Sixth Assessment Report
WORKING GROUP III – MITIGATION OF CLIMATE CHANGE

ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

Climate Change 2022

Mitigation of Climate Change

[Matt Bridgestock, Director and Architect at John Gilbert Architects]

Report by numbers

278 Authors

65 Countries

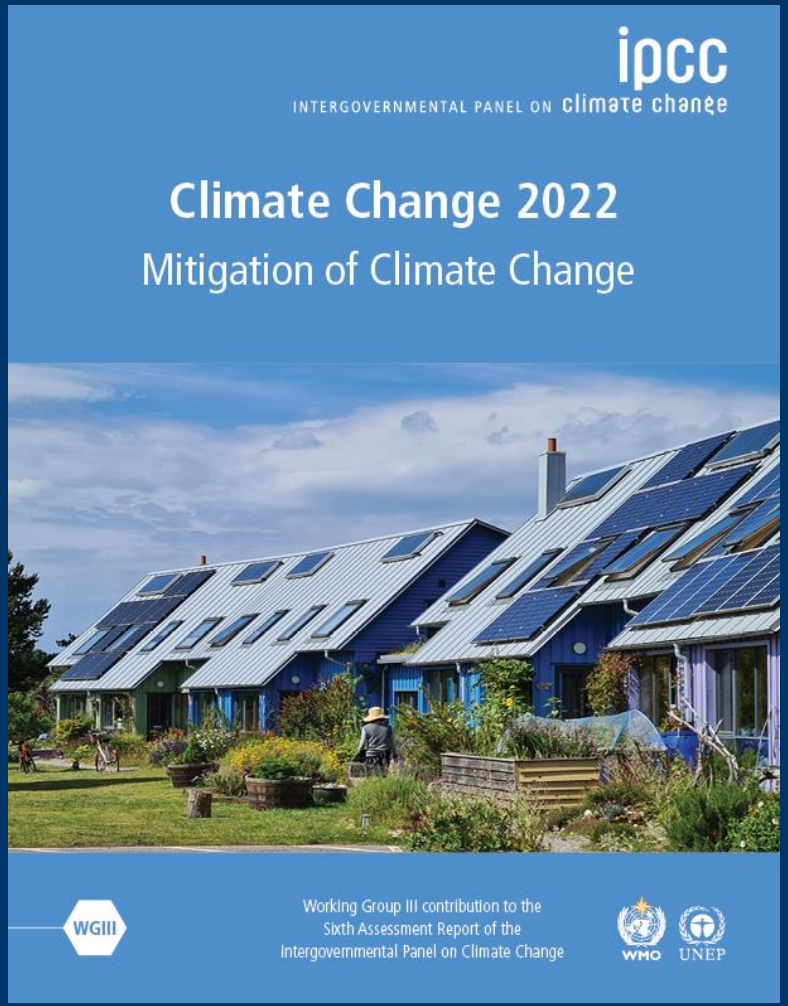
41 % Developing countries
59 % Developed countries

