Aspiring to consensus: The case of climate change

Jim Skea
International Institute for Environment and Development

Science and policy in times of multi-crisis and dissent:
Issues of framing, authority, evidence – and political-economic power

Conference of The European Network of Scientists for Social and Environmental Responsibility

Athens
15 – 17 May 2025

Consensus is hard work!

Photos by IISD/ENB

The role of the Intergovernmental Panel on Climate Change (IPCC) is:

"… to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation."

"IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies."

IPCC assesses – it don't conduct research…

Principles Governing IPCC Work, paragraph 2
Source: http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf

The structure of IPCC

INTERGOVERNMENTAL PANEL ON climate change

WMO UN environment programme

Intergovernmental Panel
The 195 member governments appointing National Focal Points

IPCC Plenary
Meeting of representatives of IPCC member governments

IPCC Bureau
IPCC Chair and Vice-Chairs plus Co- and Vice-Chairs of WGs and TFI

Executive Committee
IPCC Chair, IPCC Vice-Chairs, Co-Chairs of TFI and WGs

Working Groups and TFI
The three Working Groups and the TFI form the basis of the operational branch of producing the reports

WGI
The Physical Science Basis

WGII
Impacts, Adaptation & Vulnerability

WGIII
Mitigation of Climate Change

TFI
Task Force on National Greenhouse Gas Inventories

Scientists and experts
Scientists and experts from around the world are involved in the preparation of IPCC reports.

Authors & Scientists

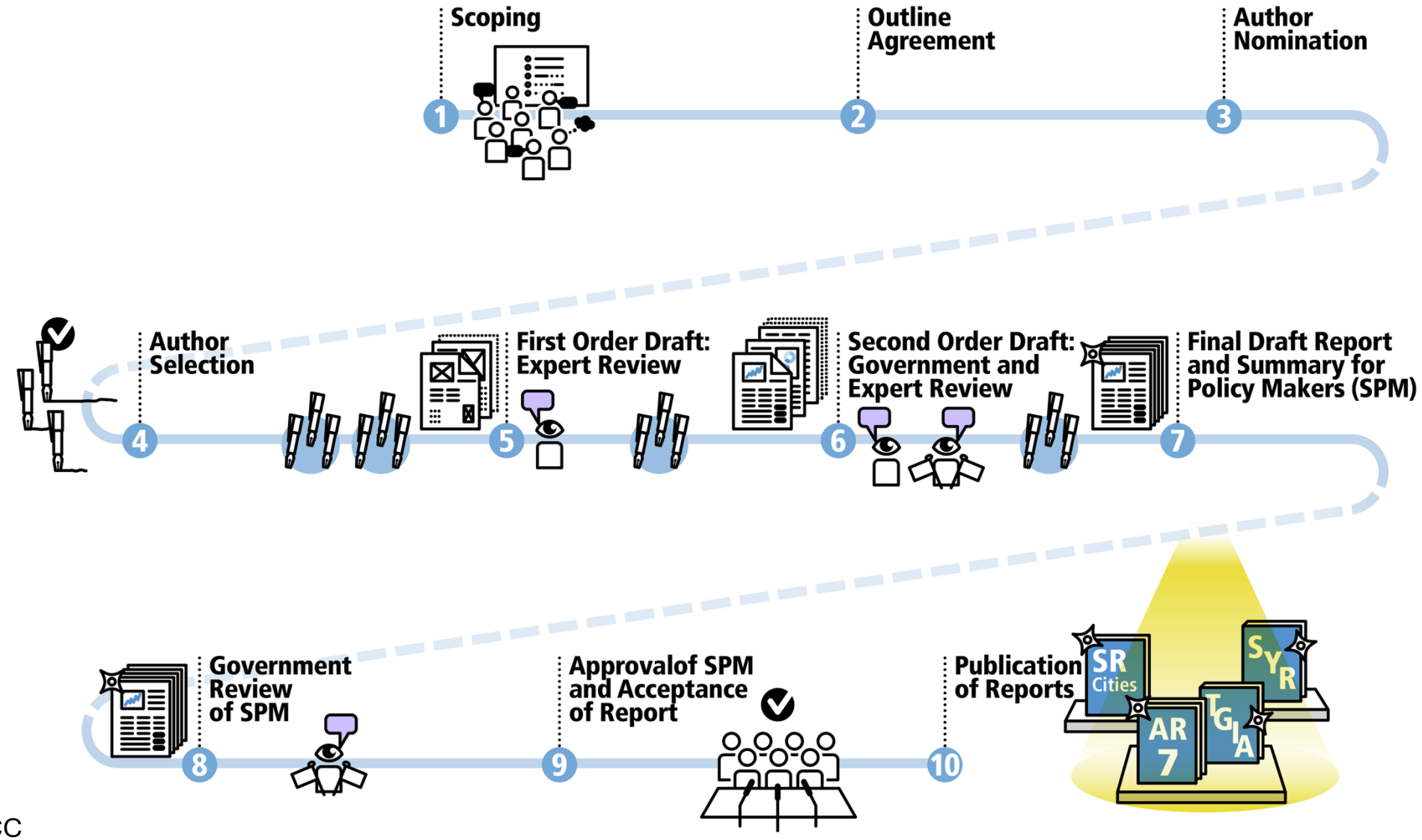
Expert Reviewers

Review Editors

Secretariat
Oversees the process and provides support

Technical Support Units (TSUs)
Each Working Group and the TFI is supported by a TSU

The Report Process in Ten Steps



Source: IPCC

The evolution of the IPCC

Source: IPCC

"...the objective of the IPCC is to provide 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."

