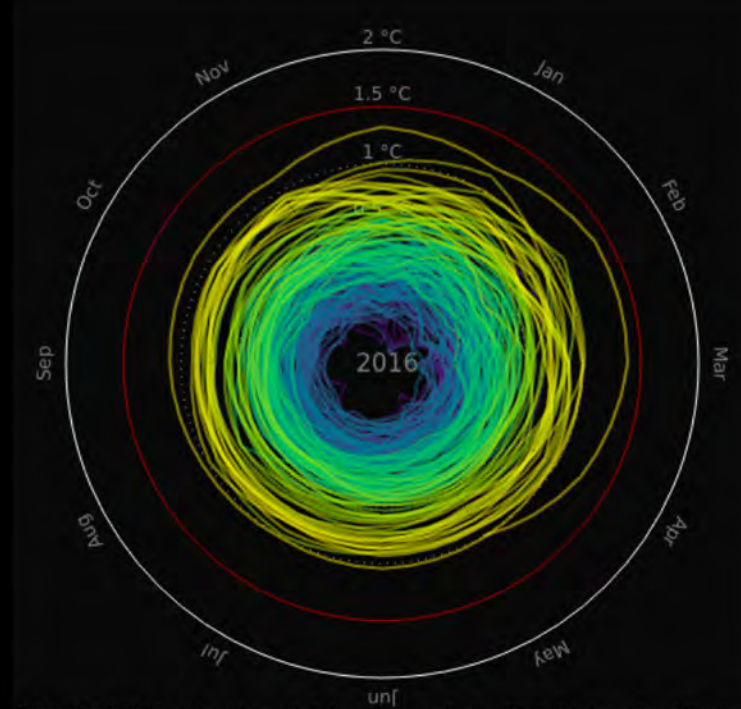
SDG Changemakers event, Danone factory, Rotselaar, 12 October 2020

**Thanks to the Government of Wallonia, supporting the [Walloon Platform for IPCC](#)
and to my team at the Université catholique de Louvain**