354 Contributing authors

29 % Women / 71 % Men

More than 18,000 scientific papers

59,212 Review comments

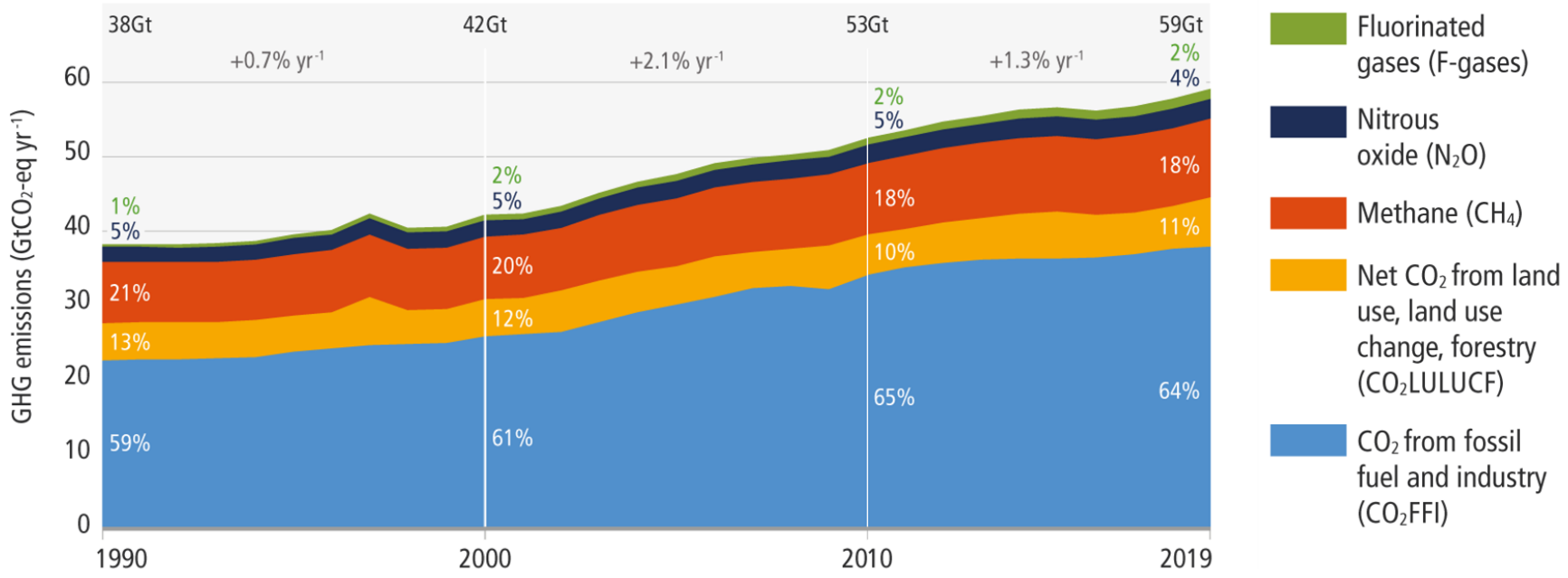


[Matt Bridgestock, Director and Architect at John Gilbert Architects]

ipcc

2010-2019: Average annual greenhouse gas emissions at highest levels in human history

We are not on track to limit warming to 1.5 °C.



ipcc

> **Unless there are immediate and deep emissions reductions across all sectors, 1.5°C is beyond reach.**

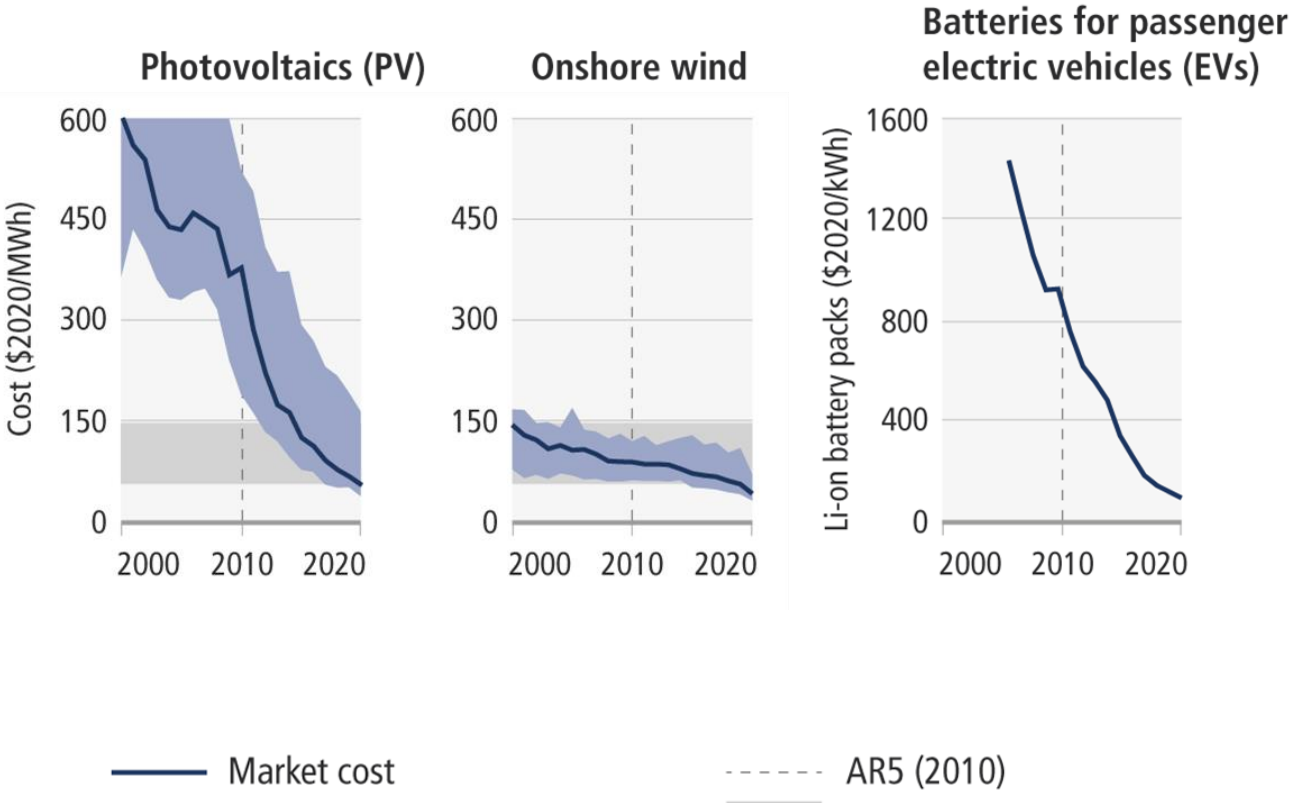
…but there is increased evidence of climate action

[Charlie Chesvick/IStock.com]