1988

IPCC jointly established by WMO and UNEP

1990

First Assessment Report
Led to creation of UNFCCC in 1994

1995

Second Assessment Report
Kyoto Protocol

2001

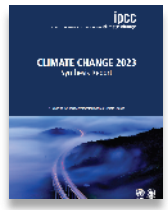
Third Assessment Report
Focus attention on adaptation to climate change

2007

Fourth Assessment Report
2°C Limit
Nobel Peace Prize

2014

Fifth Assessment Report
Paris Agreement - 2015



2023

Sixth Assessment Report
First Global Stocktake - COP28

GROWTH IN SCIENTIFIC RESEARCH

INCREASE IN STAKEHOLDER INVOVEMENT

GROWING PUBLIC AWARENESS

Preceded by:
The Advisory Group on Greenhouse Gases 1986-1990

> "The Advisory Group on Greenhouse Gases has occupied a curiously obscure place in the otherwise over-grazed field of climate science-policy interactions" – Agrawala, 1998

- Three sponsoring bodies: WMO, UNEP and ICSU (International Council of Scientific Unions)
- Seven individuals
- Agrawala conclusions
    - Panel size and target audience must match problem complexity
    - Political and funding contexts matter, but only as a vector sum
    - Panel leaders as nucleating agents
    - Resilience, an understated quality of advisory panels
    - Trade-off between continuity and institutional self-preservation

Followed by and overlapping with:
SBSTA (UNFCCC Subsidiary Body for Scientific and Technological Advice)

UNFCCC Article 9, 1992. Under the guidance of the Conference of the Parties, and drawing upon existing competent international bodies, this body shall:

a) Provide assessments of the state of scientific knowledge relating to climate change and its effects;

b) Prepare scientific assessments on the effects of measures taken in the implementation of the Convention;

c) Identify innovative, efficient and state-of-the-art technologies and know-how and advise on the ways and means of promoting development and/or transferring such technologies;

d) Provide advice on scientific programmes, international cooperation in research and development related to climate change, as well as on ways and means of supporting endogenous capacity-building in developing countries; and

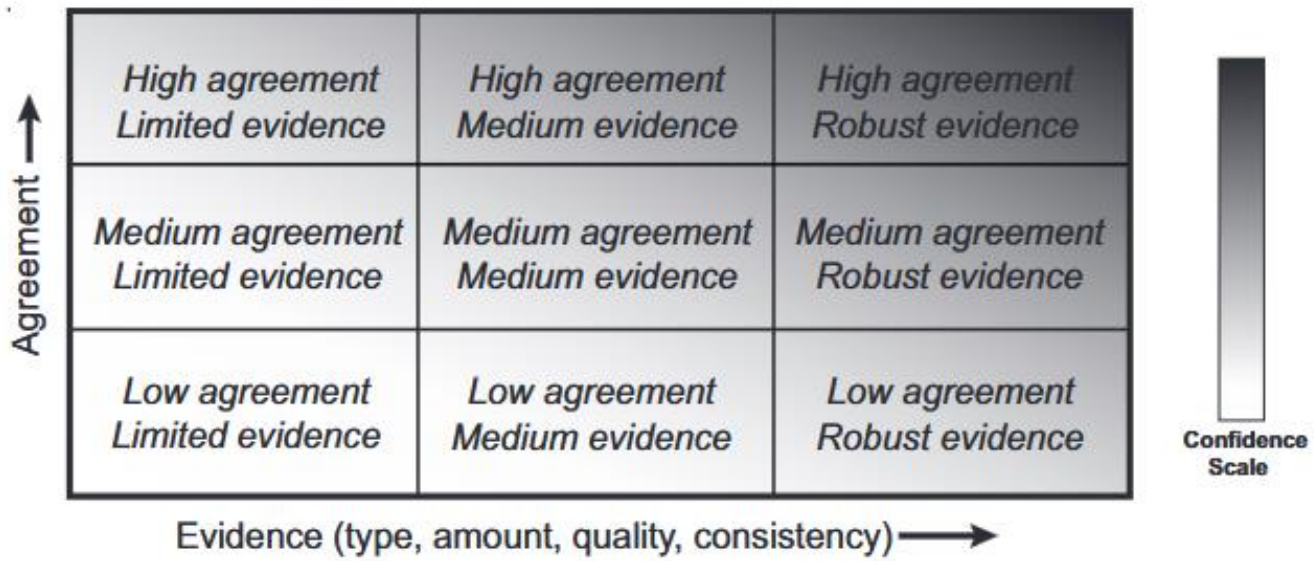
e) Respond to scientific, technological and methodological questions that the Conference of the Parties and its subsidiary bodies may put to the body.

"SBSTA plays an important role as the link between the scientific information provided by expert sources such as the IPCC on the one hand, and the policy-oriented needs of the COP on the other hand. It works closely with the IPCC, sometimes requesting specific information or reports from it".

A SBSTA-IPCC Joint Working Group meets every six months.

Confidence, agreement and volume of evidence

Progress on the alignment of financial flows towards the goals of the Paris Agreement remains slow and tracked climate finance flows are distributed unevenly across regions and sectors. ***(high confidence)***



Source: IPCC

Likelihood

Global GHG emissions in 2030 associated with the implementation of Nationally Determined Contributions (NDCs) announced prior to COP2623 would make it ***likely*** that warming will exceed 1.5°C during the 21st century and tracked climate finance flows are distributed unevenly across regions and sectors.

Table 1. Likelihood Scale

Term*	Likelihood of the Outcome
Virtually certain	99-100% probability
Very likely	90-100% probability
Likely	66-100% probability
About as likely as not	33 to 66% probability
Unlikely	0-33% probability
Very unlikely	0-10% probability
Exceptionally unlikely	0-1% probability