CO₂ Concentration and Temperature spirals



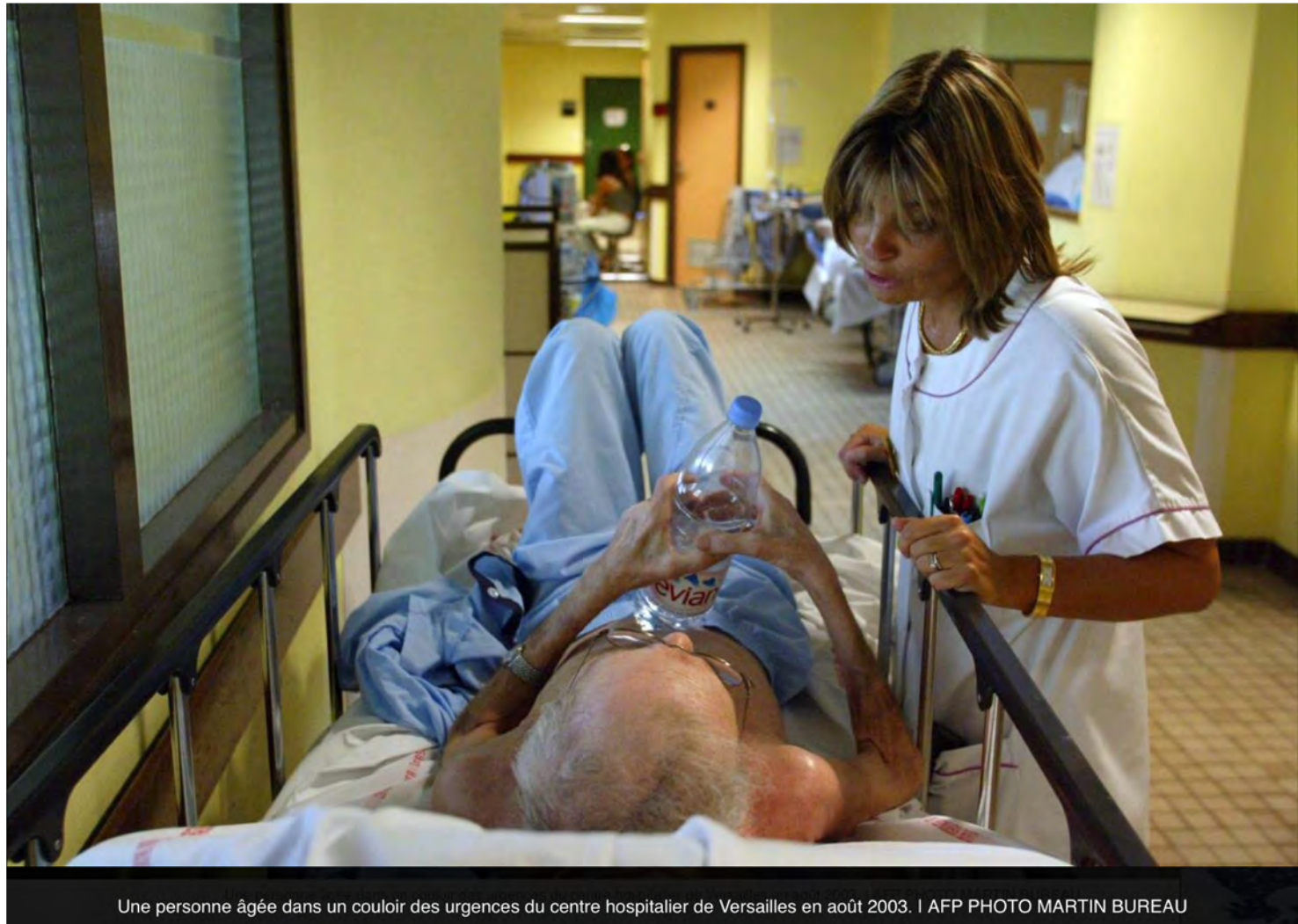
Concentration Spiral pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins



Temperature Spiral pik-potsdam.de/primap-live & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins

CO₂ Concentration since 1850 and Global Mean Temperature in °C relative to 1850 – 1900
Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset
Animation available on <http://openclimatedata.net/climate-spirals/concentration-temperature/>

Heat waves kill



Une personne âgée dans un couloir des urgences du centre hospitalier de Versailles en août 2003. | AFP PHOTO MARTIN BUREAU

Floods in France, October 2020



Les tombes du cimetière de Saint-Dalmas-de-Tende ont été emportés par les eaux après les inondations qui ont causé des dégâts considérables dans le département des Alpes-Maritimes. (Photo : FABIEN NOVIAL/AFP via Getty Images)

ACTUALITÉS





Alpes-Maritimes : 150 corps du cimetière du village de Tende emportés par les crues lors de la tempête Alex

HALF A DEGREE OF WARMING MAKES A BIG DIFFERENCE:

