The evidence is clear: the time for action is now. We can halve emissions by 2030.

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GENEVA, Apr 4 – In 2010-2019 average annual global greenhouse gas emissions were at their highest levels in human history, but the rate of growth has slowed. Without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5°C is beyond reach. However, there is increasing evidence of climate action, said scientists in the latest Intergovernmental Panel on Climate Change (IPCC) report released today.

Since 2010, there have been sustained decreases of up to 85% in the costs of solar and wind energy, and batteries. An increasing range of policies and laws have enhanced energy efficiency, reduced rates of deforestation and accelerated the deployment of renewable energy.

“We are at a crossroads. The decisions we make now can secure a liveable future. We have the tools and know-how required to limit warming,” said IPCC Chair Hoesung Lee. “I am encouraged by climate action being taken in many

DATE

April 4, 2022

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countries. There are policies, regulations and market instruments that are proving effective. If these are scaled up and applied more widely and equitably, they can support deep emissions reductions and stimulate innovation."

The Summary for Policymakers of the IPCC Working Group III report, *Climate Change 2022: Mitigation of climate change* was approved on April 4 2022, by 195 member governments of the IPCC, through a virtual approval session that started on March 21. It is the third instalment of the IPCC's Sixth Assessment Report (AR6), which will be completed this year.

We have options in all sectors to at least halve emissions by 2030

Limiting global warming will require major transitions in the energy sector. This will involve a substantial reduction in fossil fuel use, widespread electrification, improved energy efficiency, and use of alternative fuels (such as hydrogen).

ASSESSMENT REPORT

- Sixth Assessment Report

WORKING GROUP

- Working Group III

“Having the right policies, infrastructure and technology in place to enable changes to our lifestyles and behaviour can result in a 40-70% reduction in greenhouse gas emissions by 2050. This offers significant untapped potential,” said IPCC Working Group III Co-Chair Priyadarshi Shukla. “The evidence also shows that these lifestyle changes can improve our health and wellbeing.”

Cities and other urban areas also offer significant opportunities for emissions reductions. These can be achieved through lower energy consumption (such as by creating compact, walkable cities), electrification of transport in combination with low-emission energy sources, and enhanced carbon uptake and storage using nature. There are options for established, rapidly growing and new cities.

“We see examples of zero energy or zero-carbon buildings in almost all climates,” said IPCC Working Group III Co-Chair Jim Skea. “Action in this decade is critical to capture the mitigation potential of buildings.”

Reducing emissions in industry will involve using materials more efficiently, reusing and recycling products and minimising waste. For basic materials, including steel, building materials and chemicals, low- to zero-greenhouse gas production processes are at their pilot to near-commercial stage.

This sector accounts for about a quarter of global emissions. Achieving net zero will be challenging and will require new production processes, low and zero emissions electricity, hydrogen, and, where necessary, carbon capture and storage.

Agriculture, forestry, and other land use can provide large-scale emissions reductions and also remove and store carbon dioxide at scale. However, land cannot compensate for delayed emissions reductions in other sectors. Response options can benefit biodiversity, help us adapt to climate change, and secure livelihoods, food and water, and wood supplies.

The next few years are critical

In the scenarios we assessed, limiting warming to around 1.5°C (2.7°F) requires global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by 43% by 2030; at the same time, methane would also need to be reduced by about a third. Even if we do this, it is almost inevitable that we will temporarily exceed this temperature threshold but could return to below it by the end of the century.

“It’s now or never, if we want to limit global warming to 1.5°C (2.7°F),” said Skea. “Without immediate and deep emissions reductions across all sectors, it will be impossible.”

The global temperature will stabilise when carbon dioxide emissions reach net zero. For 1.5°C (2.7°F), this means achieving net zero carbon dioxide emissions globally in the early 2050s; for 2°C (3.6°F), it is in the early 2070s.

This assessment shows that limiting warming to around 2°C (3.6°F) still requires global greenhouse gas emissions to peak before 2025 at the latest, and be reduced by a quarter by 2030.

Closing investment gaps

The report looks beyond technologies and demonstrates that while financial flows are a factor of three to six times lower than levels needed by 2030 to limit warming to below 2°C (3.6°F), there is sufficient global capital and liquidity to close investment gaps. However, it relies on clear signalling from governments and the international community, including a stronger alignment of public sector finance and policy.

“Without taking into account the economic benefits of reduced adaptation costs or avoided climate impacts, global Gross Domestic Product (GDP) would be just a few percentage points lower in 2050 if we take the actions necessary to limit warming to 2°C (3.6°F) or below, compared to maintaining current policies,” said Shukla.

Achieving the Sustainable Development Goals

Accelerated and equitable climate action in mitigating and adapting to climate change impacts is critical to sustainable

development. Some response options can absorb and store carbon and, at the same time, help communities limit the impacts associated with climate change. For example, in cities, networks of parks and open spaces, wetlands and urban agriculture can reduce flood risk and reduce heat-island effects.