Source: IPCC

Over-enthusiastic use of likelihood language…

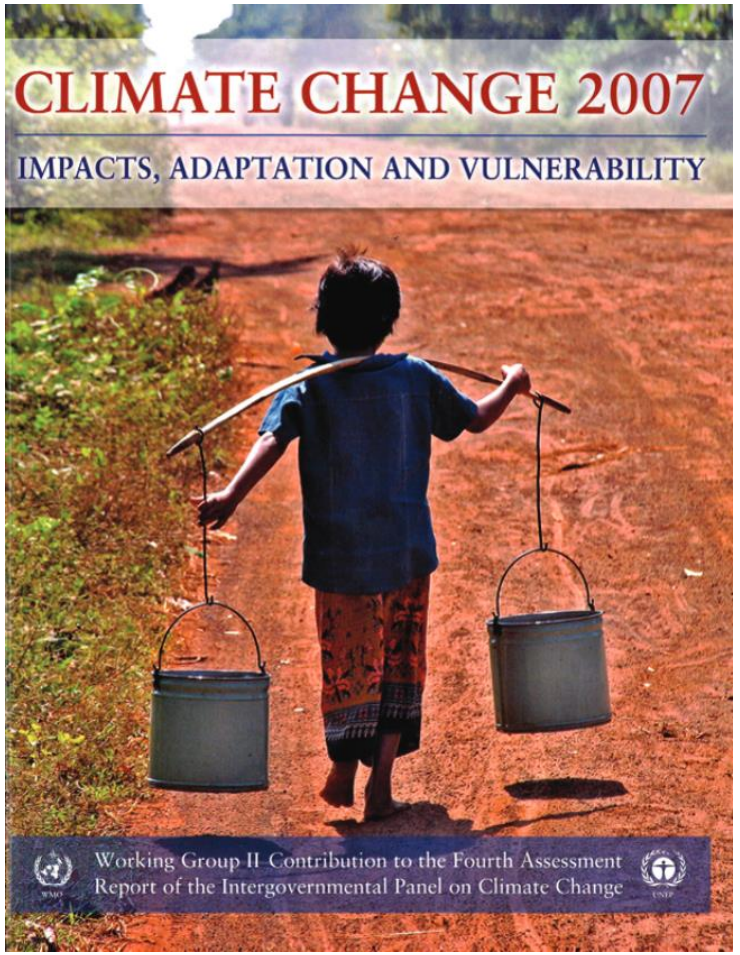
"Estimated global emissions levels in 2020 based on the Cancún Pledges are not consistent with cost-effective mitigation trajectories that are ***at least about as likely as not*** to limit warming to below 2°C relative to pre-industrial levels, but they do not preclude the option to meet this goal"

AR5 Synthesis Report

“Himalayagate” AR4 2007

It has, however, recently come to our attention that a paragraph in the 938-page Working Group II contribution to the underlying assessment refers to poorly substantiated estimates of rate of recession and date for the disappearance of Himalayan glaciers. In drafting the paragraph in question, the clear and well-established standards of evidence, required by the IPCC procedures, were not applied properly.

The Chair, Vice-Chairs, and Co-chairs of the IPCC regret the poor application of well-established IPCC procedures in this instance. This episode demonstrates that the quality of the assessment depends on absolute adherence to the IPCC standards, including thorough review of “the quality and validity of each source before incorporating results from the source into an IPCC Report”. We reaffirm our strong commitment to ensuring this level of performance.

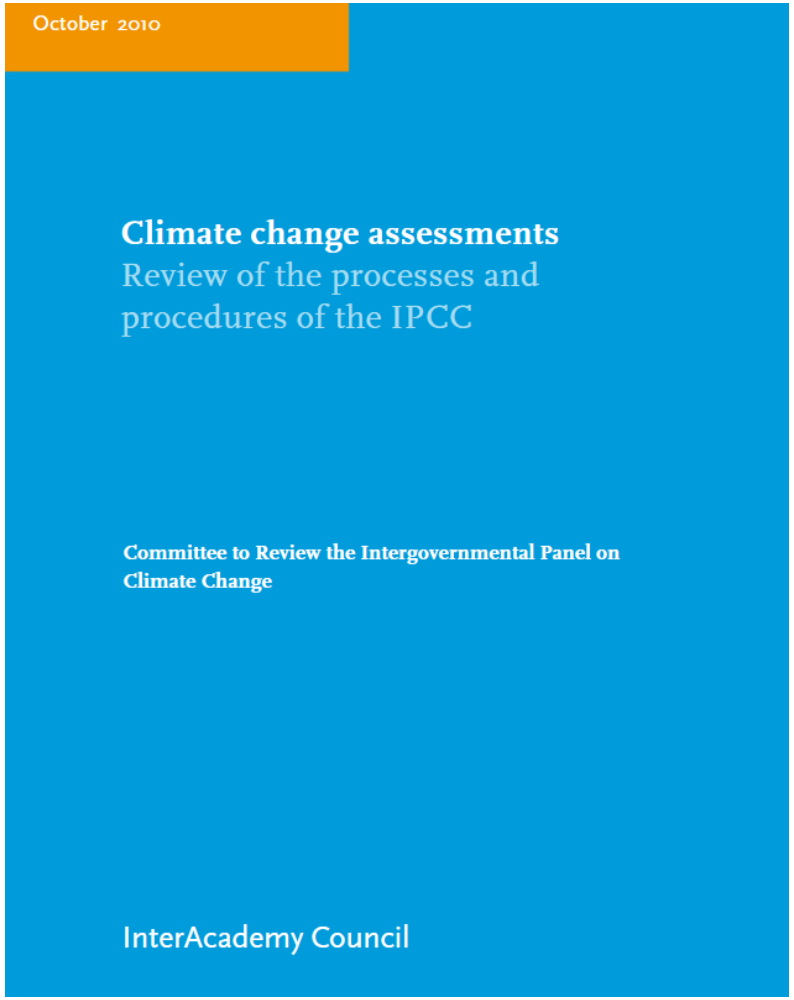


IPCC, January 2010

External review of IPCC processes and procedures

InterAcademy Council Review of IPCC Procedures led to four sets of revisions/ additions to IPCC principles and procedures:

- Procedures, including error protocol
- Governance and Management
- Conflict of Interest Policy
- Communications Strategy



Identifying and describing disparate views

- Coordinating Lead Authors (CLAs), Lead Authors (LAs), and Review Editors (REs) of chapter teams are required to consider the range of scientific, technical and socio-economic views, expressed in balanced assessments. Authors should use calibrated uncertainty language that expresses the diversity of the scientifically and technically valid evidence, based mainly on the strength of the evidence and the level of agreement in the scientific, technical, and socio-economic literature.
- In preparing the first draft, and at subsequent stages of revision after review, Lead Authors should clearly identify disparate views for which there is significant scientific or technical support, together with the relevant arguments.
- It is important that Reports describe different (possibly controversial) scientific, technical, and socio-economic views on a subject, particularly if they are relevant to the policy debate.
- Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid.