EXPLAINING IPCC'S 1.5°C SPECIAL REPORT

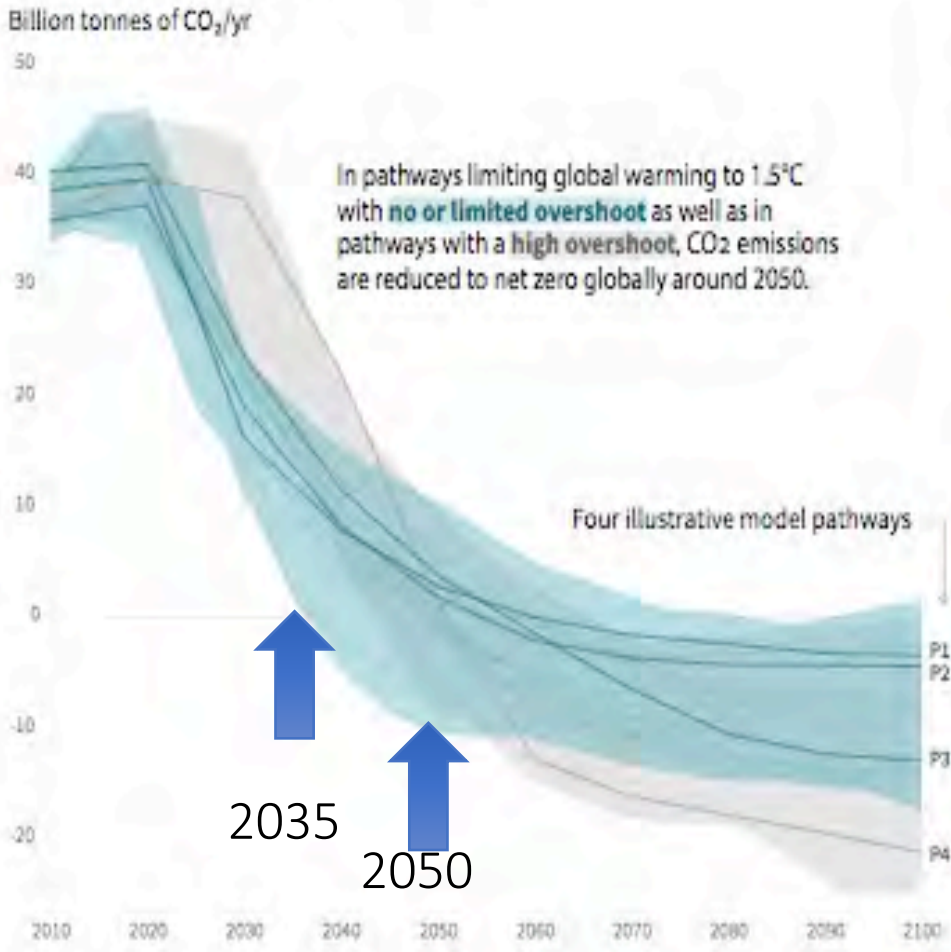
Respecting the
1.5° C Paris goal
matters

Responsibility
for content:
WRI

	1.5°C	2°C	2°C IMPACTS
<p>EXTREME HEAT Global population exposed to severe heat at least once every five years</p>	 <p>14%</p>	 <p>37%</p>	<p>2.6x WORSE</p>
<p>SEA-ICE-FREE ARCTIC Number of ice-free summers</p>	 <p>AT LEAST 1 EVERY 100 YEARS</p>	 <p>AT LEAST 1 EVERY 10 YEARS</p>	<p>10x WORSE</p>

Emission pathways compatible with below 1.5° C warming:

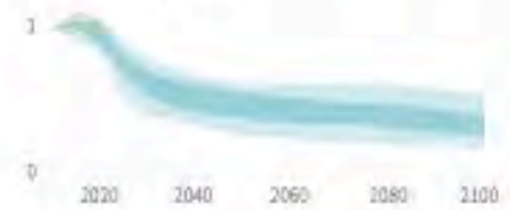
Global total net CO₂ emissions



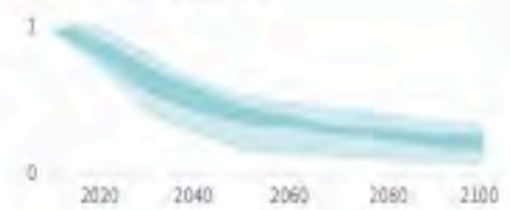
Non-CO₂ emissions relative to 2010

Emissions of non-CO₂ forcers are also reduced or limited in pathways limiting global warming to 1.5°C with **no or limited overshoot**, but they do not reach zero globally.