Mitigation in industry can reduce environmental impacts and increase employment and business opportunities. Electrification with renewables and shifts in public transport can enhance health, employment, and equity.

“Climate change is the result of more than a century of unsustainable energy and land use, lifestyles and patterns of consumption and production,” said Skea. “This report shows how taking action now can move us towards a fairer, more sustainable world.”

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Notes for editors:

Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

The Working Group III report provides an updated global assessment of climate change mitigation progress and pledges, and examines the sources of global emissions. It explains developments in emission reduction and mitigation efforts, assessing the impact of national climate pledges in relation to long-term emissions goals.

Working Group III introduces several new components in its latest report: One is a new chapter on the social aspects of mitigation, which explores the 'demand side', i.e. what drives consumption and greenhouse gas emissions. This chapter is a partner to the sectoral chapters in the report, which explore the 'supply side' of

climate change – what produces emissions. There is also a cross-sector chapter on mitigation options that cut across sectors, including carbon dioxide removal techniques. And there is a new chapter on innovation, technology development and transfer, which describes how a well-established innovation system at a national level, guided by well-designed policies, can contribute to mitigation, adaptation and achieving the sustainable development goals, while avoiding undesired consequences.

The Summary for Policymakers of the Working Group III contribution to the Sixth Assessment Report (AR6) as well as additional materials and information are available at https://www.ipcc.ch/report/ar6/wg3/

Note: Originally scheduled for release in July 2021, the report was delayed for several months by the COVID-19 pandemic, as work in the scientific community including the IPCC shifted online. This is the third time that the

IPCC has conducted a virtual approval session for one of its reports.

AR6 Working Group III in numbers

278 authors from 65 countries

- 36 – coordinating lead authors
- 163 – lead authors
- 38 – review editors

plus

- 354 – contributing authors

Over 18,000 cited references

A total of 59,212 expert and government review comments

(First Order Draft 21,703; Second Order Draft 32,555; Final Government Distribution: 4, 954)

About the IPCC

The Intergovernmental Panel on Climate Change (IPCC) is the UN body for assessing the science related to climate change. It was established by the United Nations Environment Programme

(UNEP) and the World Meteorological Organization (WMO) in 1988 to provide political leaders with periodic scientific assessments concerning climate change, its implications and risks, as well as to put forward adaptation and mitigation strategies. In the same year the UN General Assembly endorsed the action by the WMO and UNEP in jointly establishing the IPCC. It has 195 member states.

Thousands of people from all over the world contribute to the work of the IPCC. For the assessment reports, experts volunteer their time as IPCC authors to assess the thousands of scientific papers published each year to provide a comprehensive summary of what is known about the drivers of climate change, its impacts and future risks, and how adaptation and mitigation can reduce those risks.

The IPCC has three working groups: Working Group I, dealing with the physical science basis of climate change; Working Group II, dealing with impacts, adaptation and vulnerability; and

Working Group III, dealing with the mitigation of climate change. It also has a Task Force on National Greenhouse Gas Inventories that develops methodologies for measuring emissions and removals.

IPCC assessments provide governments, at all levels, with scientific information that they can use to develop climate policies. IPCC assessments are a key input into the international negotiations to tackle climate change. IPCC reports are drafted and reviewed in several stages, thus guaranteeing objectivity and transparency.

About the Sixth Assessment Cycle

Comprehensive scientific assessment reports are published every 6 to 7 years; the latest, the Fifth Assessment Report, was completed in 2014 and provided the main scientific input to the Paris Agreement.

At its 41st Session in February 2015, the IPCC decided to produce a Sixth Assessment Report (AR6). At its 42nd Session in October 2015 it elected a new Bureau that would oversee the work on

this report and Special Reports to be produced in the assessment cycle. At its 43rd Session in April 2016, it decided to produce three Special Reports, a Methodology Report and AR6.

The Working Group I contribution to the Sixth Assessment Report *Climate Change 2021: the Physical Science Basis* was released on 9 August 2021.The Working Group II contribution, *Climate Change 2022: Impacts, Adaptation and Vulnerability*, was released on 28 February 2022.

The concluding Synthesis Report is due in autumn 2022.

The IPCC also publishes special reports on more specific issues between assessment reports.

Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5 degrees Celsius (2.7°F) above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty was launched in October 2018.

Climate Change and Land, *an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems* was launched in August 2019, and the *Special Report on the Ocean and Cryosphere in a Changing Climate* was released in September 2019.

In May 2019 the IPCC released the *2019 Refinement to the 2006 IPCC Guidelines on National Greenhouse Gas Inventories*, an update to the methodology used by governments to estimate their greenhouse gas emissions and removals.

For more information visit www.ipcc.ch.

The website includes outreach materials including videos about the IPCC and video recordings from outreach events conducted as webinars or live-streamed events.

Most videos published by the IPCC can be found on our YouTube channel.

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