

AVOID2

Can we avoid dangerous climate change?

Implications of INDCs on emissions, temperature and impacts

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Agenda

1. Why 2°C?
2. What should we do to achieve 2°C?
3. What do the INDC pledges add up to?
4. What benefits could these pledges have?
5. What more needs to be done?
6. Key messages

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Where could our emissions pathway lead us?



2 billion people
with increased
water scarcity

10-12 billion
people/year
exposed to
heatwaves



70-90 million
people/year
affected by river
flooding

Cooling
demands 2x



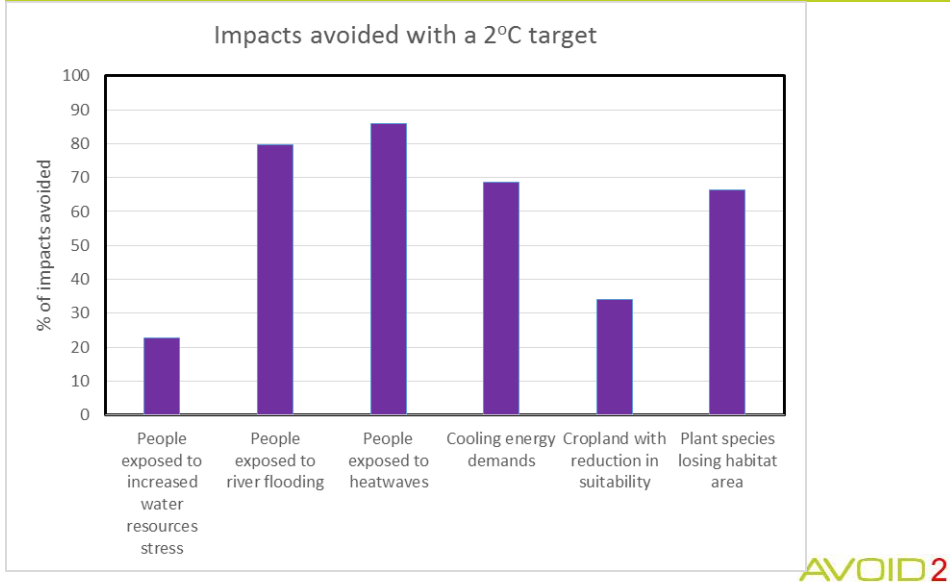
50% of plant
species lose >
half habitat

60% of cropland
less suitable for
agriculture



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Which impacts could we avoid if we achieve 2°C?

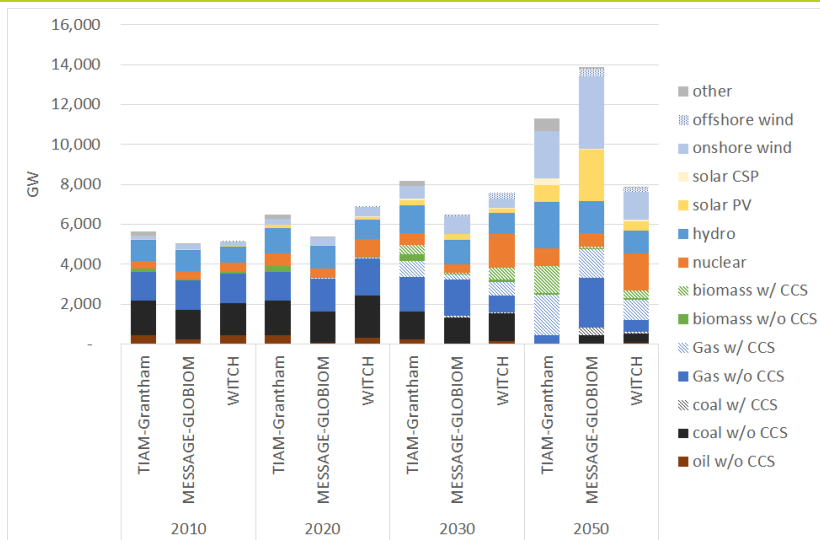


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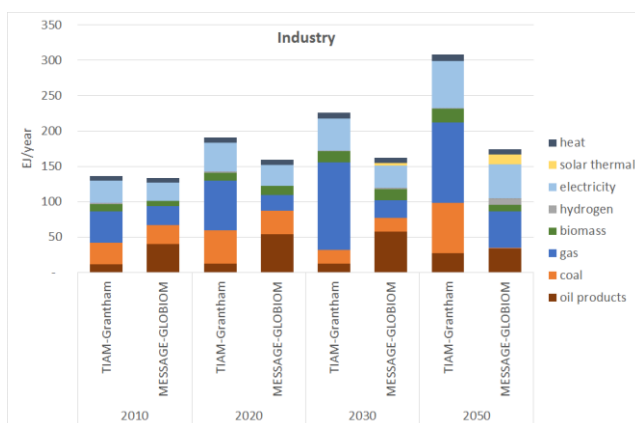
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In a 2°C scenario, electricity is highly decarbonised by 2050