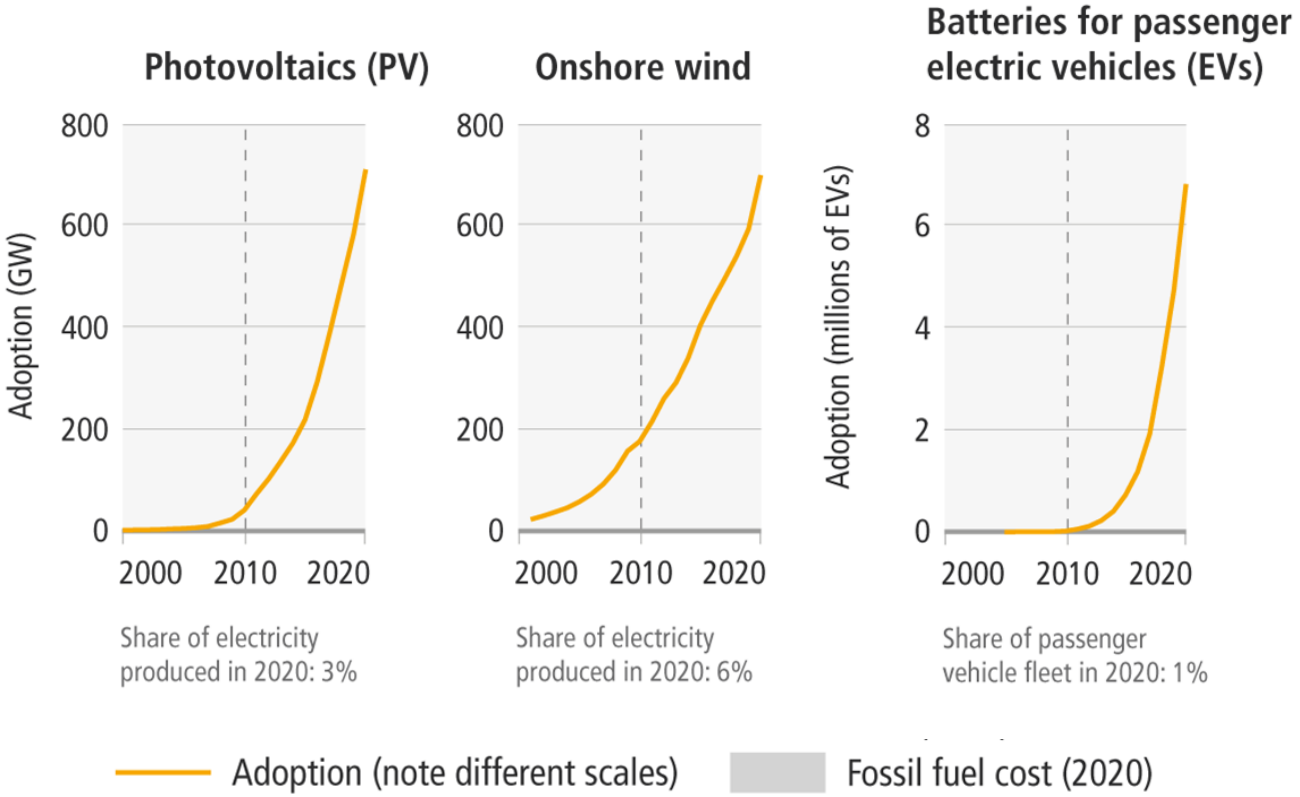
Increased evidence of climate action

Some countries have achieved a **steady decrease** in emissions **consistent** with limiting warming to **2°C.**

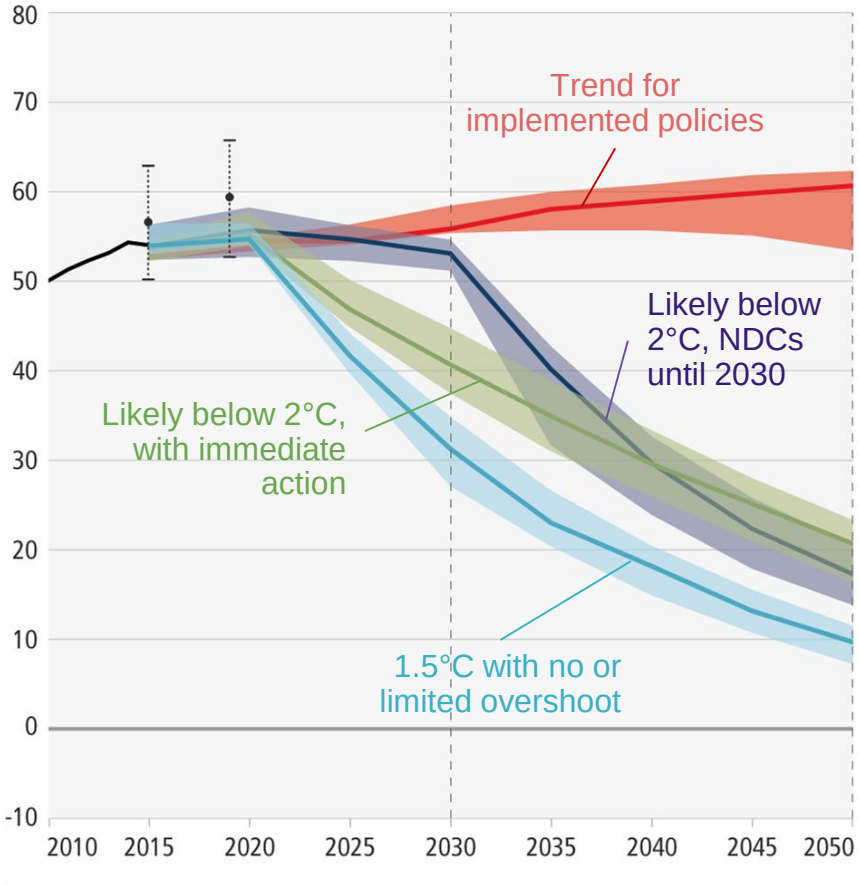
Zero emissions targets have been adopted by at least **826 cities and 103 regions**