Methane emissions



Black carbon emissions



Nitrous oxide emissions



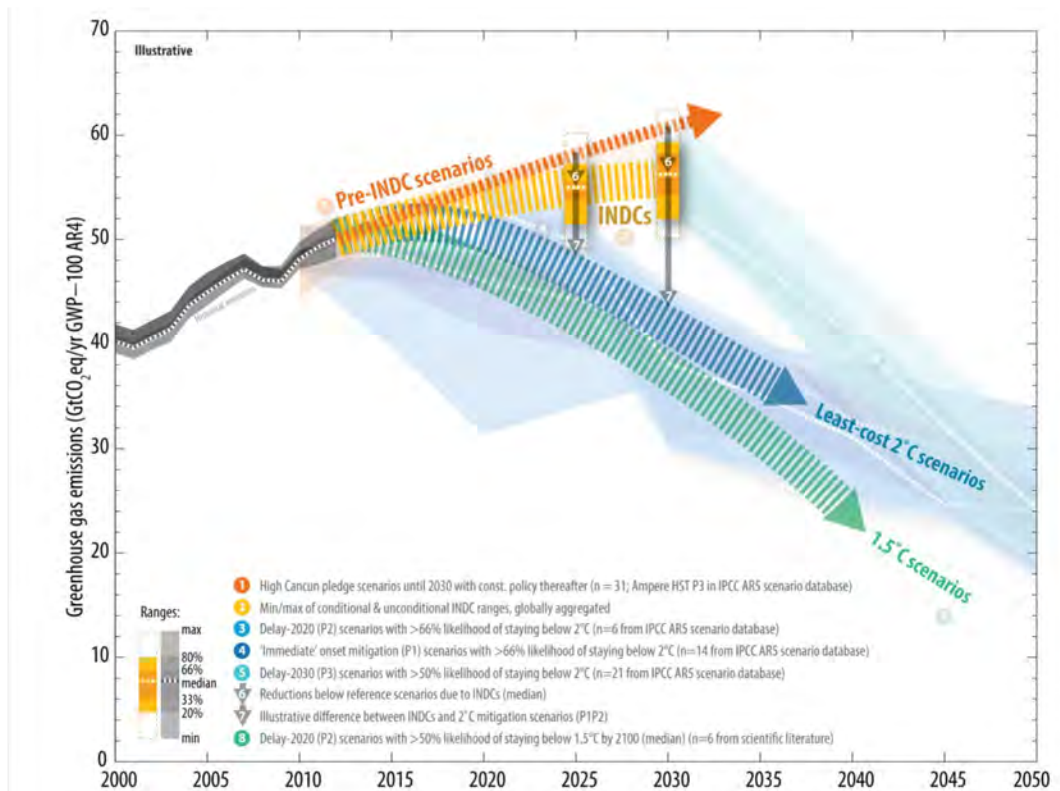
Net ZERO:

Timing of net zero CO₂

Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios



Comparison of global emission levels in 2025 and 2030 resulting from the implementation of the intended nationally determined contributions (Paris Agreement)



UNFCCC, Aggregate effect of the intended nationally determined contributions: an update
<http://unfccc.int/resource/docs/2016/cop22/eng/02.pdf>

There are many synergies between SDG 13 (climate) and the other SDGs

Indicative linkages between mitigation options and sustainable development using SDGs (The linkages do not show costs and benefits)

Mitigation options deployed in each sector can be associated with potential positive effects (synergies) or negative effects (trade-offs) with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