Source: IPCC

Principle 10: consensus may not always be possible

10. In taking decisions, and approving, adopting and accepting reports, the Panel, its Working Groups and any Task Forces shall use ***all best endeavours to reach consensus***. If consensus is judged by the relevant body not possible: (a) for decisions on procedural issues, these shall be decided according to the General Regulations of the WMO; (b) for approval, adoption and acceptance of reports, differing views shall be explained and, upon request, recorded.

    Differing views on matters of a scientific, technical or socio-economic nature shall, as appropriate in the context, be represented in the scientific, technical or socio-economic document concerned.

    Differences of views on matters of policy or procedure shall, as appropriate in the context, be recorded in the Report of the Session.

Source: IPCC

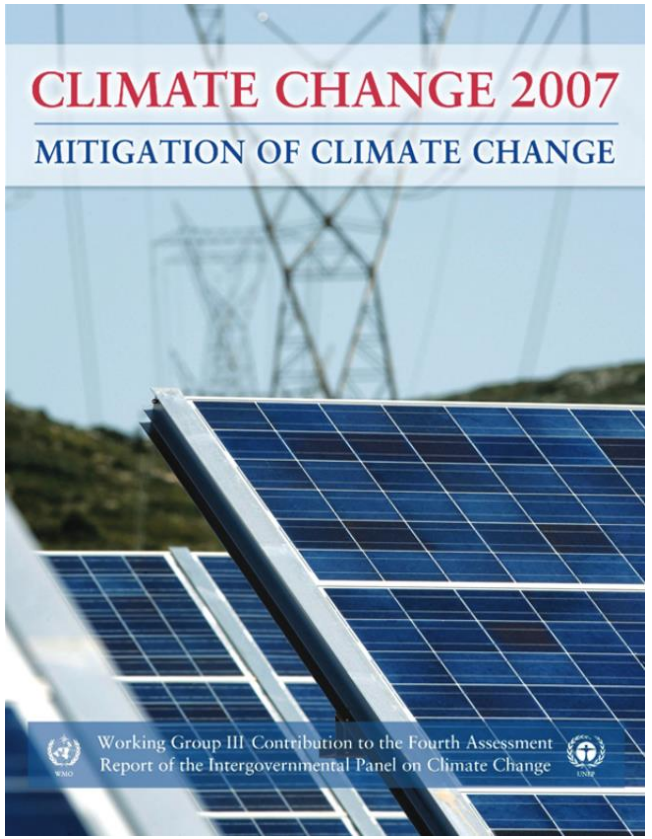
Footnotes

WG III AR4 (2007)

21. Austria could not agree with this statement.

    “Given costs relative to other supply options, nuclear power, which accounted for 16% of the electricity supply in 2005, can have an 18% share of the total electricity supply in 2030 at carbon prices up to 50 US$/tCO2-eq, but safety, weapons proliferation and waste remain as constraints”

23. Tuvalu noted difficulties with the reference to “low costs” as Chapter 9, page 15 of the WG III report states that: “the cost of forest mitigation projects rise significantly when opportunity costs of land are taken into account”.



Beam me out of here: the use of explanatory footnotes

- **WG II 32.** Balanced diets feature plant-based foods, such as those based on coarse grains, legumes fruits and vegetables, nuts and seeds, and animal-source foods produced in resilient, sustainable and low-greenhouse gas emissions system
- **WG II 44**. Ecosystem based Adaptation (EbA) is recognised internationally under the Convention on Biological Diversity (CBD14/5). A related concept is Nature-based Solutions (NbS), which includes a broader range of approaches with safeguards, including those that contribute to adaptation and mitigation. The term 'Nature-based Solutions' is widely but not universally used in the scientific literature. The term is the subject of ongoing debate, with concerns that it may lead to the misunderstanding that NbS on its own can provide a global solution to climate change.
- **WG III 34.** Abatement here refers to human interventions that reduce the amount of greenhouse gases that are released from fossil fuel infrastructure to the atmosphere.
- **WG III 54.** In this context, 'unabated fossil fuels' refers to fossil fuels produced and used without interventions that substantially reduce the amount of GHG emitted throughout the life cycle; for example, capturing 90% or more CO_2 from power plants, or 50–80% of fugitive methane emissions from energy supply.

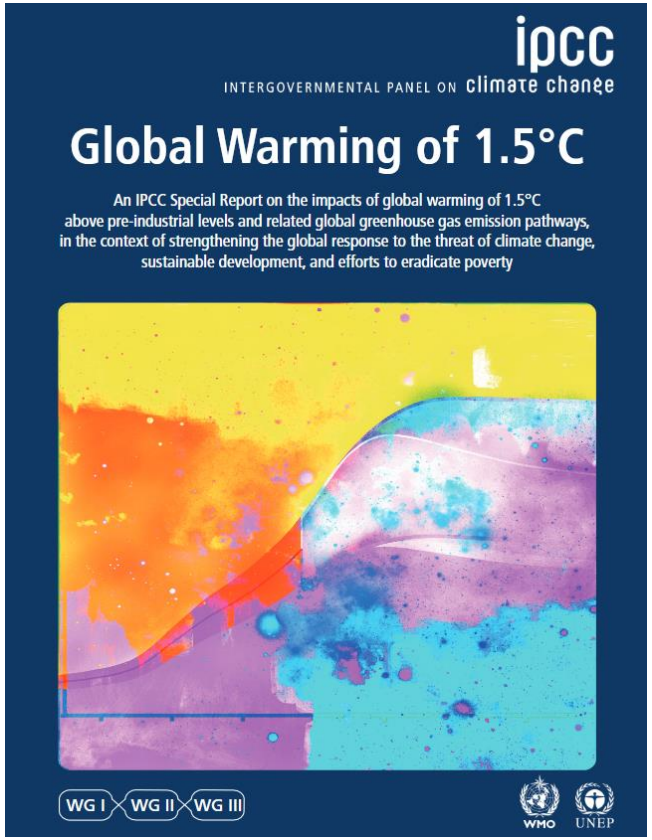
Special Report on Global Warming of 1.5ºC: Saudi Arabia Reservation

As a condition for our acceptance of the IPCC SPM Report on the special report on the global warming of 1.5ºC, my delegation wishes to ***express our substantial disagreement on the reference to the Nationally Determined Contributions*** (NDCs) in the Underlying Scientific-Technical Assessment, and SPM Report…

……Based on this, the outline of this Special Report and its scoping were discussed during the deliberations of the Panel on these issues and the Panel agreed not to include NDCs in both instances because it would undermine our principles.