In some cases, costs for renewables have fallen below those of fossil fuels.



Electricity systems in some countries and regions are already predominantly powered by renewables.



Limiting warming to 1.5 °C

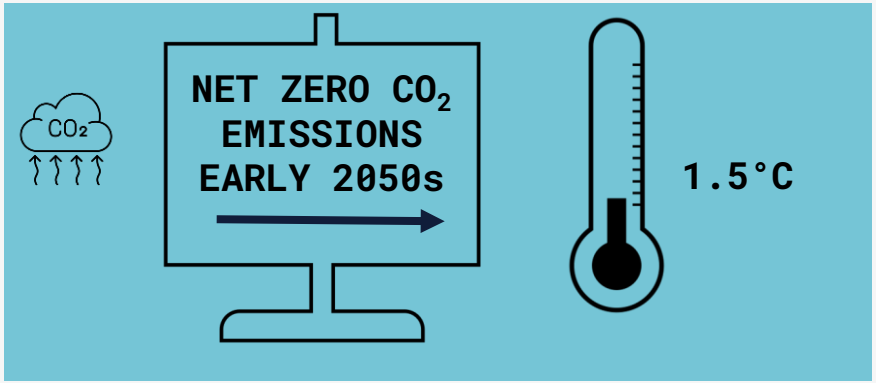
- Global GHG emissions peak before 2025, reduced by 43% by 2030.
- Methane reduced by 34% by 2030

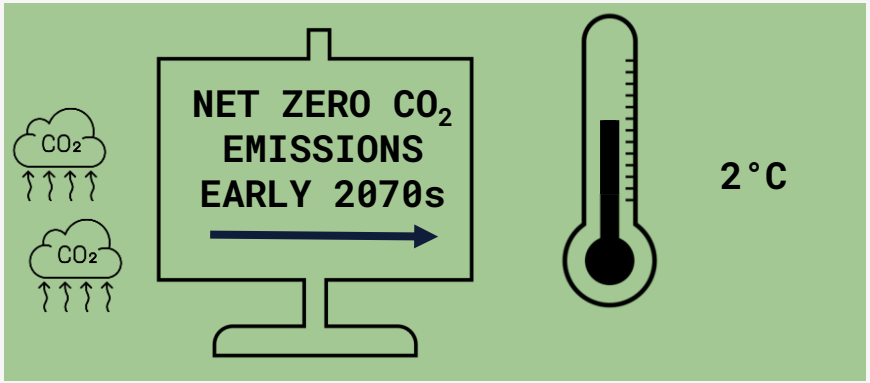
Limiting warming to around 2°C

- Global GHG emissions peak before 2025, reduced by 27% by 2030.

(based on IPCC-assessed scenarios)

The temperature will stabilise when we reach net zero carbon dioxide emissions





(based on IPCC-assessed scenarios)