IPCC SR15
Fig SPM 4

Length shows strength of connection

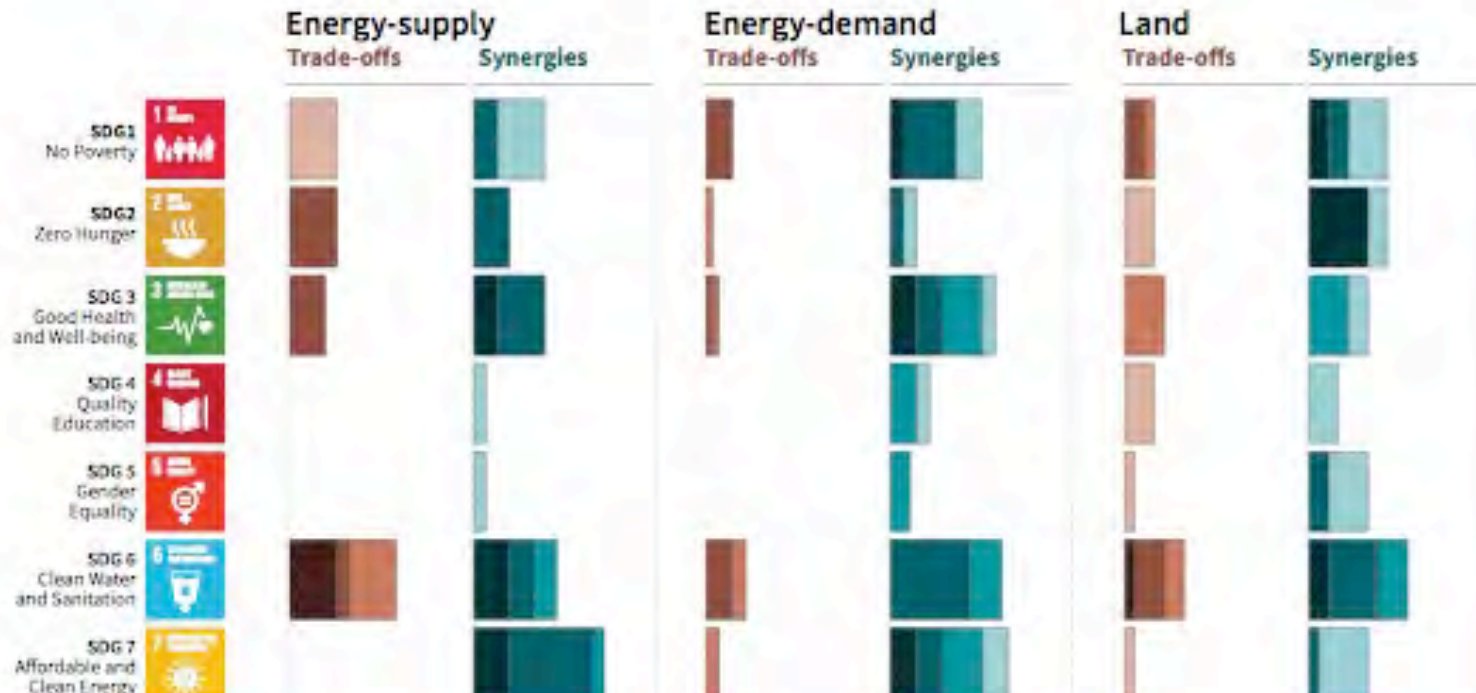


The overall size of the coloured bars depict the relative for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence

