

s22

From: s22
Sent: Tuesday, 20 November 2018 8:58 AM
To: s22
Cc: s22
Subject: FW: BRIEFING REQUEST: Secretary meeting with Ian Dunlop and David Spratt [SEC=UNCLASSIFIED]

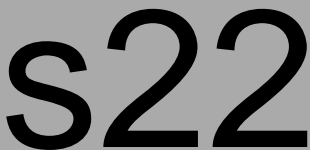
Hi s22

As discussed I'd like you to draft this meeting brief for the Secretary. I'll send through some information from past briefing on the report and an example of a good meeting brief.

Once you have drafted the brief please run it by s22 for any comment.

I'll need to clear it on Wednesday morning.

Thanks

A large, stylized signature consisting of the letters 's22' in a bold, black, sans-serif font, set against a light gray rectangular background.

From: Chris Johnston
Sent: Monday, 19 November 2018 5:54 PM
To: s22
Subject: RE: BRIEFING REQUEST: Secretary meeting with Ian Dunlop and David Spratt [SEC=UNCLASSIFIED]

I'll be out of the office Wednesday but this is one you should clear even if I was in.

Can you note that I sit on the CLEX advisory board with Ian, it would be a useful connection for Finn and Jo to know

Thanks
Chris

From: s22
Sent: Monday, 19 November 2018 4:18 PM
To: s22
Cc: Chris Johnston <Chris.Johnston@environment.gov.au>; Kristin Tilley <Kristin.Tilley@environment.gov.au>
Subject: BRIEFING REQUEST: Secretary meeting with Ian Dunlop and David Spratt [SEC=UNCLASSIFIED]

Hi s22

As discussed, the Secretary and Jo are meeting with Ian Dunlop and David Spratt from Breakthrough National Centre for Climate Restoration on Thursday at 2:30-3:15pm.

Mr Dunlop requested the meeting to discuss the Centre's most recent report "[What lies beneath: the understatement of existential climate risk](#)".


Can you please organise for briefing to be prepared, to be provided by COB Wednesday 21 November. Please ask the team to ensure they use the right, current template in PDMS.

Please provide it to the Office of the Secretary in PDMS and provide tabbed hard copies for Finn and Jo.

The meeting brief should be two pages maximum, including short biographies and photos (if there are more than two people for whom biographies are needed, the biographies and photos can go on an additional page). All other information can be provided in attachments.

Please print the meeting brief single-sided and in colour and do not staple. Attachments can be printed double-sided, and in black and white if they only include text and no graphs or graphics. Please use appropriate tabs for the attachments.

Thanks very much



s22

Executive Officer to the Secretary
Department of the Environment and Energy



s22

John Gorton Building
King Edward Terrace, Parkes
CANBERRA ACT 2601

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

s22

From: s22
Sent: Wednesday, 21 November 2018 4:13 PM
To: s22
Cc: Chris Johnston; Kristin Tilley; s22
Jo Evans; s22
Subject: RE: BRIEFING REQUEST: Secretary meeting with Ian Dunlop and David Spratt [SEC=UNCLASSIFIED]
Attachments: EC18-001168 - Meeting with Ian Dunlop and David Spratt - 22 November 2018.docx

Hi s22

Please find attached the brief for this meeting. Also sending through PDMS and bringing down a hard copy for you.

Thanks

s22

From: s22
Sent: Monday, 19 November 2018 4:18 PM
To: s22
Cc: Chris Johnston ; Kristin Tilley
Subject: BRIEFING REQUEST: Secretary meeting with Ian Dunlop and David Spratt [SEC=UNCLASSIFIED]

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The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

MEETING WITH Ian Dunlop and David Spratt Time/date 2.30—3.15 pm Thursday 22 November With Jo Evans	<i>EC: EC18-001168</i>
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Background

- In September 2017, Breakthrough, the National Centre for Climate Restoration released a report titled "What Lies Beneath: The Scientific Understatement of Climate Risks", written by David Spratt and Ian Dunlop. The Report was revised and updated in August 2018.
 - The report argues that "human-induced climate change is an existential risk to human civilisation". It claims that the bulk of climate research to date has underplayed the risks associated with climate change. The report discusses the consequences of global temperature rise beyond the limits set by the Paris Agreement.
- The report references a range of climate science information and publications but does not present new information or research on climate science.
 - The Department has not sought specific advice or assessment from external organisations in relation to this report.
 - The Department has not had any previous meetings with Mr Dunlop or Mr Spratt to discuss the Report.
- Mr Dunlop has authored or co-authored several communications to Australian Government Ministers on the general topic of climate change as an existential threat to civilisation.
- Chris Johnston, Assistant Secretary, Climate Change Policy Branch, sits on the Board of the Australian Research Council funded Centre of Excellence for Climate Extremes with Mr Dunlop.
- The Department, through the Australian Government Disaster and Climate Resilience Reference Group, has previously held discussions with Mr Dunlop on facilitating a climate risk scenario for Australian Public Service departments. Mr Dunlop was not commissioned to facilitate this scenario exercise.

What we want

- We are seeking continued dialogue on developments in climate change founded on rigorous, evidence-based science.

What they want

- The meeting is to discuss the report "What Lies Beneath: The Scientific Understatement of Climate Risks".
- The meeting may focus on the recent International Panel on Climate Change 1.5°C Report and the Government's climate change policies.

Talking points

- The general climate science issues raised in the report already form part of the Department’s ongoing engagement with CSIRO and the Bureau of Meteorology.
- The Department has been widely engaged in briefings and analysis of the recent International Panel on Climate Change special report on the impacts of global warming of 1.5 °C above pre-industrial levels.
- The Department engages across Australian Government agencies on climate risk through the Australian Government Disaster and Climate Resilience Reference Group. The Group is pursuing a number of activities to better understand and respond to climate risk.
 - In response to the workplan of the Group, the Department is working to increase understanding of climate risk across the Australian Public Service and to consider climate risk in its policies and programs.
 - The Department, with assistance from CSIRO and the Bureau of Meteorology, is conducting climate change Masterclasses within the Department and across the APS.



Ian Dunlop has wide experience in energy resources, infrastructure, and international business, for many years on the international staff of the Royal Dutch Shell Group. Ian has a particular interest in the interaction of corporate governance, corporate responsibility and sustainability. He is a member of the Advisory Board of the Australian Research Council’s Centre of Excellence for Climate Extremes at the University of NSW and a senior member of the Advisory Board of Breakthrough - National Centre for Climate Restoration.



David Spratt is a Melbourne businessman, climate-policy analyst, and co-founder of the Carbon Equity network, and Research Director of the Breakthrough - National Centre for Climate Restoration. He is the co-author of the book “Climate Code Red: The case for emergency action”. His recent work has focused on the national security implications of climate change, and on the scientific understatement of climate change’s existential risks.

Clearance

s22

Contact

s22

s22

From: s22
Sent: Thursday, 22 November 2018 4:50 PM
To: s22; Chris Johnston; Kristin Tilley
Subject: examining statements in "what Lies Beneath": part 1 [SEC=UNCLASSIFIED]

I have been casting a critical eye on David Spratt and Ian Dunlop's piece "What Lies Beneath." One statement that caught my eye was

"Warming of 4°C or more could reduce the global human population by 80% or 90%" (p. 14), citing the following

Anderson, K 2011, 'Going beyond dangerous climate change: Exploring the void between rhetoric and reality in reducing carbon emissions', LSE presentation, 11 July 2011. [available at:
<https://www.slideshare.net/DFID/professor-kevin-anderson-climate-change-going-beyond-dangerous>]

The Anderson presentation cited makes no such statement about population. Both the presentation and the Anderson & Bows 2010 paper cited in the presentation do talk about population, but in the context of the challenge of reducing emissions in the context of growing global population. However neither makes any claims about a "80 or 90%" reduction in population under 4 degrees warming.

So it is not clear where this assertion comes from.

[Beyond 'dangerous' climate change: emission scenarios for a new world, *Kevin Anderson, Alice Bows* *Phil. Trans. R. Soc. A* 2011 369 20-44; DOI: 10.1098/rsta.2010.0290. Published 29 November 2010]

s22

From: s22
Sent: Thursday, 22 November 2018 3:30 PM
To: s22
Cc: s22; Chris Johnston
Subject: FW: Ian Dunlop / David Spratt meeting [SEC=UNCLASSIFIED]

s22

From: Jo Evans
Sent: Thursday, 22 November 2018 3:28 PM
To: Kristin Tilley ; Chris Johnston ; s22
Cc: s22
Subject: Ian Dunlop / David Spratt meeting [SEC=UNCLASSIFIED]

Kristin / Chris

Finn's meeting with Ian Dunlop and David Spratt allowed for a very interesting and thought provoking discussion. Thanks for the briefing on this.

Three things were offered during the meeting

- 1) I said we would schedule them in to come and talk to the Disaster and Resilience Reference Group – early next year – pls action
- 2) Finn said he would think about whether it would be useful for them to come and talk to Secretaries Board – needs a bit more consideration
- 3) Finn said he would be happy to meet again in the future – early next year to see how things are going (they had said they were working with communities and also on developing and promoting rebuttals to some science myths)

s22

Jo Evans
Deputy Secretary | Climate Change and Energy Innovation
Department of the Environment and Energy
P: +61 2 6274 1366 | s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community.

We pay our respects to them and their cultures and to their elders, past, present and emerging.