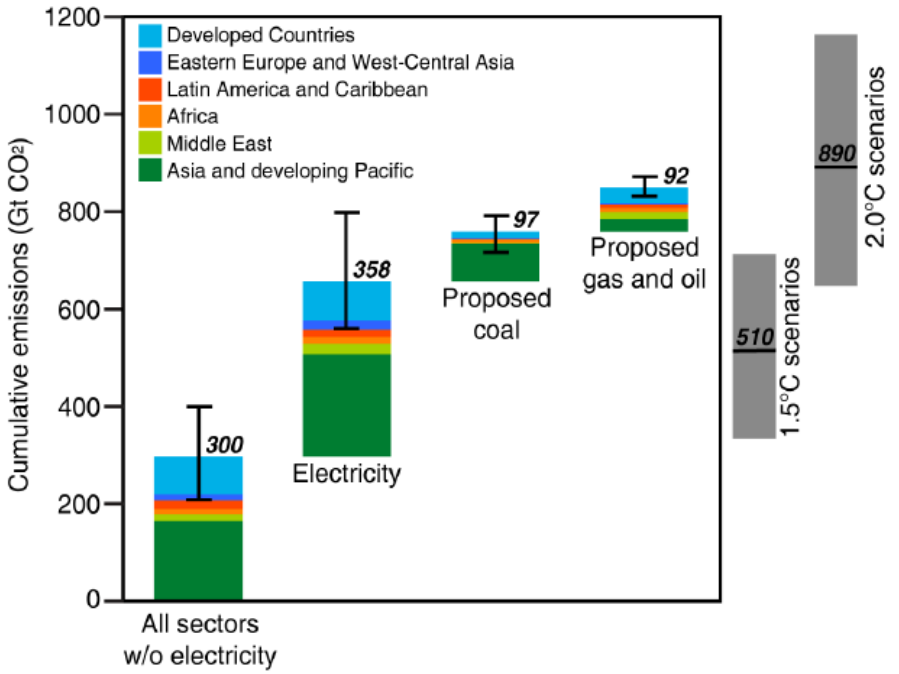


Figure 2.26 Future CO_2 emissions from existing and currently planned fossil fuel infrastructure in the context of Paris carbon budgets in $GtCO_2$ based on historic patterns of infrastructure lifetimes and capacity utilization. Future CO_2 emissions estimates of existing infrastructure for the electricity sector as well as all other sectors (industry, transport, buildings, other fossil fuel infrastructures) and of proposed infrastructures for coal power as well as gas and oil power. Grey bars on the right depict the range (5^{th} – 95^{th} percentile) in overall cumulative net CO_2 emissions until reaching net zero CO_2 in pathways that limit warming to 1.5°C with no or limited overshoot (1.5°C scenarios), and in pathways that limit *likely* warming to 2°C (2°C scenarios).

Source: Based on (Tong et al., 2019) and (Edenhofer et al., 2018).

ipcc
INTERGOVERNMENTAL PANEL ON climate change
WMO UNEP

There are options available **now** in every sector that can at least **halve** emissions by 2030