Therefore, addressing this matter and other issues that lie outside of the mandate in the underlying report is unprecedented and sends a wrong signal regarding the effective functioning of the IPCC…..

….***any section that addresses these references and thus does not conform with the mandate should not be included, such as references in (list of sections attached***), which are annexed to this statement.



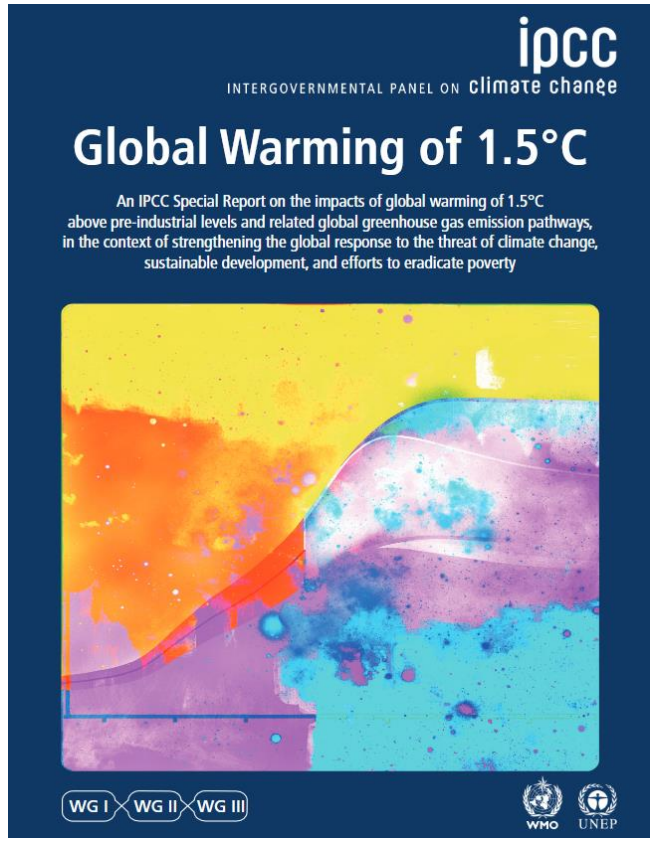
Special Report on Global Warming of 1.5ºC: United States Reservation

With respect to acceptance of the Special Report, as provided in the IPCC's procedures, the contents of the authored chapters have not been subject to line-by-line discussion and agreement, and remain the responsibility of the authors. In this context, ***the United States notes that acceptance of this report by the Panel does not imply endorsement by the United States of the specific findings or underlying contents of the report***.

With respect to approval of the Summary for Policy Makers (SPM), we underscore that, as provided in IPCC procedures, ***approval signifies that the SPM is consistent with the factual material contained in the full report***.

Given that the underlying contents of the report are not subject to agreement by members of the panel, approval of the SPM similarly should not be understood as U.S. endorsement of all of the findings and key messages included in the SPM.

We note that ***parts of the underlying report were substantially revised*** following the second order draft, including in a number of cases with new literature made available only after the circulation of that draft, and that ***these revisions were not subject to full government and expert review.***

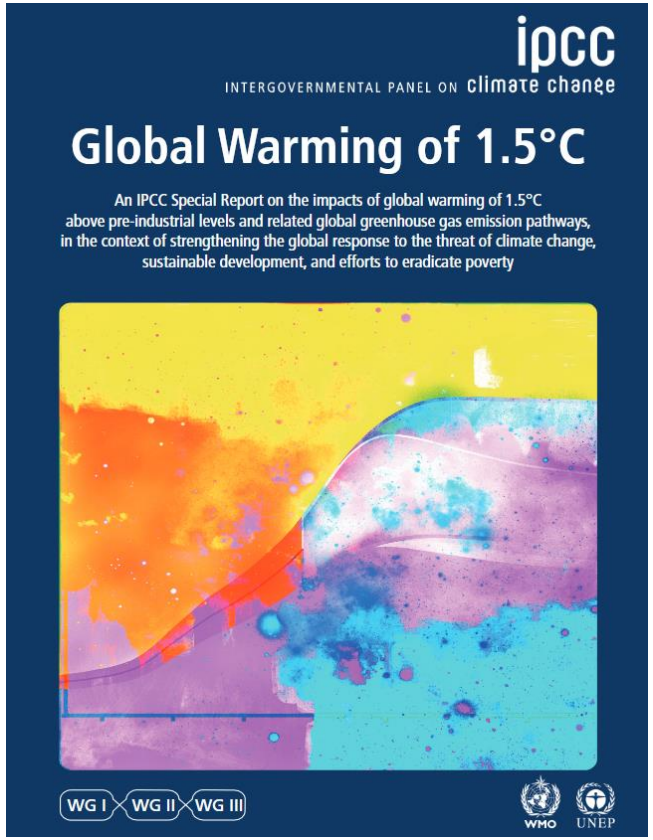


Recognizing IPCC Reports: COP 24, 2 to 15 December 2018

24. Recognizes the role of the Intergovernmental Panel on Climate Change in providing scientific input to inform Parties in strengthening the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty;

25. Expresses its appreciation and gratitude to the Intergovernmental Panel on Climate Change and the scientific community for responding to the invitation of the Conference of the Parties and providing the Special Report on Global Warming of 1.5 °C, reflecting the best available science;

26. ***Welcomes the timely completion*** of the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5 °C in response to the invitation from Parties in decision 1/CP.21, paragraph 21;