Follow the Department of Environment and Energy on social media:



s22

From: s22
Sent: Tuesday, 20 November 2018 8:59 AM
To: s22
Subject: FW: "What Lies Beneath - The Scientific Understatement of Climate Risks"
[SEC=UNCLASSIFIED]
Attachments: 1.5C-in-a-decade V2[1].pdf; ITD - Climate Emergency Rationale general March 2018.pdf

FYI the report

s22

From: Johnston, Chris
Sent: Wednesday, 11 April 2018 10:05 AM
To: s22
[REDACTED]
[REDACTED]
[REDACTED]
Subject: FW: "What Lies Beneath - The Scientific Understatement of Climate Risks" [SEC=UNCLASSIFIED]

FYI

From: Ian Dunlop s47F
Sent: Tuesday, 10 April 2018 1:45 PM
To: Wilson, Helen <Helen.Wilson@environment.gov.au>
Cc: Johnson, Edwina <Edwina.Johnson@environment.gov.au>; Johnston, Chris <Chris.Johnston@environment.gov.au>
Subject: Re: "What Lies Beneath - The Scientific Understatement of Climate Risks" [SEC=UNCLASSIFIED]

Dear Helen

Further to our discussions last year on climate risk, David Spratt and I are currently updating our "What Lies Beneath" report on the scientific understatement of climate risk.

The first part of this was put out on David's website last week, examining the speed at which we might cross the 1.5degC threshold.:

<http://www.climatecodered.org/2018/04/15c-of-warming-is-closer-than-we.html>

Copy also attached.

Rather sooner than previously expected, which underlines the case for emergency action we were suggesting last year.

The attached short presentation summarises the case for such action.

I would be pleased to discuss the implications at your convenience.

Best regards
Ian

Mob: s47F

From: Helen Wilson <Helen.Wilson@environment.gov.au>
Date: Monday, 11 September 2017 at 9:31 AM
To: Ian Dunlop s47F
Cc: Edwina Johnson <Edwina.Johnson@environment.gov.au>, Chris Johnston <Chris.Johnston@environment.gov.au>
Subject: RE: "What Lies Beneath - The Scientific Understatement of Climate Risks" [SEC=UNCLASSIFIED]

Thanks Ian

Kind regards

Helen

Helen Wilson
First Assistant Secretary
Domestic Emissions Reduction Division
Department of the Environment and Energy

PO Box 787, Canberra ACT 2601
02 6159 7601 s22
helen.wilson@environment.gov.au

From: Ian Dunlop s47F
Sent: Friday, 8 September 2017 12:38 PM
To: Wilson, Helen <Helen.Wilson@environment.gov.au>
Subject: "What Lies Beneath - The Scientific Understatement of Climate Risks"

Dear Helen

Re our ongoing discussions on climate change, you may recall that David Spratt and I published a report on climate change and national security last June, "Disaster Alley: Climate Change, Conflict & Risk:

<https://www.breakthroughonline.org.au/disasteralley>

- summarising the outcome of our tour with Sherri Goodman earlier in the year.

In that report we specifically drew attention to the dangers of scientific reticence on climate risk, and the need to distinguish between science and risk, particularly when the risk is existential.

In that regard, you may be interested in a follow-on report which David and I have released yesterday: "What Lies Beneath – The Scientific Understatement of Climate Risks":

<https://www.breakthroughonline.org.au/whatliesbeneath>

It amplifies the concerns on scientific reticence, which are unfortunately being borne out by current events around the world as the "fat tail risks" manifest themselves in Hurricanes Harvey & Irma, and in South Asia.

The seriousness of the circumstances we now face regarding climate risk are not getting through to Australian parliamentarians, to put it mildly! Or to most corporates, investors or to the UNFCCC process. That has to change. We are no doubt going to have our own escalating impacts probably sooner than later, as the coming Australian summer is shaping up as a problem.

Happy to explain these perspectives further at your convenience.

Regards

Ian
Mob: s47F

1.5°C is closer than we imagine, just a decade away

By **David Spratt**, first published at *Climate Code Red* and *Renew Economy*¹ on 5 April 2018

Global warming of 1.5°C is imminent, likely in just a decade from now. That's the stunning conclusion to be drawn from a number of recent studies, surveyed below.

So how does 1.5°C a decade from now square with the 2015 Paris Agreement's goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C"? In two words, it doesn't.

The Paris text was a political fix in which grand words masked inadequate deeds. The voluntary national emission reduction commitments since Paris now put the world on a path of 3.4°C of warming by 2100² (as illustrated), and more than 5°C³ if high-end risks including carbon-cycle feedbacks are taken into account.

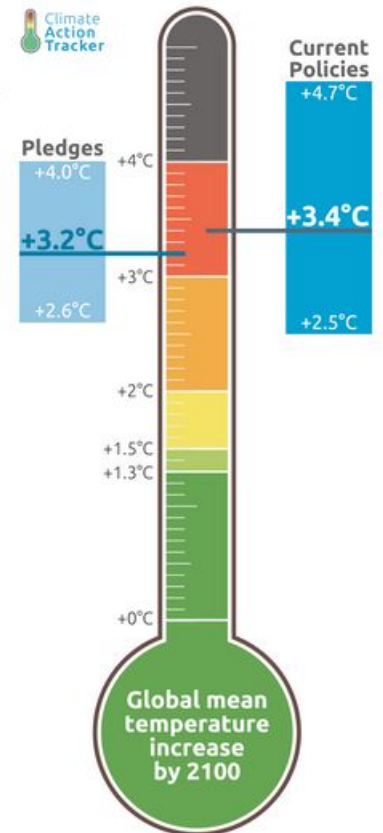
The Paris outcome is a path of emissions continuing to rise for another fifteen years, even though it is clear that "if the 1.5°C limit should not be breached in any given year, the budget (is) already overspent today⁴". Two years ago, Prof. Michael E. Mann noted⁵: "And what about 1.5°C stabilisation? We're already overdrawn."

In fact, the emission scenarios associated with the Paris goal shows that the temperature will "overshoot"⁶ the 1.5°C target by up to half a degree, before cooling back to it by the end of this century.. Those scenarios rely unduly⁷ on unproven Bio-Energy with Carbon Capture and Storage (BECCS) technology in the second half of the century, because the Paris Agreement does not encompass the steep emissions reductions that are required right now.

Average global warming is now 1.1°C above the late nineteenth century, and the rate of warming is likely to accelerate due to record levels of greenhouse gas emissions⁸, and because efforts to clean up some of the world's dirtiest power plants is reducing the emission of aerosols⁹ (mainly sulphates) which have a very short-term cooling impact.

So now, in 2018, the benchmark of 1.5°C of warming is just a decade away or even less, according to multiple lines of evidence from climate researchers:

HENLEY and KING: In 2017, Melbourne researchers Ben Henley and Andrew King published Trajectories toward the 1.5°C Paris target: Modulation by the Interdecadal Pacific Oscillation¹⁰ on the impact of the Interdecadal Pacific Oscillation (IPO) on future warming. The IPO is characterized by sea surface temperature fluctuations and sea level pressure changes in the north and south Pacific Ocean that occur on a 15-30 year cycle. In the IPO's positive phase, surface temperatures are warmer due to the transfer of ocean heat to the atmosphere. The IPO has been in a negative phase since 1999 but recent predictions suggest that it is now



¹ <https://reneweconomy.com.au/climate-change-1-5c-closer-imagine-44124/>

² <http://climateactiontracker.org/publications/briefing/288/Improvement-in-warming-outlook-as-India-and-China-move-ahead-but-Paris-Agreement-gap-still-looms-large.html>

³ <https://globalchange.mit.edu/publications/signature/2015-energy-and-climate-outlook>

⁴ <http://onlinelibrary.wiley.com/doi/10.1002/2017GL075612/abstract>

⁵ <http://www.theguardian.com/environment/climate-consensus-97-per-cent/2015/dec/30/why-we-need-the-next-to-impossible-15c-temperature-target>

⁶ <https://globalchange.mit.edu/publications/signature/2015-energy-and-climate-outlook>

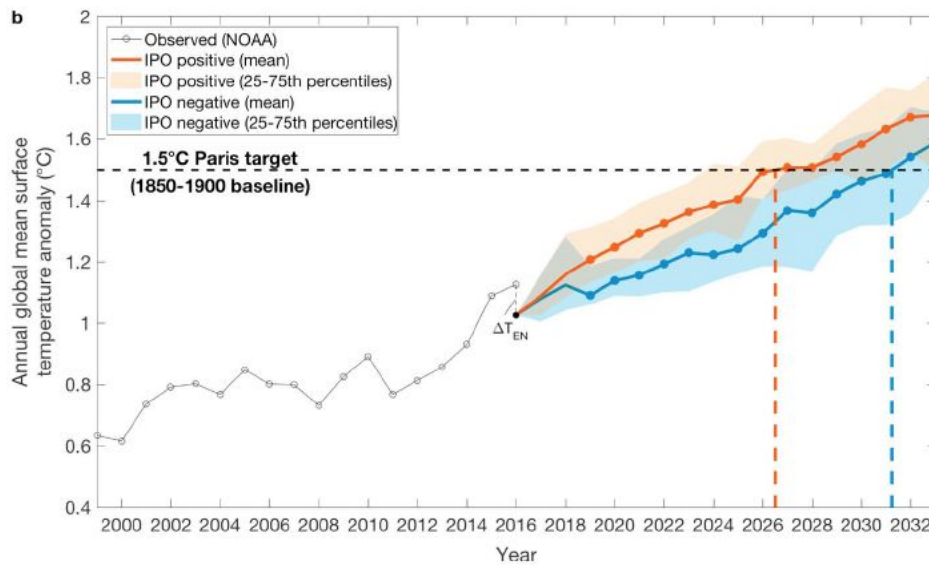
⁷ <http://iopscience.iop.org/article/10.1088/1748-9326/aab2ba/meta>

⁸ <https://www.washingtonpost.com/news/energy-environment/wp/2018/03/21/bad-news-for-the-climate-coal-burning-and-carbon-emissions-are-on-the-rise-again>

⁹ <http://www.climatecodered.org/2018/02/quantifying-our-faustian-bargain-with.html>

¹⁰ onlinelibrary.wiley.com/doi/10.1002/2017GL073480/full

moving to a positive phase. The authors found that “in the absence of external cooling influences, such as volcanic eruptions, the midpoint of the spread of temperature projections exceeds the 1.5°C target **before 2029**, based on temperatures relative to 1850–1900”. In more detail, “a transition to the positive phase of the IPO would lead to a projected exceedance of the target centered **around 2026**”, and “if the Pacific Ocean remains in its negative decadal phase, the target will be reached around 5 years later, **in 2031**”.