Demand and services

Energy

Land use

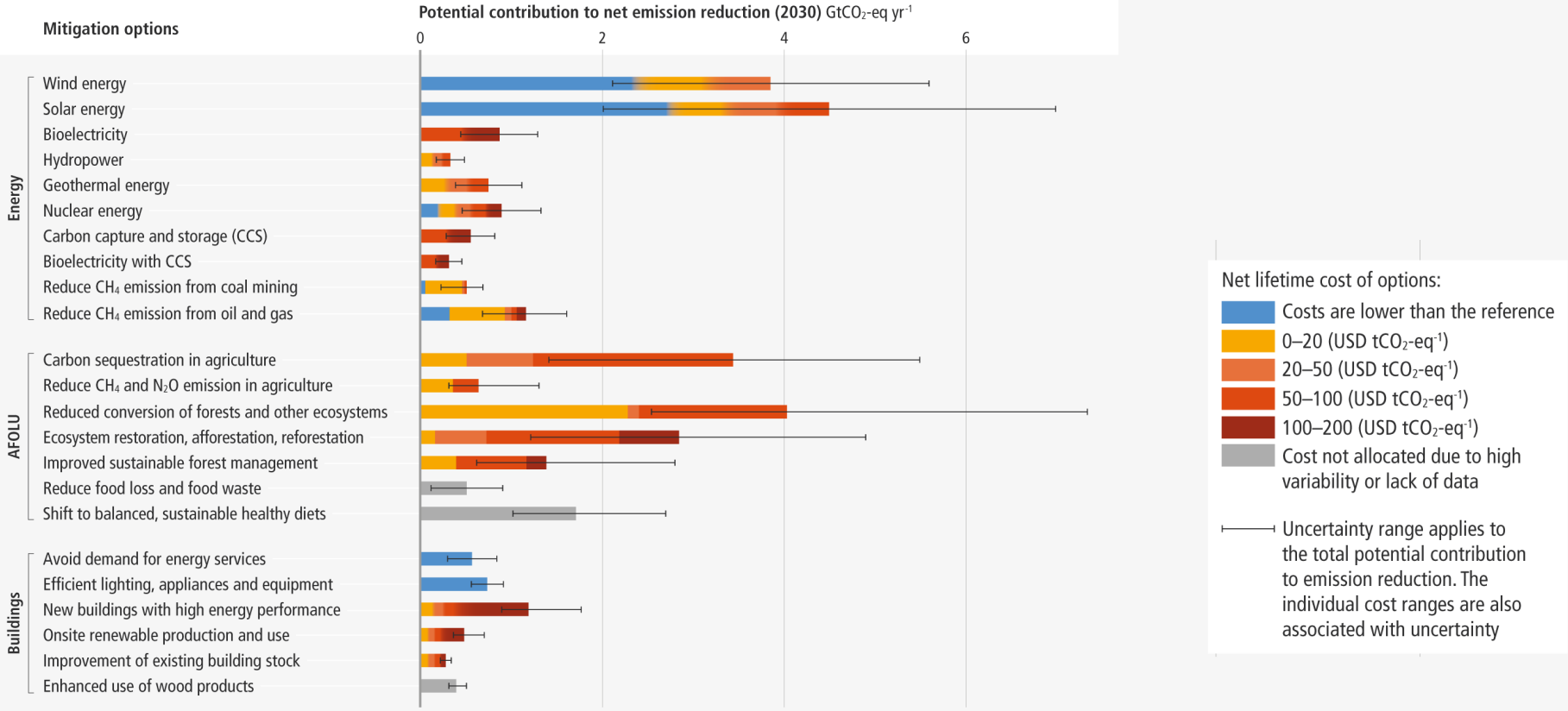
Industry

Urban

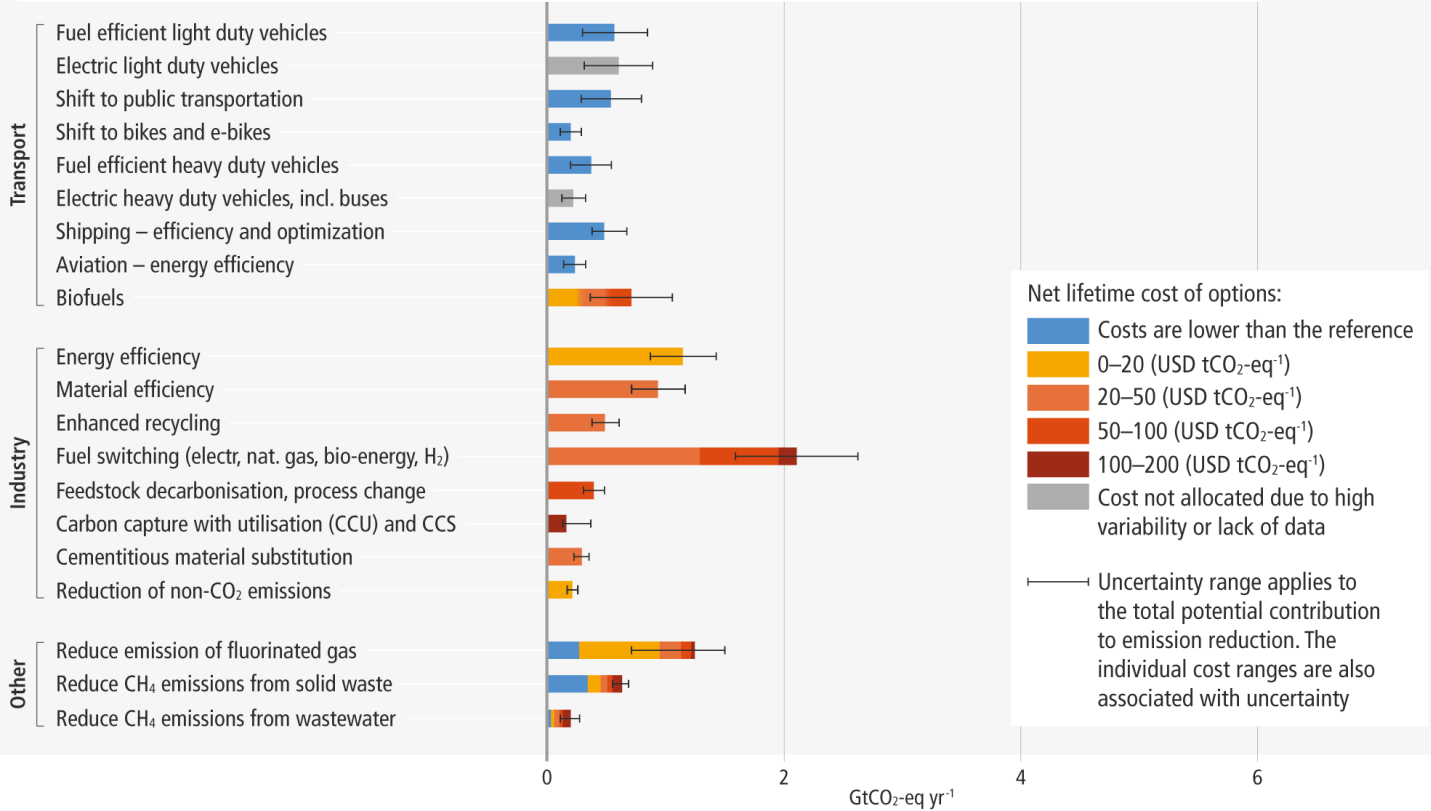
Buildings

Transport

Many options available now in all sectors are estimated to offer substantial potential to reduce net emissions by 2030. Relative potentials and costs will vary across countries and in the longer term compared to 2030.

