



## The 2018 IPCC special report on the 1.5°C limit

Press release and Headline Statements

Peter Carter, main messages, 10 Oct 2018

- **1.5°C is a must do for a livable planet – we really have no choice**
- **We are all in a dire global EMERGENCY**
- **1.5°C is globally disastrous, possibly recoverable, but 2°C is total planetary catastrophe**
- **Immediate rapid global emissions decline is the only feasible response**

*Global Warming of 1.5 °C, an IPCC special report on the impacts of global warming of 1.5 °C 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*

IPCC Press release 8 October 2018

Limiting global warming to 1.5°C would require rapid, far reaching and unprecedented changes in all aspects of society, with clear benefits to people and natural ecosystems, limiting global warming to 1.5°C compared to 2°C.

We are already seeing the consequences of 1°C of global warming through more extreme weather, rising sea levels and diminishing Arctic sea ice, among other changes.

Every extra bit of warming matters, especially since warming of 1.5°C or higher increases the risk associated with long-lasting or irreversible changes, such as the loss of some ecosystems.

The report finds that limiting global warming to 1.5°C would require “rapid and far-reaching” transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) would need to fall by about 45 percent from 2010 levels by 2030, reaching ‘net zero’ around 2050.

Allowing the global temperature to temporarily exceed or ‘overshoot’ 1.5°C would mean a greater reliance on techniques that remove CO<sub>2</sub> from the air to return global temperature to below 1.5°C by 2100. The effectiveness of such techniques are unproven at large scale and some may carry significant risks for sustainable development.

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(from) IPCC 2018 1.5°C Special Report

### Headline Statements

- A. Understanding Global Warming of 1.5°
  - A1. Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.
  - A2. Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long term changes in the climate system, such as sea level rise, with associated impacts
  - A3. Climate-related risks for natural and human systems are higher for global warming of 1.5°C than at present, but lower than at 2°C. These risks depend on the magnitude and rate of warming...
- B. Projected Climate Change, Potential Impacts and Associated Risks

- B1. Climate models project robust differences in regional climate characteristics between present-day and global warming of 1.5°C, and between 1.5°C and 2°C.

These differences include increases in:

- mean temperature in most land and ocean regions,
  - hot extremes in most inhabited regions,
  - heavy precipitation in several regions, and
  - the probability of drought and precipitation deficits in some region.
- B2. By 2100, global mean sea level rise is projected to be around 0.1 metre lower with global warming of 1.5°C compared to 2°C. Sea level will continue to rise well beyond 2100, and the magnitude and rate of this rise depends on future emission pathways. A slower rate of sea level rise enables greater opportunities for adaptation in the human and ecological systems of small islands, low-lying coastal areas and deltas.
  - B3. On land, impacts on biodiversity and ecosystems, including species loss and extinction, are projected to be lower at 1.5°C of global warming compared to 2°C. Limiting global warming to 1.5°C compared to 2°C is projected to lower the impacts on terrestrial, freshwater, and coastal ecosystems and to retain more of their services to humans.
  - B4. Limiting global warming to 1.5°C compared to 2°C is projected to reduce increases in ocean temperature as well as associated increases in ocean acidity and decreases in ocean oxygen levels.
  - B5. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.
  - B6. Most adaptation needs will be lower for global warming of 1.5°C compared to 2°C. There are limits to adaptation and adaptive capacity for some human and natural systems at global warming of 1.5°C, with associated losses

#### C. Emission Pathways and System Transitions Consistent with 1.5°C Global Warming

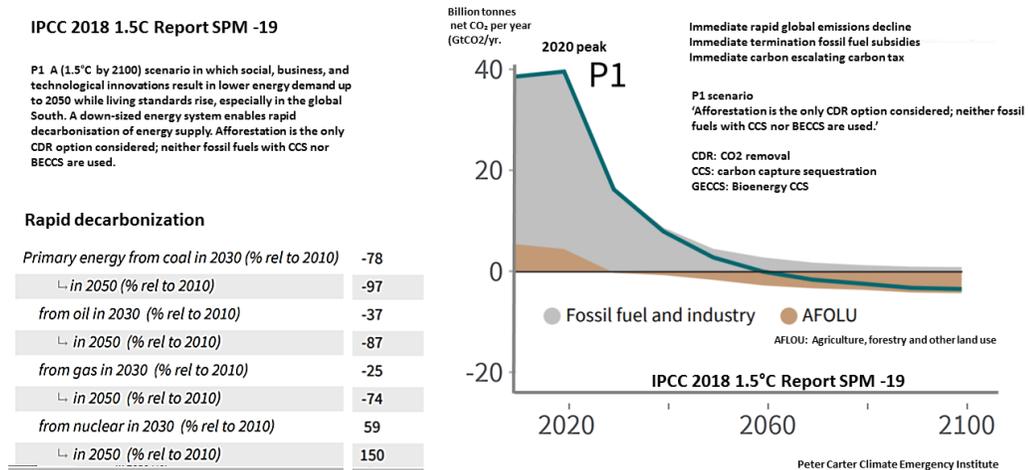
- C1. In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO<sub>2</sub> emissions decline by about 45% from 2010 levels by 2030 (up to 60%), reaching net zero around 2050. For limiting global warming to below 2°C, CO<sub>2</sub> emissions are projected to decline by about 20% by 2030 in most pathways (up to 30% and reach net zero around 2075. Non-CO<sub>2</sub> emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C.
- C2. Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems.
- C3. All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of carbon dioxide removal (CDR) on the order of 100–1000 GtCO<sub>2</sub> over the 21st century. CDR deployment of several hundreds of GtCO<sub>2</sub> is subject to multiple feasibility and sustainability constraints. Significant near-term emissions reductions and measures to lower energy and land demand can limit CDR deployment to a few hundred GtCO<sub>2</sub> without reliance on bioenergy with carbon capture and storage

#### D. Strengthening the Global Response in the Context of Sustainable Development and Efforts to Eradicate Poverty

- D1. Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions in 2030 of 52–58 GtCO<sub>2</sub>eq yr<sup>-1</sup> (medium confidence). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030. Avoiding overshoot and reliance on future largescale deployment of carbon dioxide removal (CDR) can only be achieved if global CO<sub>2</sub> emissions start to decline well before 2030.
- D2. The avoided climate change impacts on sustainable development, eradication of poverty and reducing inequalities would be greater if global warming were limited to 1.5°C rather than 2°C.
- D3. Adaptation options specific to national contexts, if carefully selected together with enabling conditions, will have benefits for sustainable development and poverty reduction with global warming of 1.5°C.

D4. Mitigation options consistent with 1.5°C pathways are associated with multiple synergies

### P1: the only feasible 1.5°C (or 2°C) response with today's proven technologies



The above has been approved by all IPCC the 1.5°C report scientists and approved by all world governments through the IPCC policy maker process. This is a commendably great achievement.

Carbon capture sequestration (CCS) by technologies are assumed by their frequent references to be feasible in the near future, but as the report does acknowledge, there is no good evidence for this.

The report does not include the extra emissions and warming due to reduced efficiency of the land and ocean carbon sinks, nor from a global surface warming caused feedback emissions. This is an extremely large source of error above 1.5°C that makes benefits from 1.5°C much larger, hopefully avoiding runaway.