Projected temperature rises with IPO in positive mode (red) and negative mode (blue) (Henley and King, 2017)

JACOB et al: A set of four future emission scenarios, known as Representative Concentration Pathways (RCPs) have been used since 2013 as a guide for climate research and modelling. The four pathways, known as RCPs 2.6, 4.5, 6 and 8.5, are based on the total energy imbalance in the energy system by 2100. RCP8.5 is the highest, and is the current emissions path. In *Climate Impacts in Europe Under +1.5°C Global Warming*¹¹, released this year, Daniela Jacob and her co-researchers found that the world is likely to pass the +1.5°C threshold **around 2026** for RCP8.5, and “for the intermediate RCP4.5 pathway the central estimates lie in the relatively narrow window **around 2030**. In all likelihood, this means that a +1.5°C world is imminent.”

KONG AND WANG: In a study of projected permafrost change, *Responses and changes in the permafrost and snow water equivalent in the Northern Hemisphere under a scenario of 1.5 °C warming*¹², researchers Ying Kong and Cheng-Hai Wang use a multi-model ensemble mean from 17 global climate models, with results showing that the threshold of 1.5°C warming will be reached in **2027, 2026, and 2023** under RCP2.6, RCP4.5, RCP8.5, respectively. On the present, high-emissions RCP8.5 path, the estimated permafrost area will be reduced by 25.55% or 4.15 million square kilometres at 1.5°C of warming.

XU and RAMANTHAN: A recent study by Yangyang Xu and Veerabhadran Ramanathan, *Well below 2 °C: Mitigation strategies for avoiding dangerous to catastrophic climate changes*¹³, looked at the high-end or “fat-tail” risks of climate change, in an analysis of the existential risks in a warming world. One of two baseline scenarios used, named Baseline-Fast, assumed an 80% reduction in fossil fuel energy intensity by 2100 compared to 2010 energy intensity. In this scenario, the level of atmospheric carbon dioxide had reached 437 parts per million (ppm) by 2030 and the warming was 1.6°C, suggesting that the 1.5°C would be exceed **around 2028**. The study is discussed in more detail [here](#)¹⁴.

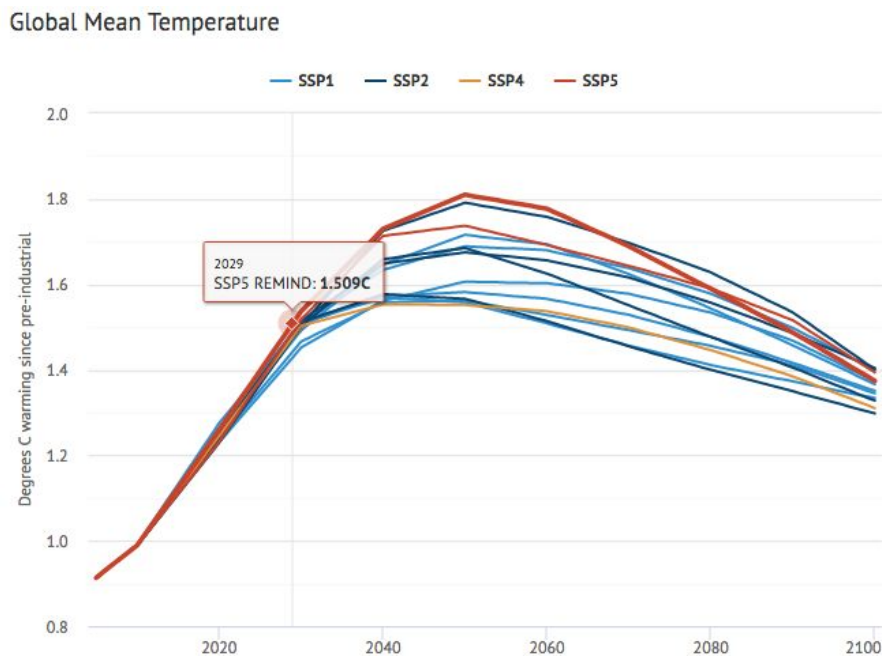
¹¹ <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017EF000710>

¹² <http://www.sciencedirect.com/science/article/pii/S1674927817300680>

¹³ <http://www.pnas.org/content/114/39/10315>

¹⁴ <http://www.climatecodered.org/2018/01/what-we-learned-about-climate-system-in.html>

ROGELJ et al: In *Scenarios towards limiting global mean temperature increase below 1.5C*¹⁵, Joeri Rogelj and co-researchers plot future emissions and warming based on five distinct “Shared Socioeconomic Pathways” (SSPs). These “present five possible future worlds that differ in their population, economic growth, energy demand, equality and other factors”, according to *CarbonBrief*¹⁶. The fourth and fifth paths are the world we now live in: SSP4 is a world of “high inequality”, whilst SSP5 is a world of “rapid economic growth” and “energy intensive lifestyles”. If we look at these paths charted against projected temperatures, then SSP5 exceeds 1.5°C in 2029 and SSP4 by 2031.



Projected global mean temperature for five Shared Socioeconomic Pathways (CarbonBrief)

SCHURER et al: In *Interpretations of the Paris climate target*¹⁷, Andrew Schurer and colleagues demonstrate that the IPCC uses a definition of global mean surface temperature which underestimates the amount of warming over the pre-industrial level. The underestimation is around 0.3°C, and a higher figure includes the effect of calculating warming for total global coverage rather than for the coverage for which observations are available, and warming from a true pre-industrial, instead of a late-nineteenth century, baseline. If their finding were applied, warming would now be 1.3°C or more, and hitting the 1.5°C benchmark would be just half a decade away.

CONSEQUENCES: In their 2017 *paper on catastrophic climate risks*¹⁸, Xu and Ramanathan defined 1.5°C as a benchmark for “dangerous” climate change, compared to the convention policy-making mark of 2°C. But even this lower mark may be too optimistic, given the impacts we have seen at both poles in the last decade. In any case, in contemplating the imminent reality of the 1.5°C benchmark, it is important to consider what is at stake:

- In another decade and by 1.5°C, we may well have witnessed an Arctic free of summer sea ice, a circumstance that just two decades ago was not expected to occur for another hundred years. The consequences would be devastating.
- In 2012, then NASA climate science chief James Hansen told Bloomberg¹⁹ that: “Our greatest concern is that loss of Arctic sea ice creates a grave threat of passing two other tipping points – the potential instability of the Greenland ice sheet and methane hydrates... These latter two tipping points would have consequences that are practically irreversible on time scales of relevance to humanity.” One highly-regarded research paper²⁰ in 2012 estimated that “the warming threshold leading to a monostable, essentially ice-free state is in the range of 0.8–3.2°C, with a best estimate of 1.6°C” for the Greenland ice sheet.

¹⁵ <https://www.nature.com/articles/s41558-018-0091-3>

¹⁶ <https://www.carbonbrief.org/new-scenarios-world-limit-warming-one-point-five-celsius-2100>

¹⁷ <https://www.nature.com/articles/s41561-018-0086-8>

¹⁸ <http://www.pnas.org/content/early/2017/09/14/1618481114.short>

¹⁹ <http://www.bloomberg.com/news/2012-08-17/arctic-sea-ice-heads-for-record-low-as-melt-exceeds-forecasts.html>

²⁰ <https://www.nature.com/articles/nclimate1449>

- In 2015, researchers looked at the damage to system elements²¹ — including water security, staple crops land, coral reefs, vegetation and UNESCO World Heritage sites — as the temperature increases. They found all the damage from climate change to vulnerable categories like coral reefs, freshwater availability and plant life could happen before 2°C warming is reached, and much of it before 1.5°C warming.
- In 2009, Australian scientists contributed to an important research paper²² which found that preserving more than 10% of coral reefs worldwide would require limiting warming to below 1.5°C. Recent research²³ found that the surge in ocean warming around the Great Barrier Reef in 2016, which led to the loss of half the reef, has a 31% probability of occurring in any year at just the current level of warming. In other words, severe bleaching and coral loss is likely on average every 3–4 years, whereas corals take 10–15 years to recover from such events.
- There is evidence that a 1.5°C global rise in temperature is likely to cause widespread thawing of continuous permafrost²⁴ as far north as 60°N. At 1.5°C, the loss of permafrost area is estimated²⁵ to be four million square kilometres.
- The frequency of extreme El Nino events is likely to double²⁶ by 1.5°C of warming.
- At 1.5°C, it is very likely that conclusions first aired in 2014 — that sections of the West Antarctic Ice Sheet have already passed their tipping points for a multi-metre sea-level rise — will have been confirmed. Four years ago scientists found²⁷ that "the retreat of ice in the Amundsen Sea sector of West Antarctica was unstoppable, with major consequences – it will mean that sea levels will rise 1 metre worldwide... Its disappearance will likely trigger the collapse of the rest of the West Antarctic ice sheet, which comes with a sea-level rise of between 3–5 metres. Such an event will displace millions of people worldwide." Leading cryosphere researcher Eric Rignot muses²⁸: "You look at West Antarctica and you think: How come it's still there?"
- By 1.5°C, a sea-level rise of many metres, and perhaps tens of metres will have been locked into the system. In past climates, carbon dioxide levels of around 400 ppm (which we exceeded three years ago) have been associated with sea levels around 25 metres²⁹ above the present. And six years ago, Prof. Kenneth G. Miller noted³⁰ that "the natural state of the Earth with present carbon dioxide levels is one with sea levels about 20 meters higher than at present".