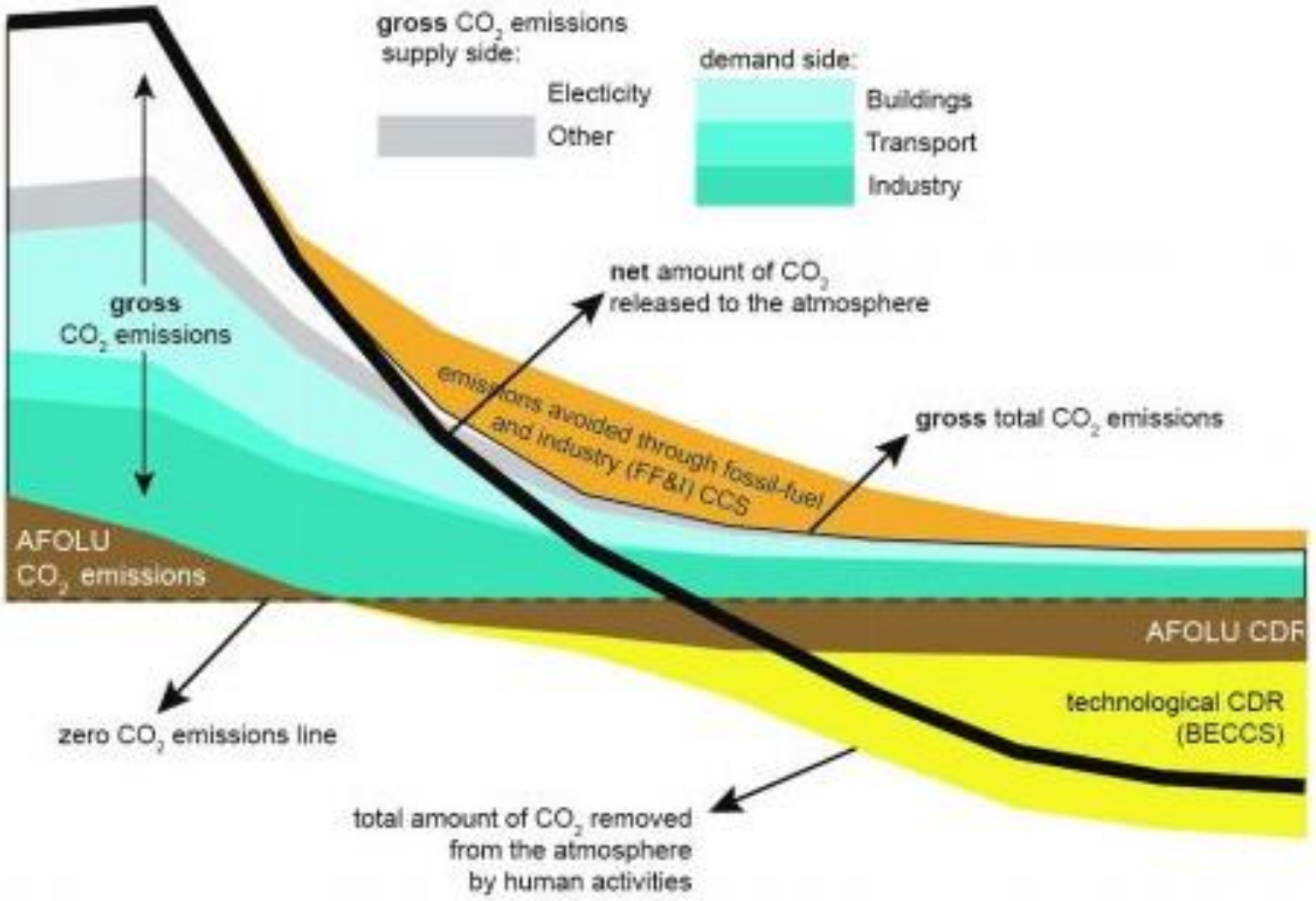


Human influence

- FAR (1990): We are certain of the following: there is a natural greenhouse effect which already keeps the Earth warmer than it would otherwise be; emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases
- SAR (1995): The balance of evidence…suggests a discernible human influence on global climate.
- TAR (2001): Emissions of greenhouse gases and aerosols due to human activities continue to alter the atmosphere in ways that are expected to affect the climate
- AR4 (2007): The understanding of anthropogenic warming and cooling influences on climate has improved since the TAR, leading to very high confidence that the global average net effect of human activities since 1750 has been one of warming.
- AR5 (2014): Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions.
- AR6 (2022): ***It is unequivocal that human influence has warmed the atmosphere, ocean and land***.