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In a 2°C scenario, the fuel mix in end-use sectors shifts to electricity and other low-carbon fuels



- **Industry** sees increasing:
 - electrification
 - gas replacing coal
 - CCS (not shown)
- **Transport** sees oil replaced by:
 - biofuels
 - electricity (electric vehicles, plug-in hybrids)
 - hydrogen (fuel cell vehicles)
- **Buildings** see increased:
 - electrification (heat pumps)
 - less coal and oil for heating

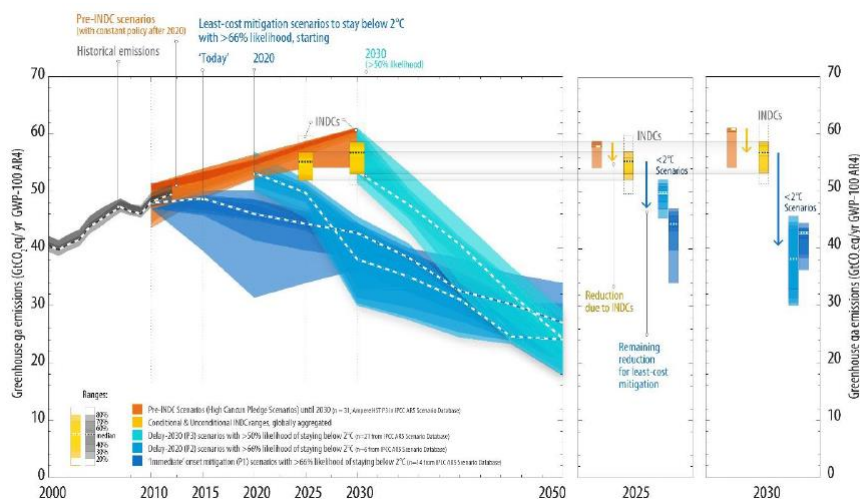
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Comparison of INDCs to 2°C mitigation pathways



Source: UNFCCC synthesis report on INDCs

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What 2100 temperature changes could the INDCs lead to?

- JRC: “around 3°C”
- AVOID 2: no back-tracking = 3°C
- IEA World Energy Outlook (special report): 2.6°C
- Climate Action Tracker: 2.7°C
- MIT Energy and climate outlook: 3.9°C (assumes no new policy beyond 2030)
- Methods vary, but rely heavily on assumptions around post-2030 trajectory, following:
 - Energy intensity improvements
 - Continued phase-out of fossil fuels
 - Increasing CO₂ pricing in line with initial efforts

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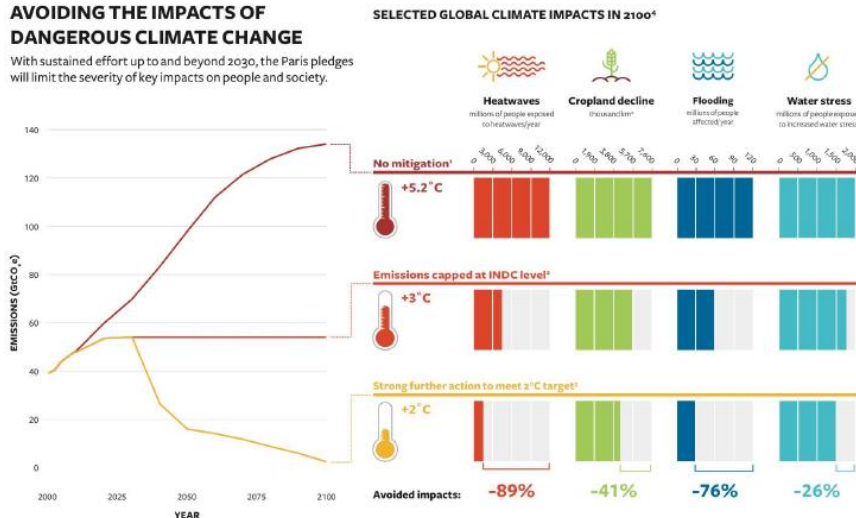
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What impacts do the different scenarios avoid?