Clearly, as Former NASA climate chief James Hansen and co-authors wrote last year³¹, "the world has overshot the appropriate target for global temperature". They noted a danger of 1.5°C and 2°C targets is that they are far above the Holocene (human civilisation) temperature range, and if such temperature levels are allowed to long exist they will spur "slow" amplifying feedbacks which have potential to run out of humanity's control. Hence "limiting the period and magnitude of temperature excursion above the Holocene range is crucial to avoid strong stimulation of slow feedbacks".

And in all this evidence, what worries me most? It is my experience that with few exceptions neither climate policy-makers nor climate action advocates have a reasonable understanding of the imminence of 1.5°C and its consequences.

David Spratt is Research Director for Breakthrough – National Centre for Climate Restoration

²¹ <http://www.nature.com/ngeo/journal/v9/n1/full/ngeo2607.html>

²² <http://www.nature.com/nclimate/journal/v3/n2/full/nclimate1674.html>

²³ <https://www.nature.com/articles/nclimate3296>

²⁴ <http://science.sciencemag.org/content/340/6129/183>

²⁵ <https://www.nature.com/articles/nclimate3262>

²⁶ <https://www.nature.com/articles/nclimate3351>

²⁷ <https://www.sciencedirect.com/science/article/pii/S0012821X14007961>

²⁸ https://e360.yale.edu/features/abrupt_sea_level_rise_realistic_greenland_antarctica

²⁹ http://www.eurekalert.org/pub_releases/2013-01/nocs-nsd010213.php

³⁰ <http://www.sciencedaily.com/releases/2012/03/120319134202.htm>

³¹ <https://www.earth-syst-dynam.net/8/577/2017/esd-8-577-2017.pdf>

Climate Emergency Rationale
March 2018

Facing Reality
Reframing Climate Change as an Immediate
Existential Risk

Ian T. Dunlop

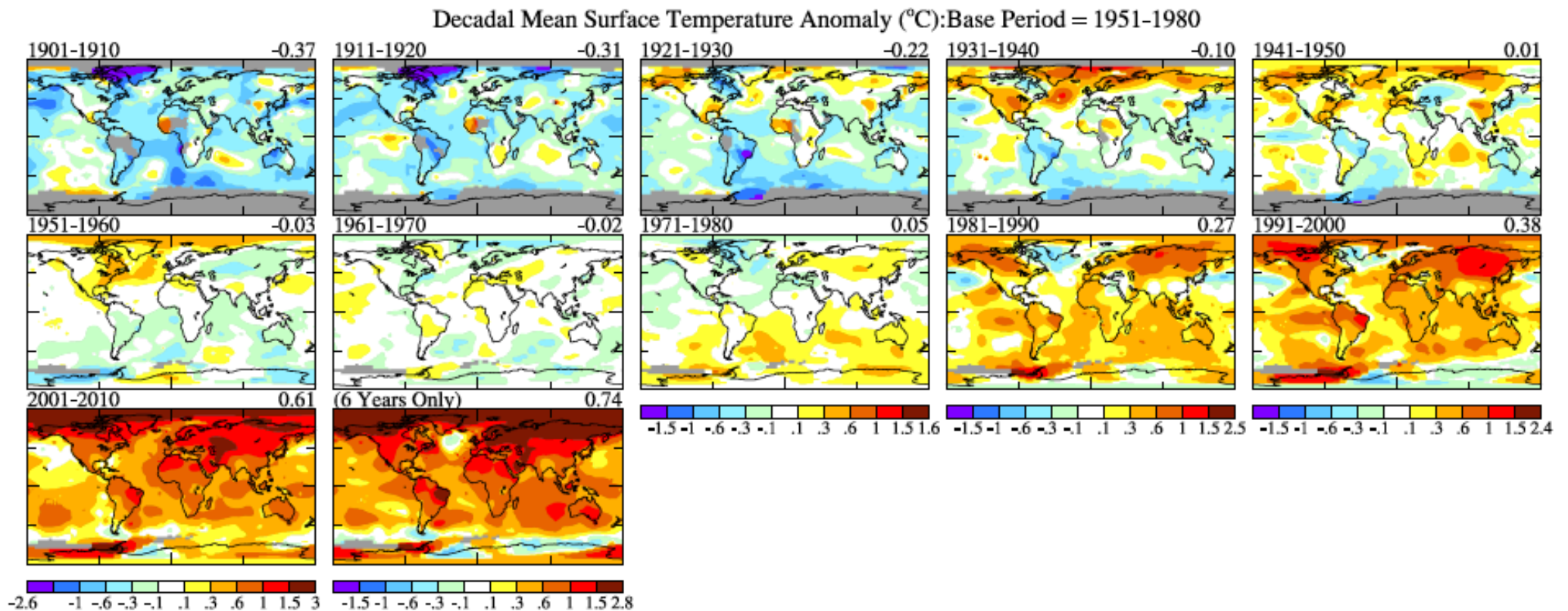
Former Chair, Australian Coal Association & CEO Australian Institute of Company Directors

Member, Club of Rome

GLOBAL CLIMATE CHANGE

Faster than anticipated

- Primarily driven by human carbon emissions from fossil fuel combustion, agriculture & land clearing



- Arctic & West Antarctica warming **2-3 times faster** than rest

RISK AND CLIMATE POLICY

We are on a path to an **existential crisis**

PARIS EMISSIONS PATH ACTUAL WARMING
WITH 'LONGER TERM' FEEDBACKS

4°

“Incompatible with
organised global
community”

PARIS EMISSIONS PATH ACTUAL WARMING

3°

“Outright chaos”