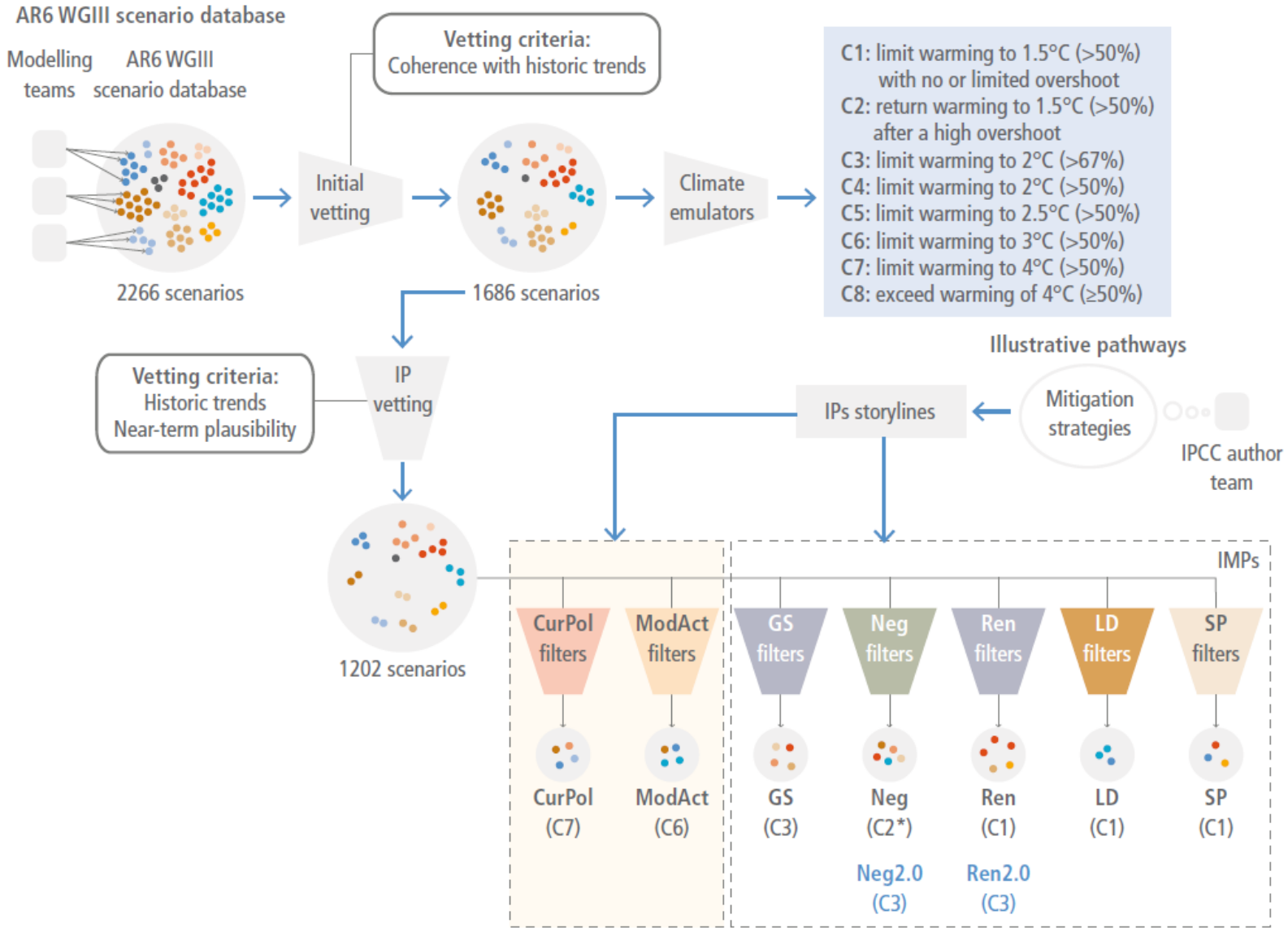
Source: IPCC

Elements of a global CO_2 mitigation pathway



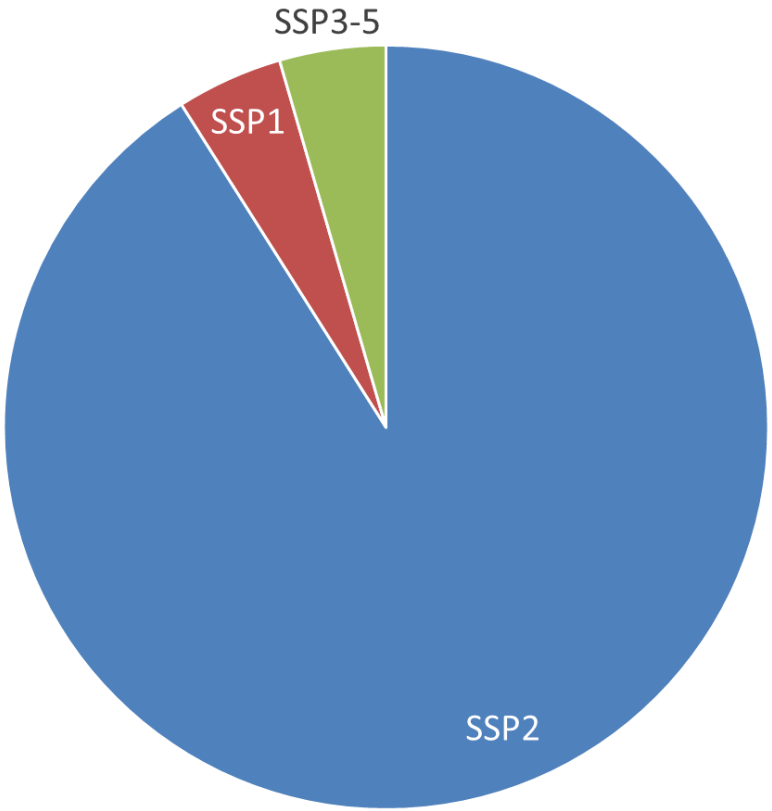
Source: IPCC

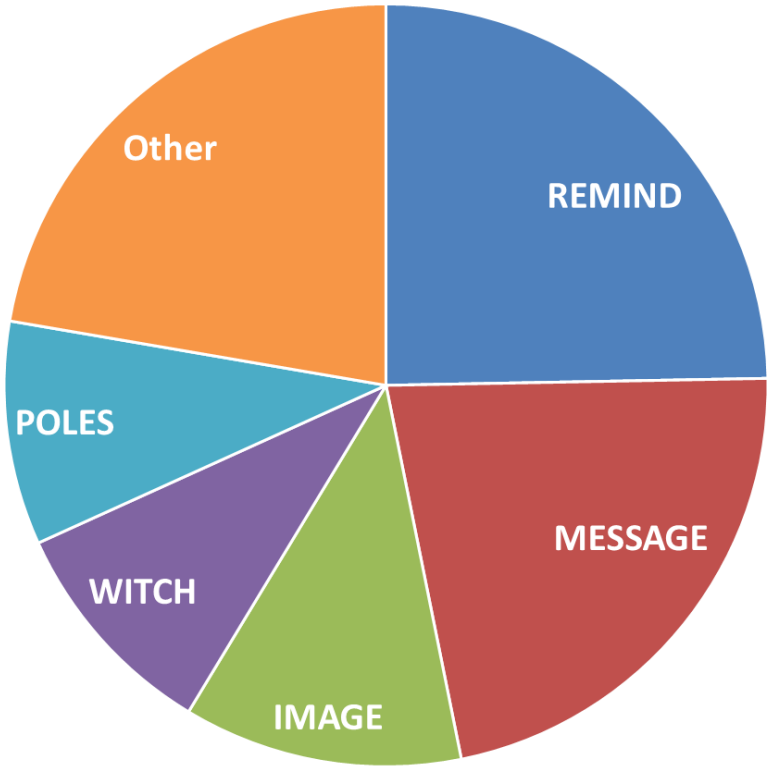
Process for creating the AR6 Scenarios Database