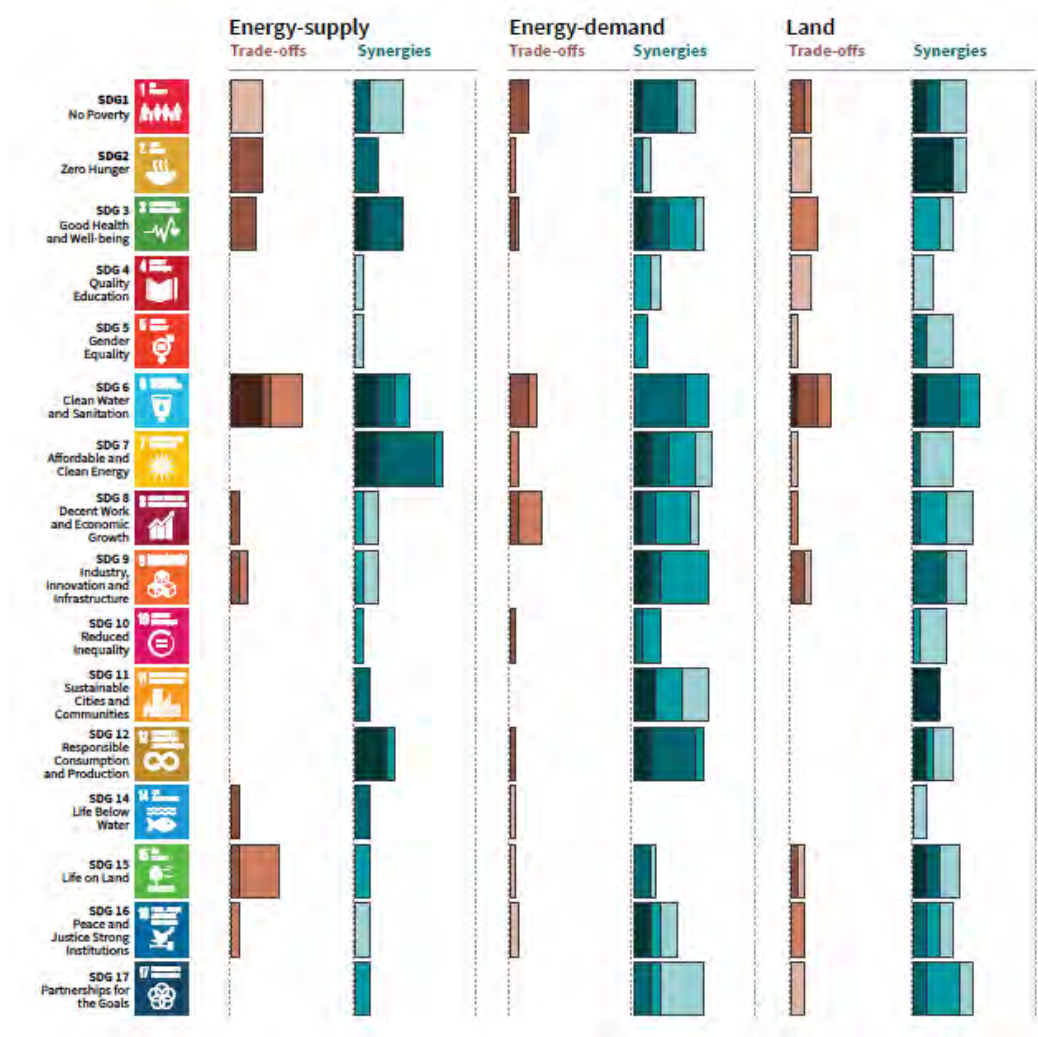


The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.



There are many synergies between SDG 13 (climate) and the other SDGs

Indicative linkages between mitigation options and SDGs



Length shows strength of connection
 The overall size of the coloured bars depict the relative for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence
 The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.

Very High (Dark Green) Low (Light Blue)

IPCC SR15
 Fig SPM 4

Key messages

Impacts of climate change are spreading and costing more and more

Climate urgency is greater than ever, every fraction of a degree matters

Respecting the 1.5°C Paris Agreement objective is essential

It requires reduction of global net CO₂ emissions to ZERO *before* 2050

Emission reductions need to be mostly obtained by fossil fuel phaseout

Other gases matter too (methane, N₂O, ...)

Ignoring science has a big cost (see Covid-19)

Taking ambitious climate measures can deliver multiple benefits in the SDG framework (see GSDR 2019 report)

The participation of all stakeholders is essential

To go further :

- www.climate.be/vanyp : my slides (under « conferences)
- www.ipcc.ch : IPCC
- www.skepticalscience.com : answers to the merchants of doubt arguments
- sustainabledevelopment.un.org/GSDR2019: Global Sustainable Development Report 2019 (GSDR)
- www.plateforme-wallonne-giec.be : IPCC-related in French, Newsletter, latests on SR15, basic climate science
- My latest essay on the climate urgency:
www.levif.be/reveil-climatique www.knack.be/klimaatalarm
- **Twitter: @JPvanYpersele & @IPCC_CH**