2° PARIS UPPER LIMIT TARGET

2°

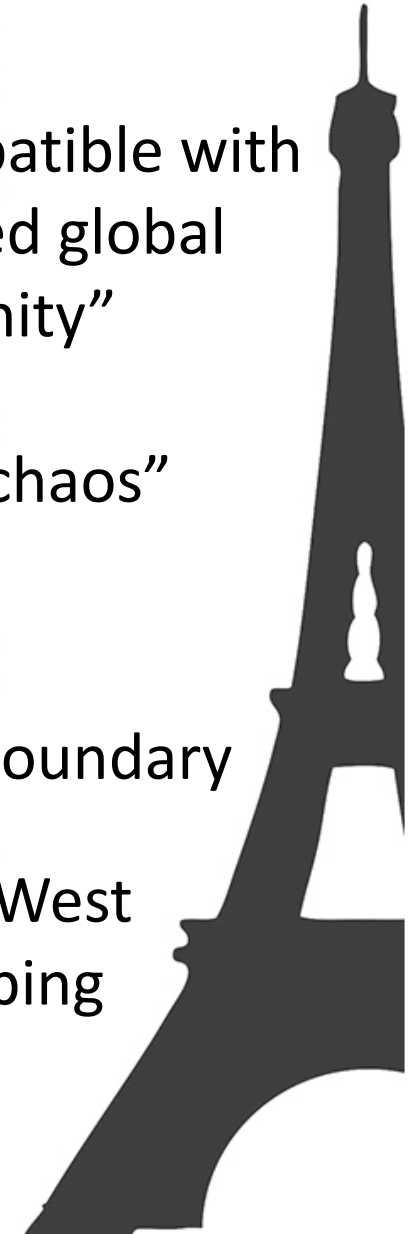
“Extremely
dangerous” boundary

1.5° WARMING ALREADY IN THE CLIMATE SYSTEM

1°

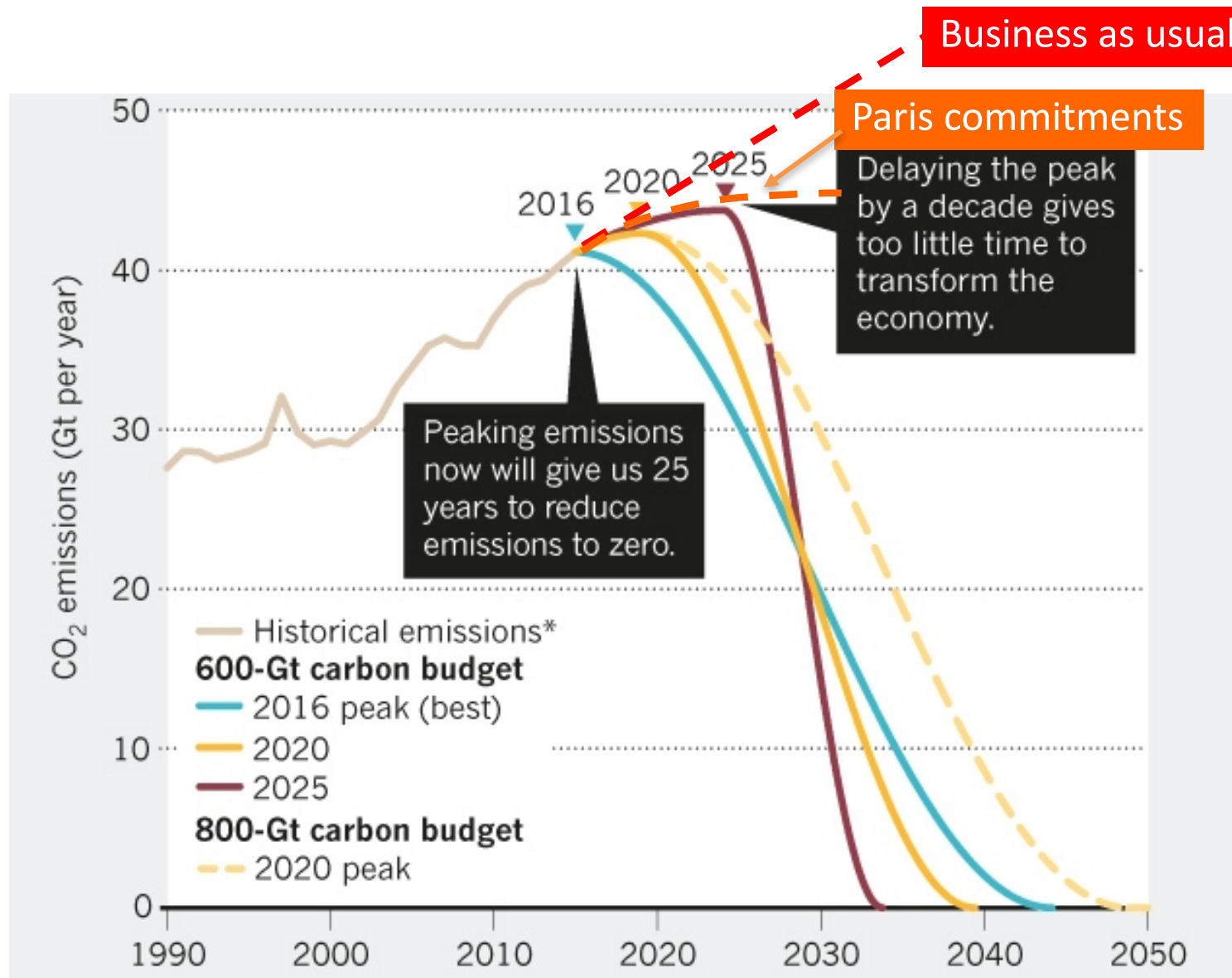
Arctic sea ice & West
Antarctic ice tipping
points

WARMING FROM 1880-1900 BASE



CLIMATE POLICY

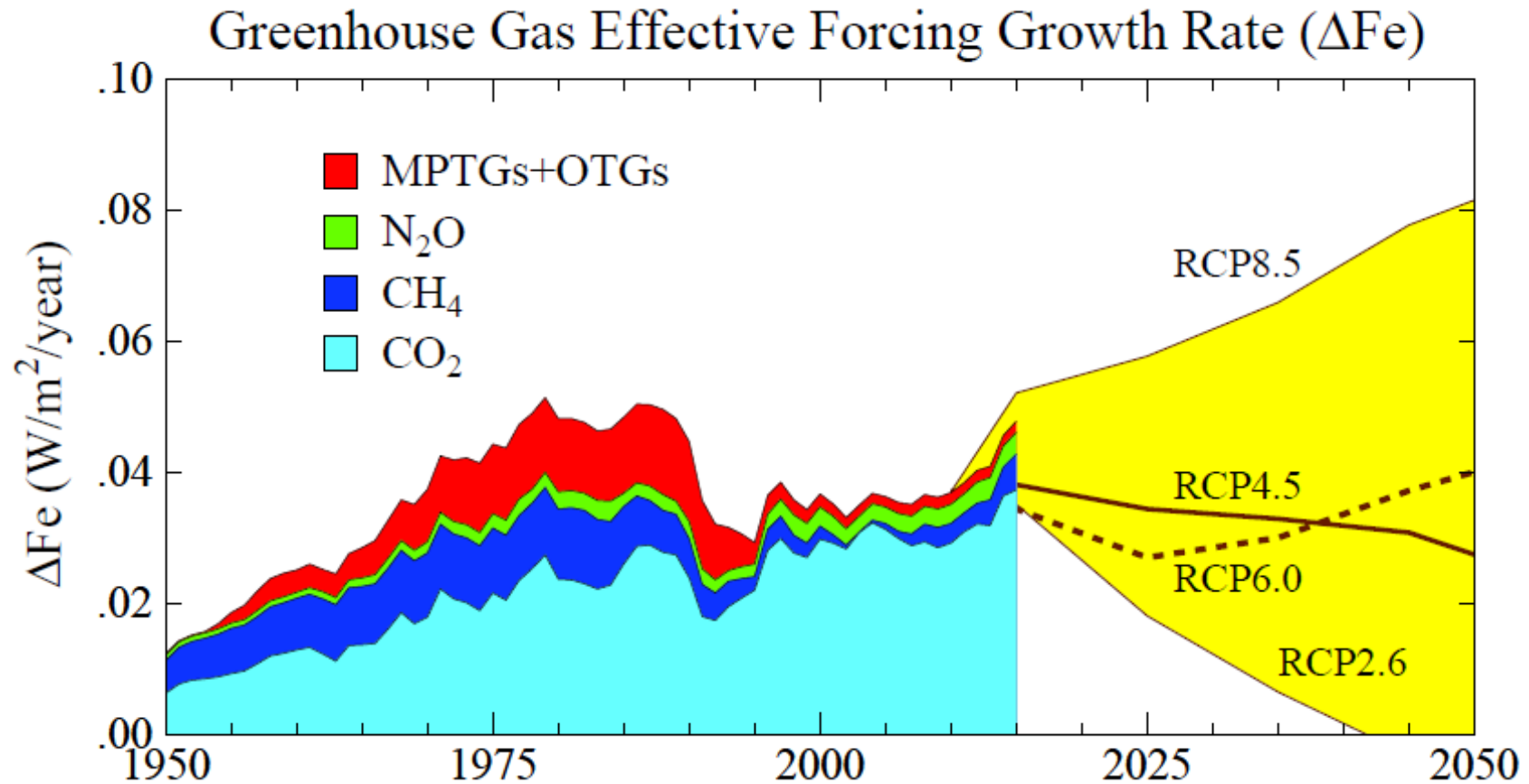
Carbon crunch



**A yawning
chasm
between
Paris
rhetoric and
reality**

But Climate Forcing is Increasing

Should be decreasing rapidly to have any chance of staying below 2°C, let alone 1.5°C



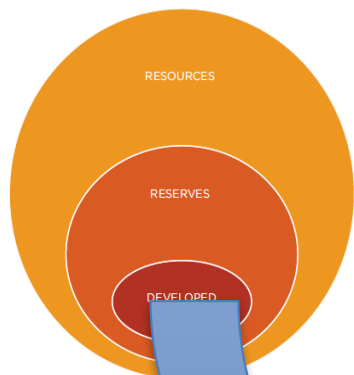
RISK

To stay below the Paris limits

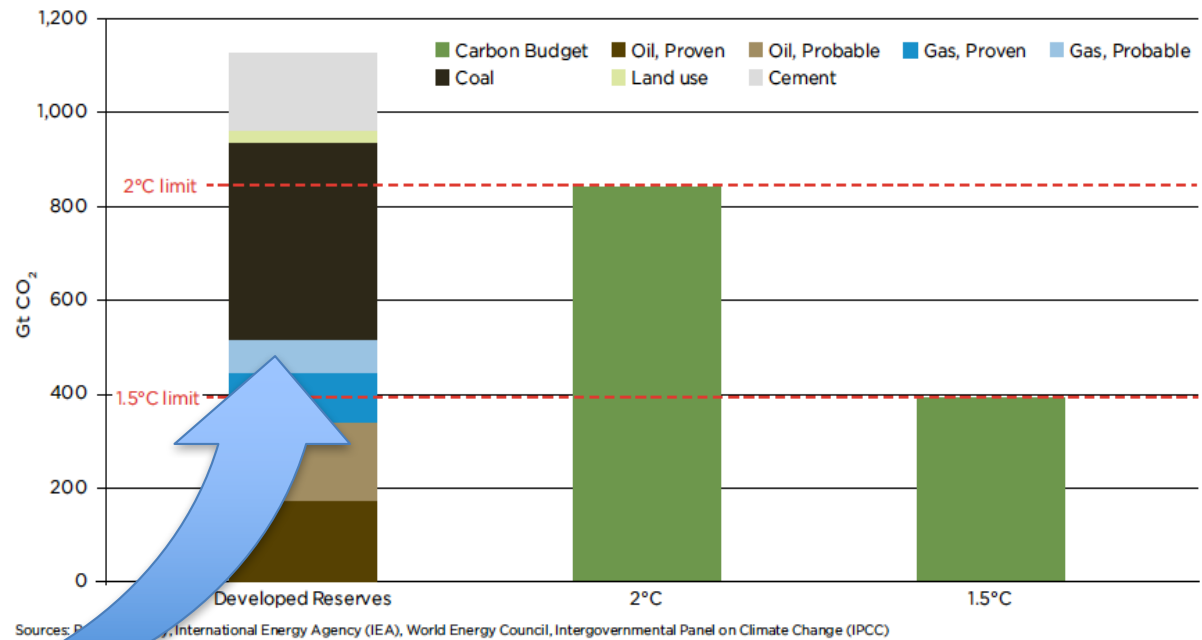
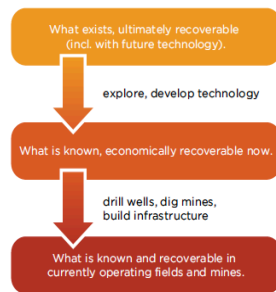
with 50% chance of success for 1.5°C , or 66% for 2°C