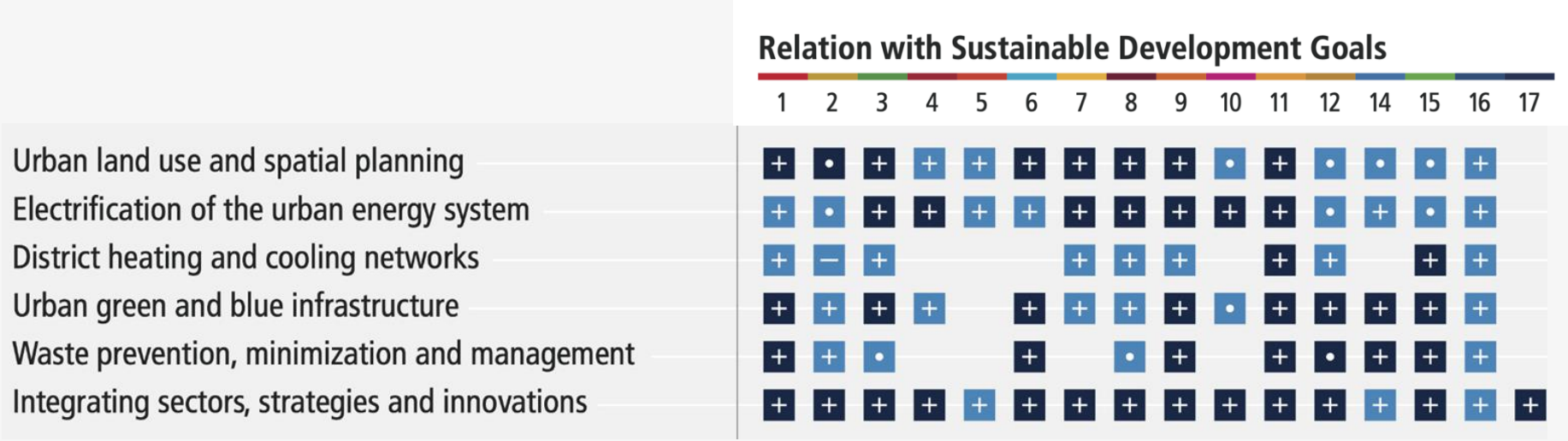


Many options available now in all sectors are estimated to offer substantial potential to reduce net emissions by 2030. Relative potentials and costs will vary across countries and in the longer term compared to 2030.



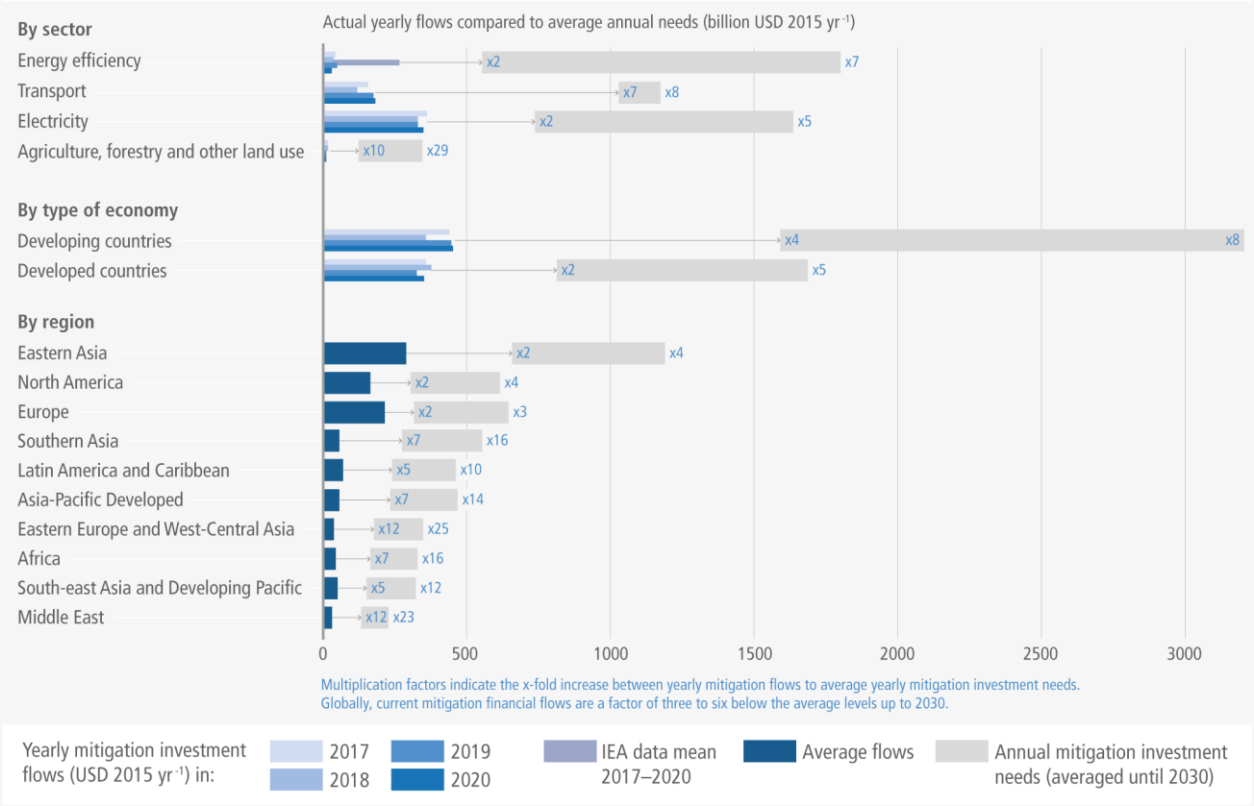
Accelerated climate action is critical to sustainable development