Source: IPCC

Coverage in the AR6 scenarios database: SSPs and models





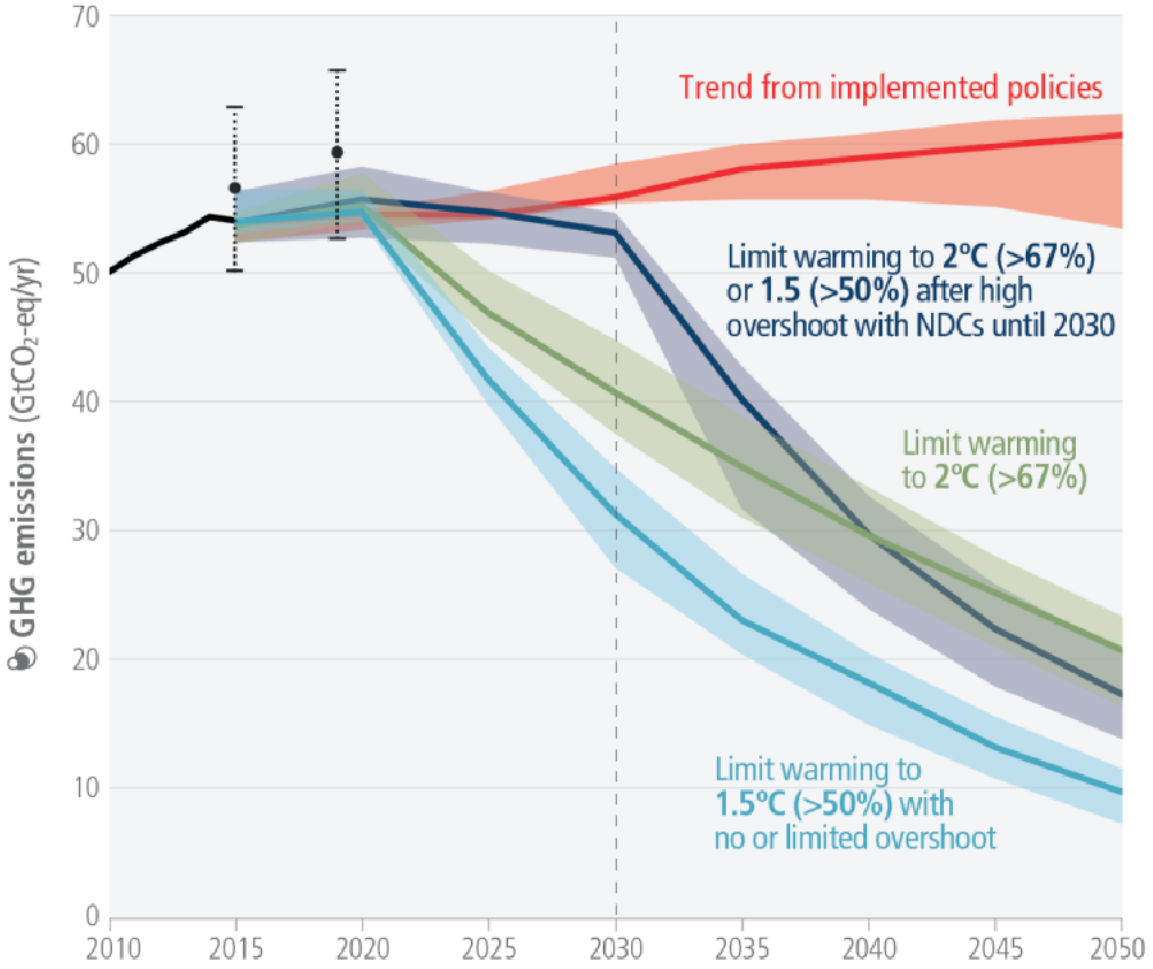
Issues with the scenario process

- Inclusivity in scenario design and IPCC scenario architecture
- Persistence of inequalities in the underlying scenario assumptions
- Concentration in a small number of models and modelling teams
- Observing the boundary between research (community) and assessment (IPCC)
- Administrative burden of submission to the scenarios database
- Lack of time for scenario assessment between cut-off date (11 October 2021) and final government draft submission (28 November 2021)
- Transparency of scenario and modelling processes

Scientific issues

- approaches to uncertainty
- capturing discontinuities
- assumed technology costs and real world developments
- high discount rate that give insufficient weight to costs on the longer-term
- reliance on large-scale CO_2 removal with implications for land use (BECCS – bioenergy with carbon capture and storage)
- economy-wide rebound effects from improved energy efficiency
- lack of attention to the demand side
- The proformative role of scenarios: e.g. the prominent role assigned to CO_2 removal technologies could legitimise their deployment and weakens the case for early mitigation action

Red pill or blue pill? Reality or analytical constructs?



"Global modelled pathways"

"Global net zero CO_2 emissions are reached in the early 2050s in modelled pathways that limit warming to 1.5°C (>50%) with no or limited overshoot, and around the early 2070s in modelled pathways that limit warming to 2°C (>67%)."

IPCC Seventh Assessment Cycle 2023-

"Based on the report of the scoping meeting the Panel will decide whether to prepare a report and agree on its scope, outline, and the work plan including schedule and budget"

- The Panel has agreed the outlines of the three Working Group contributions to the Seventh Assessment Report
- The Panel has ***not*** agreed, after three Plenary sessions, the workplan (schedule) for the three Working Group contributions
- The Panel has ***not*** agreed the outline of a Methodology Report on Carbon Dioxide Removal and Carbon Capture, Utilisation and Storage
- At its 62nd Session the Panel did ***not*** agree the Report of the 61st Session.

Conclusions