- no new fossil fuel projects can be built
- managed decline of existing fossil fuel industry

Global Fossil Fuel

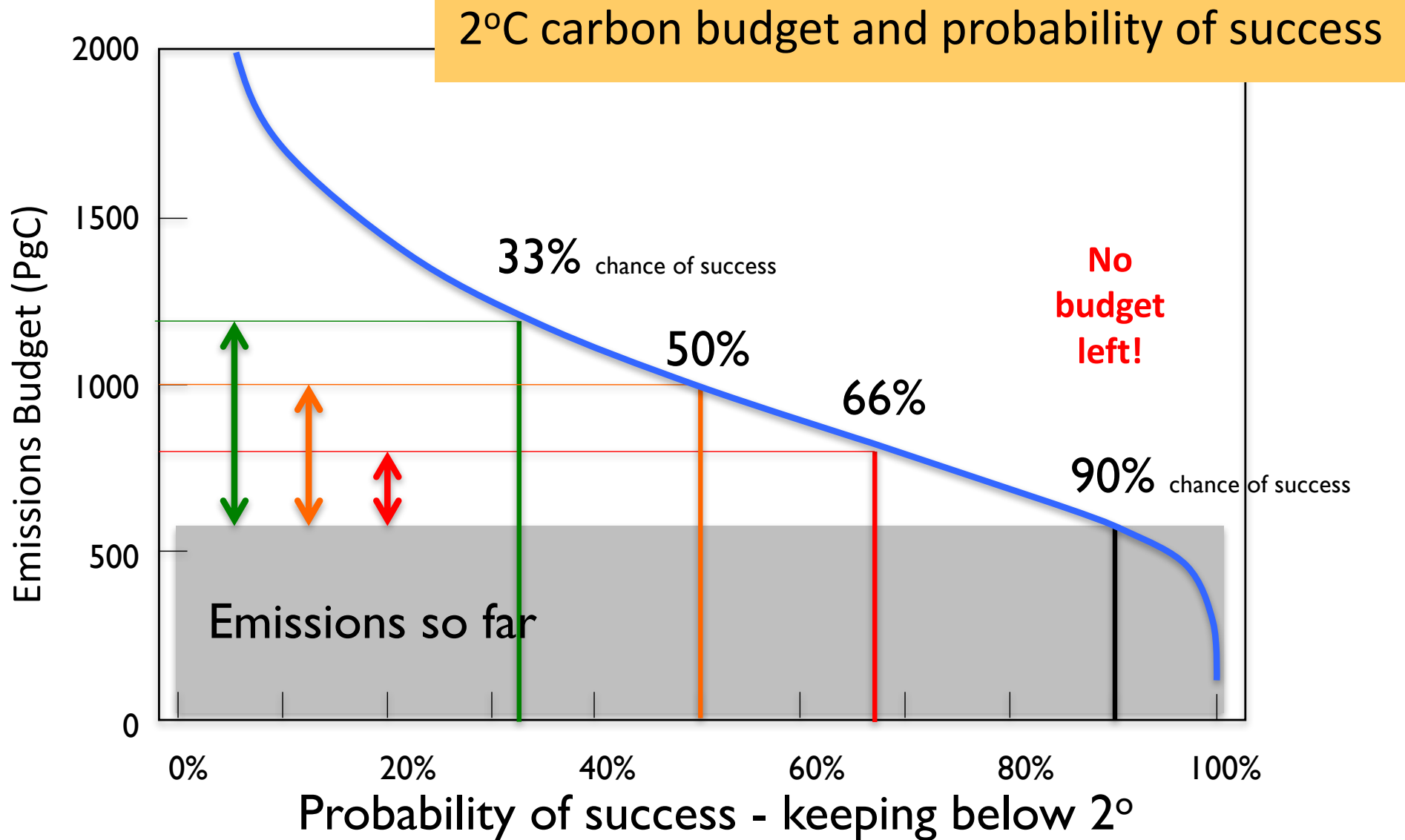


Source: Oil Change International. Not to scale.



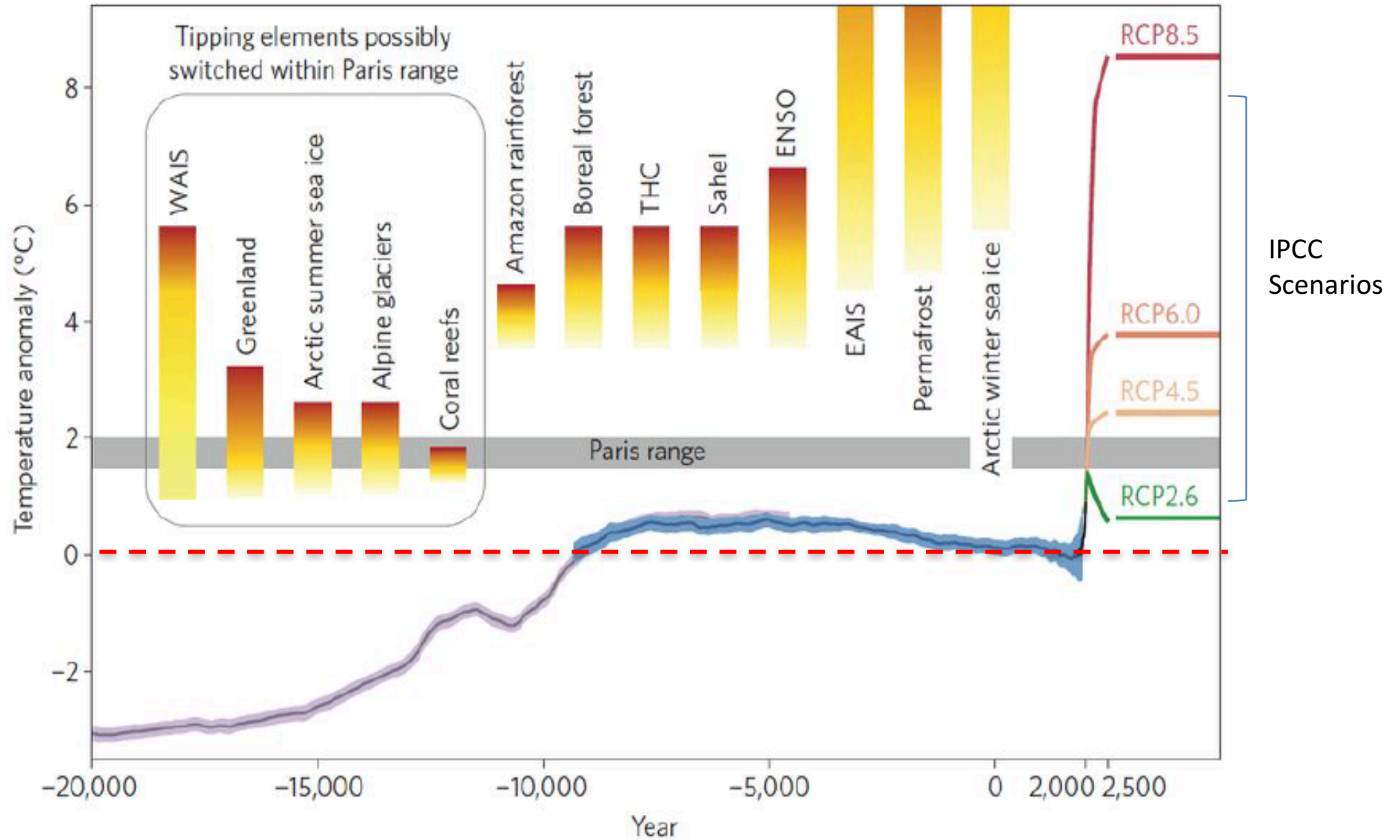
RISK

50% or 66% not good odds for humanity



TRAJECTORY

Potential climate tipping points



Sir Nicholas Stern
on 5th IPCC report:


“Essentially it reported on a body of literature that had systematically and grossly underestimated the risks of unmanaged climate change.”



Prof. Ross Garnaut:
The science has a conservative
“systematic bias” due to
“scholarly reticence”.. in the
climate field this “has been
associated with understatement
of the risks”.

RISK MANAGEMENT

Climate change is an existential risk

SCOPE	Global	Ozone thinning	Existential 
	Local	Recession	Genocide
	Personal	Car is stolen	Death
		Endurable	Terminal
		INTENSITY	

A risk posing permanent large negative consequences to humanity which can never be undone.

An adverse outcome that would either annihilate intelligent life or permanently and drastically curtail its potential

“Even for an honest, truth-seeking, and well-intentioned investigator it is difficult to think and act rationally in regard to global catastrophic risks and existential risks.”