Mitigation options in urban areas



Closing investment gaps

- financial flows: **3-6x lower** than levels needed **by 2030** to limit warming to below 1.5°C or 2°C
- there is **sufficient global capital** and liquidity to close investment gaps
- challenge of closing gaps is widest for developing countries

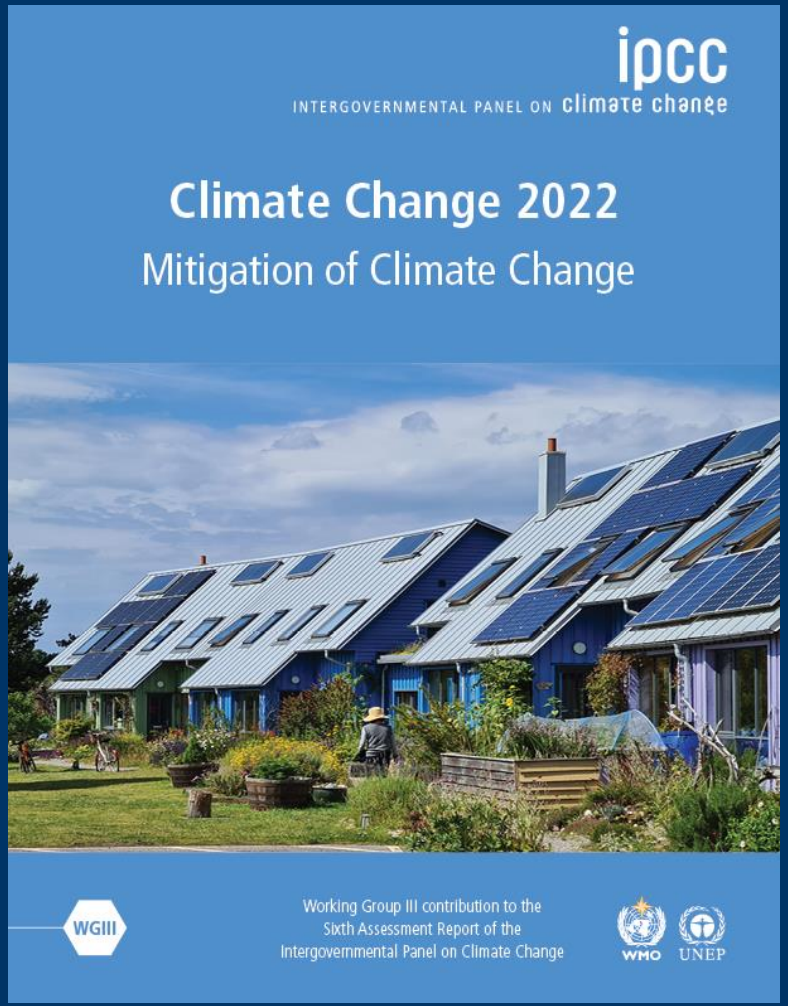


Finance – key messages

- Financial regulators and institutions have implemented multiple regulatory and voluntary initiatives to assess and address financial risks. Yet, climate-related financial risks remain greatly underestimated by financial institutions and markets limiting the capital reallocation needed for the low-carbon transition.
- Despite the increasing attention of investors to climate change, there is limited evidence that this attention has directly impacted emission reductions.
- Persistently high levels of both public and private fossil-fuel related financing continue to be of major concern despite promising recent commitments. This reflects policy misalignment, the current perceived risk-return profile of fossil fuel-related investments, and political economy constraints.
- A common understanding of debt sustainability and debt transparency, including negative implications of deferred climate investments, and how stranded assets and resources may be compensated, has not yet been developed.
- Credible signalling by governments and the international community can reduce uncertainty for financial decision-makers and help reduce transition risk. In addition to indirect and direct subsidies, the public sector's role in addressing market failures, barriers, provision of information, and risk sharing can encourage the efficient mobilisation of private sector finance.
- Innovative financing approaches could help reduce the systemic underpricing of climate risk in markets and foster demand for Paris-aligned investment opportunities. Approaches include de risking investments, robust 'green' labelling and disclosure schemes, in addition to a regulatory focus on transparency and reforming international monetary system financial sector regulations.

Sixth Assessment Report
WORKING GROUP III – MITIGATION OF CLIMATE CHANGE

“The evidence is clear:
The time for action is now



[Matt Bridgestock, Director and Architect at John Gilbert Architects]