AVOIDING THE IMPACTS OF DANGEROUS CLIMATE CHANGE

With sustained effort up to and beyond 2030, the Paris pledges will limit the severity of key impacts on people and society.



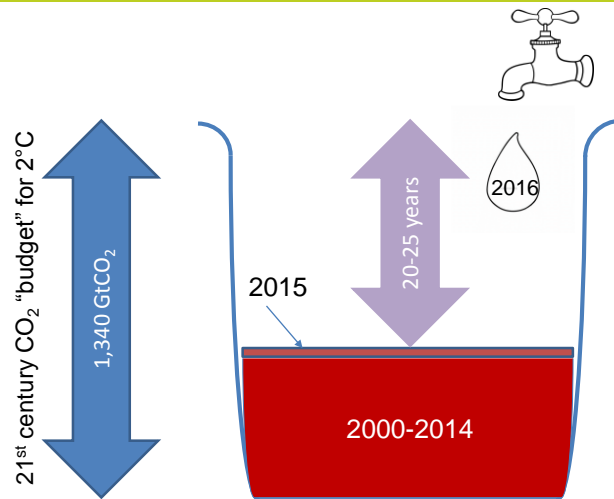
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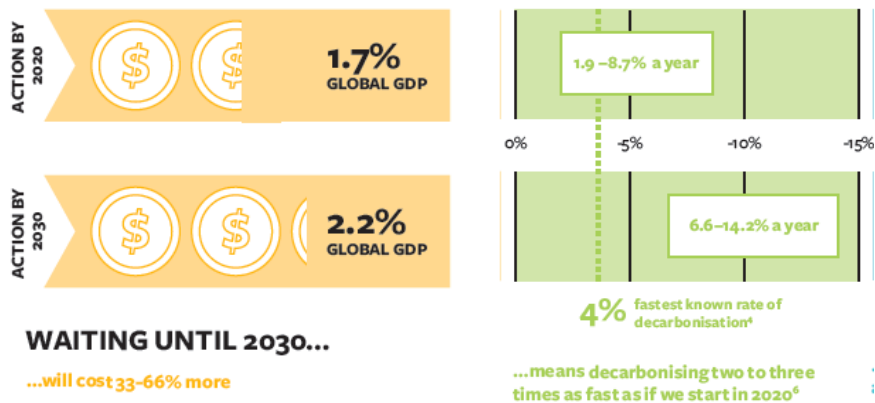
Are the INDCs 2°C-consistent?



We should be significantly reducing emissions by 2030

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Earlier action = lower costs and slower rates of decarbonisation



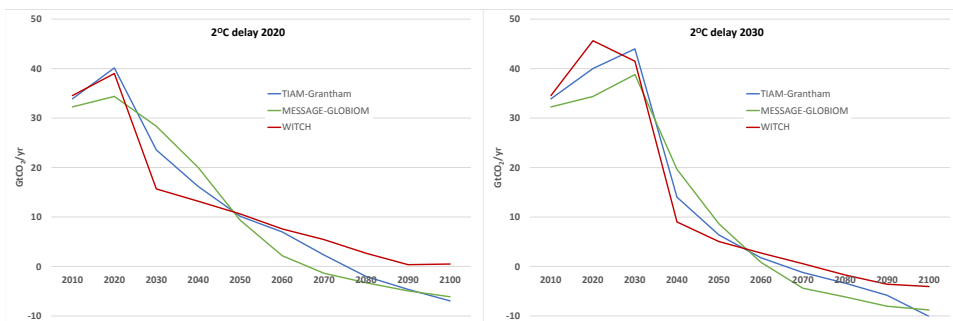
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Earlier action means less aggressive technology deployment



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Earlier action means less negative emissions



Delaying action 10 years (i.e. to 2030) means three times as much negative emissions in the 21st century

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Key points - summary

- 2°C or less is a goal which would avoid significant adverse climate impacts
- This requires a transition to much lower fossil fuel electricity, industry, transport and buildings
- The INDCs add up to about 54GtCO₂e in 2030 according to AVOID 2
- Long-term temperature implications of INDCs in the range 2.6-3°C by 2100, *assuming that policies and actions increase after 2030*
- This cuts emissions from a reference scenario of closer to 70GtCO₂e in 2030, which could avoid significant climate impacts, depending on the post-2030 emission pathway
- Mitigation costs, reliance on unproven negative emissions technologies, and ultimately the risk of not achieving the 2°C goal, all increase with delay
- So the INDCs are the start, and Paris should begin a process of increasing ambition so as to keep the 2°C goal within reach – a “ratchet” mechanism is key to this.

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