The risk is immediate

- **We have no carbon budget left for any realistic chance (90%) of staying below 2°C**
- **Our actions today are locking-in irreversible, existential, outcomes**
- **Sensible risk-management addresses risk in time to prevent it happening**

**That time
is now!**

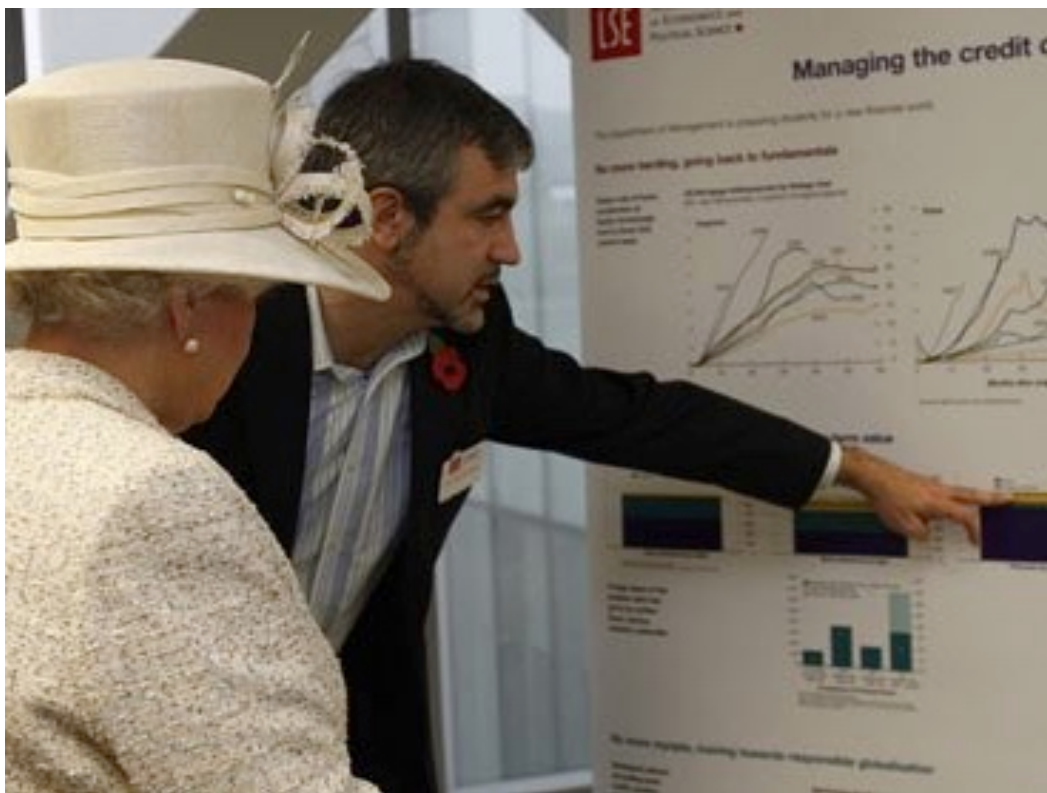
An Emergency Response is required

The big question



“Who at the highest levels of leadership in corporates and public service will take the bold risks (that are required), not gradually or incrementally, but decisively in line with the new scale and speed that ‘unthinkables’ emerge.”

Nik Gowing and Chris Langdon, *Thinking the Unthinkable*, CIMA, 2015



Queen Elizabeth

5 November 2008

“Why did no one foresee the timing, extent and severity of the Global Financial Crisis?”

(to LSE economists)

“A psychology of denial gripped the financial and corporate world.... **The failure of the collective imagination of many bright people... to understand the risks to the system as a whole.**”

Letter by eminent economists July 2009



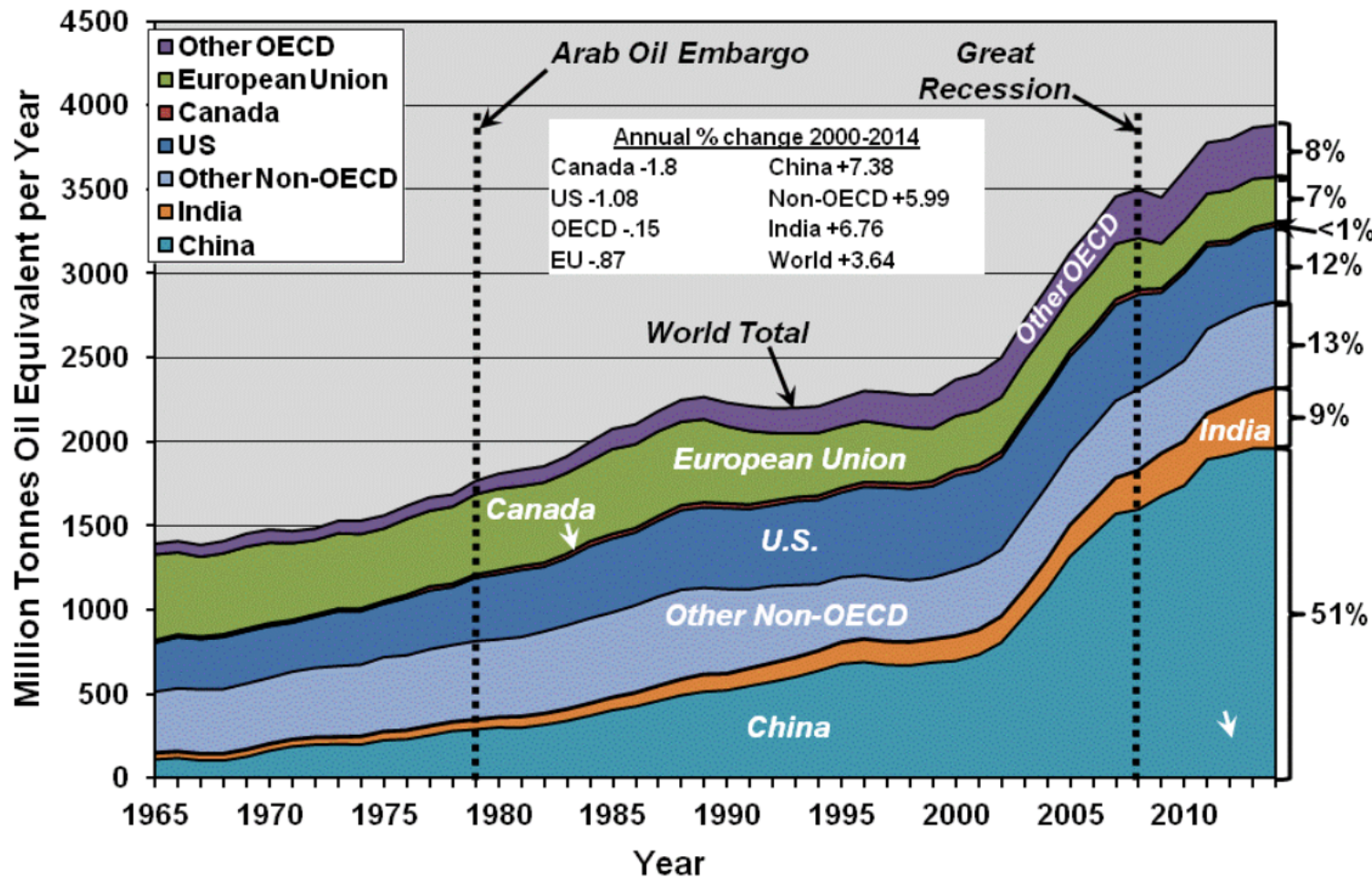
Key Issues

- Clean Coal
- Carbon Capture & Storage (CCS)
- High Efficiency Low Emissions (HELE) coal-fired power stations
- Gas
 - LNG – from conventional sandstone/limestone reservoirs
 - CSG – from coal seams
 - Tight gas – from low permeability sandstone/limestone
 - Shale gas – from low permeability shale – WA & NT
- Renewables
- Nuclear
- Export Coal
 - Adani Galilee Basin project

20 years of failure to address climate change policy seriously have resulted in rapidly rising energy prices.

AUSTRALIA Galilee Basin Implications of Adani

Total Coal Consumption by Country, 1965-2014

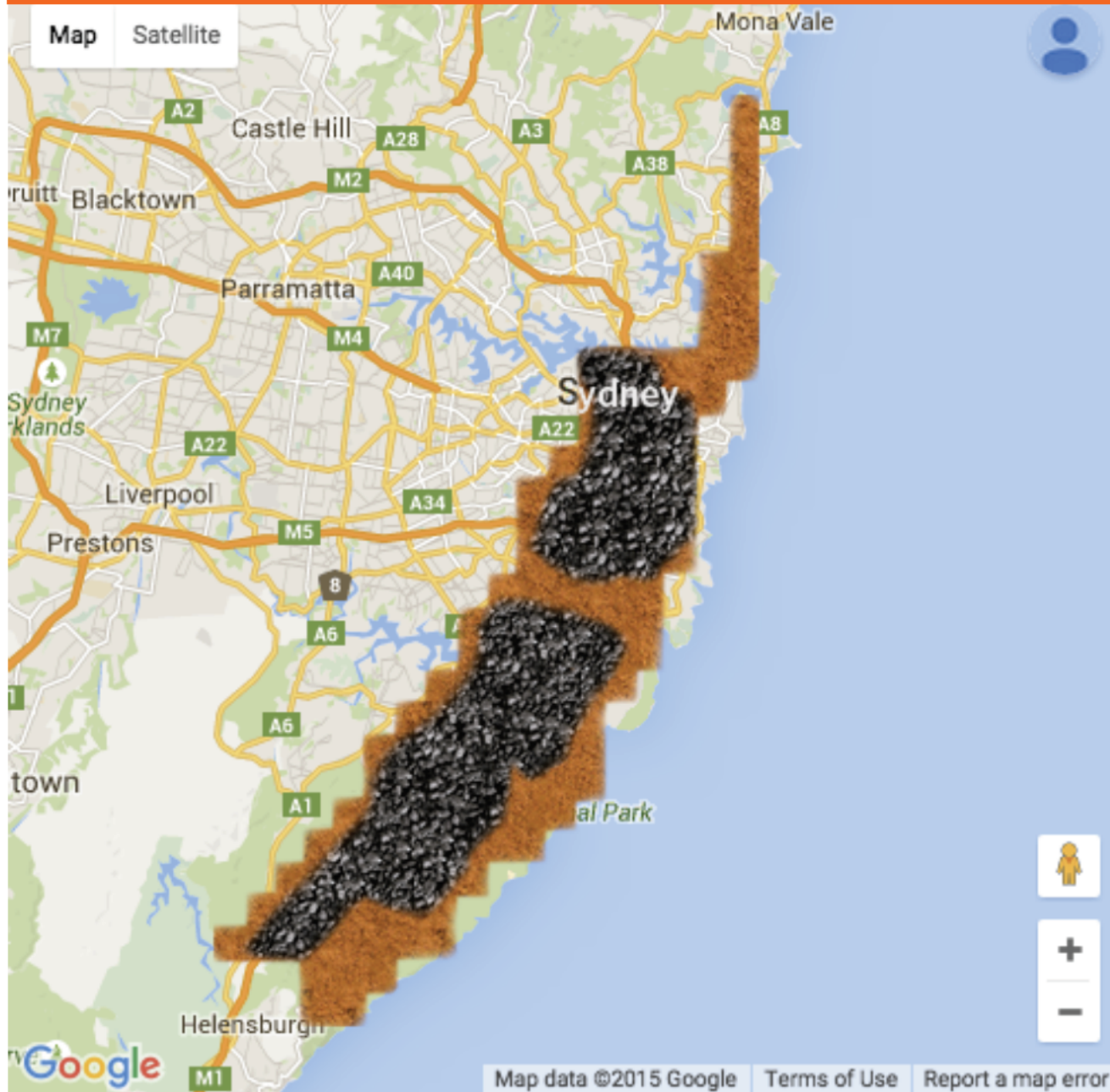


**If India follows
China coal
development
path, massive
poverty will be
created, not
alleviated**

- and the world will
never stay below 2°C

AUSTRALIA Galilee Basin

Adani Coal Mine superimposed on Sydney



This mine would cover much of Sydney.

9 mines are planned.

Galilee Basin development alone would ensure world stays above 2°C

It cannot be allowed to happen



Solutions Framework

- **Set out real risks, opportunities & time frame of response**
 - Honest definition of the problem is 90% of the solution
- **Change context of debate:**
 - from incremental change to emergency response
- **Build coalition of champions, committed and prepared to speak out:**
 - Community
 - Activist groups & progressive NGOs
 - Progressive corporates, insurance & institutional investors
 - Military
 - Government – wherever prepared to participate, particularly local.
 - International institutions: IEA/OECD/UN/IMF/WB
- **Expand climate & resource scarcity emergency movement**
 - go around conventional politics
- **Mandate critical policy outcomes (eg realistic emissions targets)**
 - not solutions a priori, nor constrained by “political realism”.
- **Emphasis on National Security & Competitiveness of Alternatives**
 - Remove subsidies for fossil-fuel industries.
 - Halt all high carbon investment for export and domestic use.
- **In the interests of the “Common Good”, set existential issues such as climate change & resource scarcity, outside conventional politics**
 - Handled by system of global governance, but not global “government”

Current Leverage Point – corporate governance

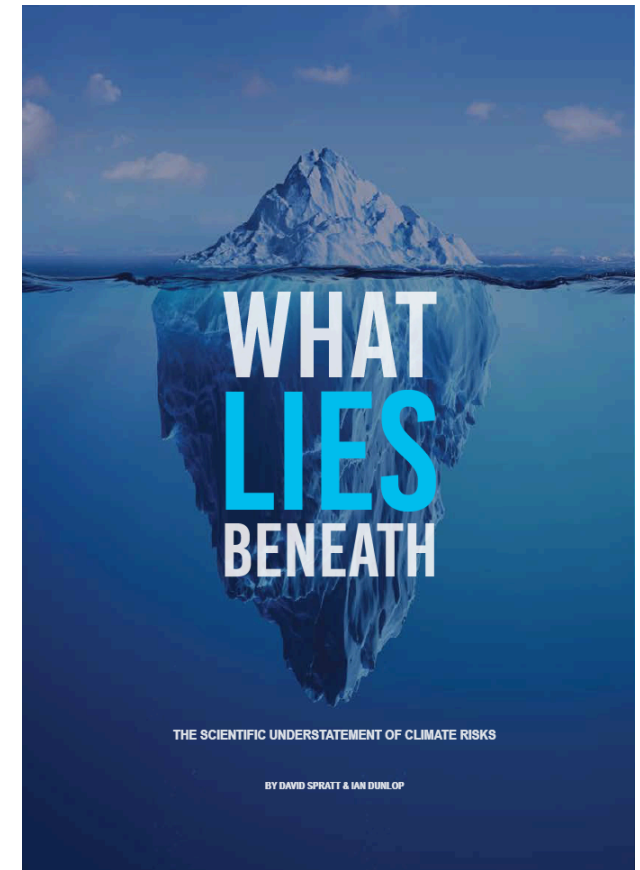
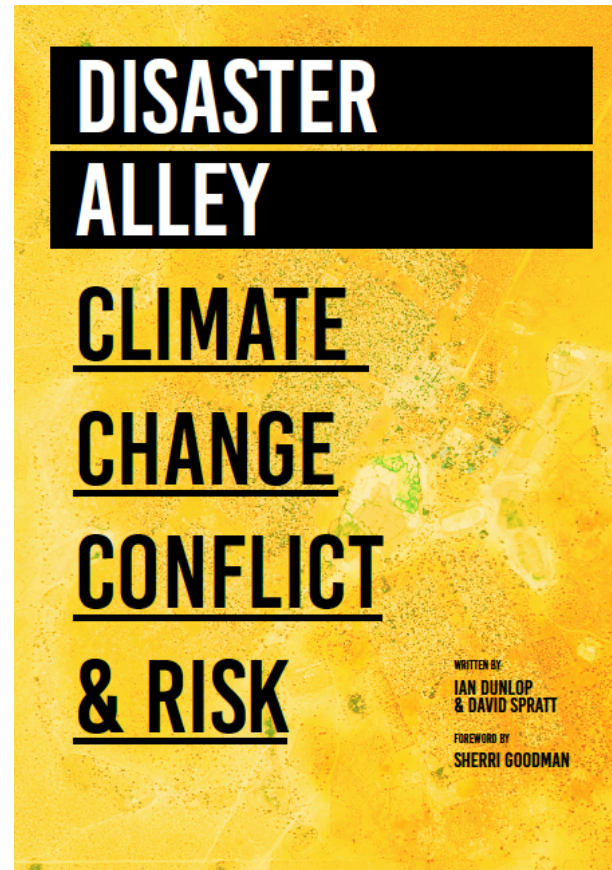
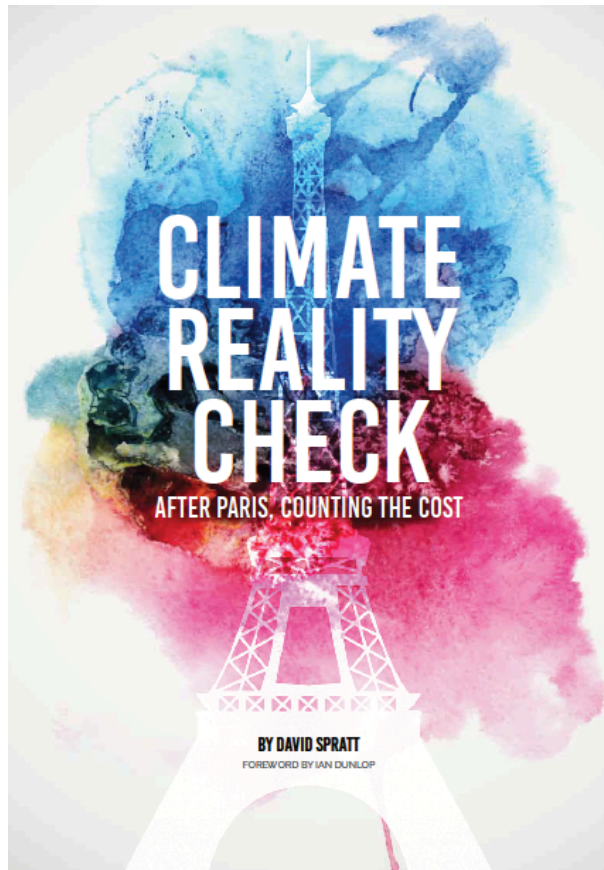
- **Stranded Asset write-downs in coal & oil accelerating**
- **Climate Risk, Impact & Costs accelerating**
- **Focus on fiduciary responsibilities of directors**
 - to assess and manage the climate risks & opportunities their companies are exposed to
 - to exercise “**due care & diligence**” in assessing risk & opportunity,
 - to act “**in good faith**” in the “**best interests of the corporation**”, and
 - to act “**for a proper purpose**” maximising long-term value
- **Divestment or Engagement by Investors**
 - management by withdrawing the cheque book
 - Sterilisation of fossil fuel reserves is the next step
- **Resolutions at Annual General Meetings**
 - Seeking company proposals for meeting climate change targets
 - Will become far more demanding
- **Legal Action against Recalcitrant Companies & Directors**
 - NY State Attorney:
 - SEC undertakings from Peabody Energy against deceptive and misleading conduct
 - NY & California State Attorneys:
 - Investigating Exxon for mis-representing climate risk
- **Increased Regulation**
 - Bank of England, FSB/TCFD
 - APRA

Summary

- **Australia is a classic example of the dangers of climate denialism**
- **This is particularly dangerous given that Australia is one of the hottest and driest continents, and thus most exposed to the impacts of climate change**
- **The economic costs are already mounting.**
- **Political leadership is unlikely, given the corrosive nature of the debate**
- **Community, business, investors and media must fill the political leadership vacuum**

Thank You

References



Available at:

<https://www.breakthroughonline.org.au/publications>