Climate change a hot topic for Waka Kotahi

Updated 10 Aug 2020

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Dr Paul Winton led a workshop with our Executive Leadership Team (ELT) recently around the urgent climate change challenge facing us all, after speaking to our Board a few months earlier.

His message is simple – the New Zealand transport system needs to be decarbonised by 2030 to limit catastrophic outcomes resulting from global warming over 1.5 degrees. The change required is massive and poorly understood, according to Dr Winton.

Dr Winton is a capital investment specialist, currently volunteering as a 'curator of climate information' because he doesn't believe governments are doing nearly enough. He runs the 1Point5 project, a not-for-profit organisation funded by the Tindall Foundation that gets its name from the need to limit planetary temperature rise to 1.5 degrees.

Dr Winton's call to action is summarised in the World Economic Forum's new Global Risk Report: "Alarmingly, global temperatures are on track to increase by at least three degrees towards the end of the century – twice what climate experts have warned is the limit to avoid the most severe economic, social and environmental consequences. The near-term impacts of climate change add up to a planetary emergency…".

The essential truths of climate change

Dr Winton took ELT members through the essential truths of climate change in ten words and his presentation slides work through each of these: it's real, it's us, experts agree, it's bad, there's hope. You can view his slides here.

Our ELT then had a play with a new transport emissions tool for Auckland that he developed with MR Cagney: www.transport2030.org.nz. The results are confronting because they indicate many of Auckland's current and planned public transport projects don't help reduce carbon emissions. However, we can be hopeful because the tool shows there are interventions that can make a big difference, such as electrifying the vehicle fleet or increasing vehicle occupancy. There are also some important levers that aren't in the tool, such as intensifying land use so that it's easier for people to get around by walking, cycling or using public transport, rather than having to rely on a car.

Decarbonisation is possible but it bears no resemblance to the current plans.

Dr Winton believes New Zealand needs to reduce vehicle kilometres travelled (VKT) by about 30 percent and massively improve the fuel efficiency of the remaining VKT by largely eliminating petrol and diesel vehicles.

How can we make an impact at Waka Kotahi

Dr Paul Winton emphasised we need a stronger public dialogue to address and take action on climate change.

- How can travel be avoided? e.g. working from home a day a week
- How can we shift people to low emission modes of travels in our urban areas? e.g. more safe cycle lanes or personalised public transport
- How can we improve the fuel efficiency of the vehicle fleet so that the cars and trucks on the road are doing the least damage possible? e.g. proposed Clean Car Reforms
- How do we create public demand for the changes needed to reduce emissions?
- How do we get the behaviour change we need to transition to a low carbon transport system within a decade?
- For Waka Kotahi, the decarbonisation challenge means applying the avoid/shift/improve framework to everything we do from now on.

The risks of action on climate change

July 2020

NZTA DISCUSSION DOCUMENT

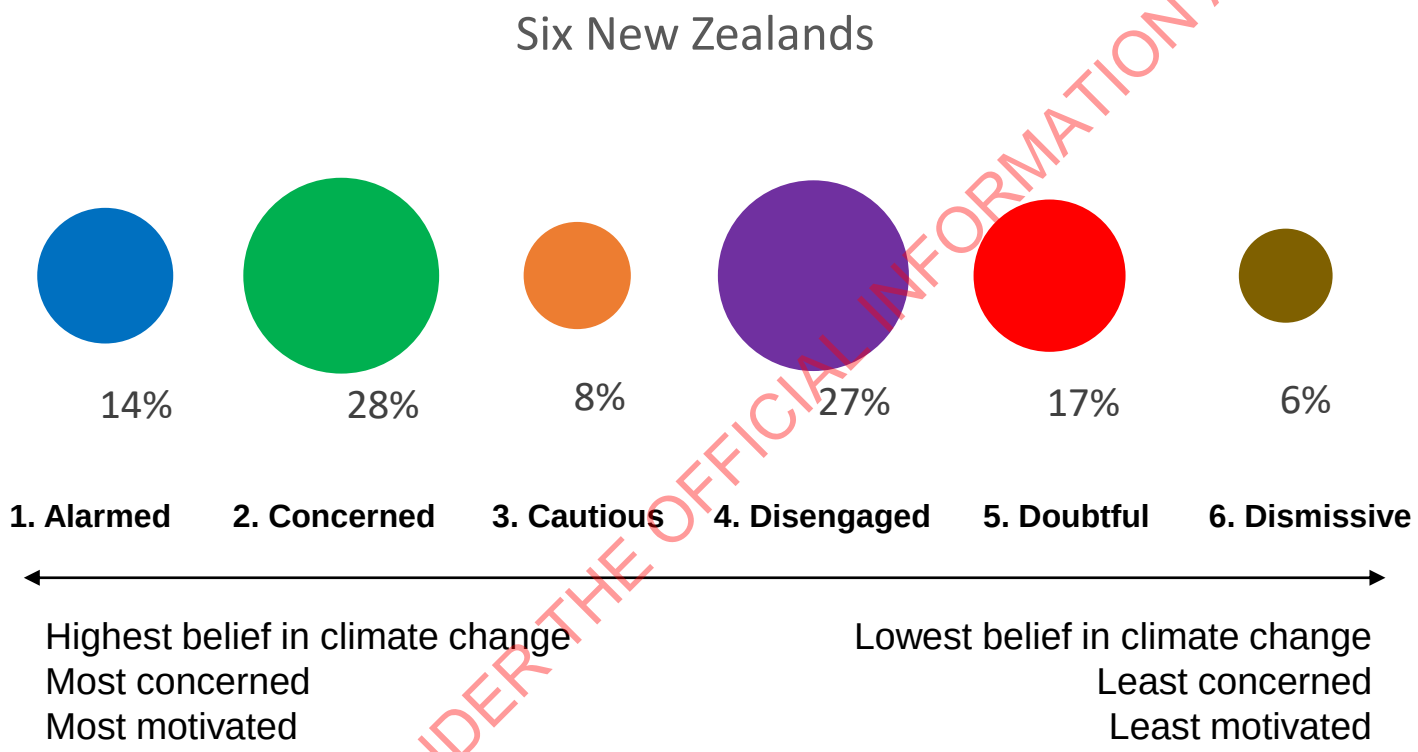
Contact: Dr. Paul Winton

paul.winton@templeinvestment.com

Today's agenda

1000 – 1130	Understanding the risk of action on climate change in New Zealand
1130-1145	Downtime
1145-1230	Develop a climate-compliant transport skeleton plan

Different people will hear today's story very differently



Today's agenda

1.5 Science

1.5+ Words

~3 Action → What happens in New Zealand if they all line up?

The essential truths about climate change in Ten words

1.5 Science

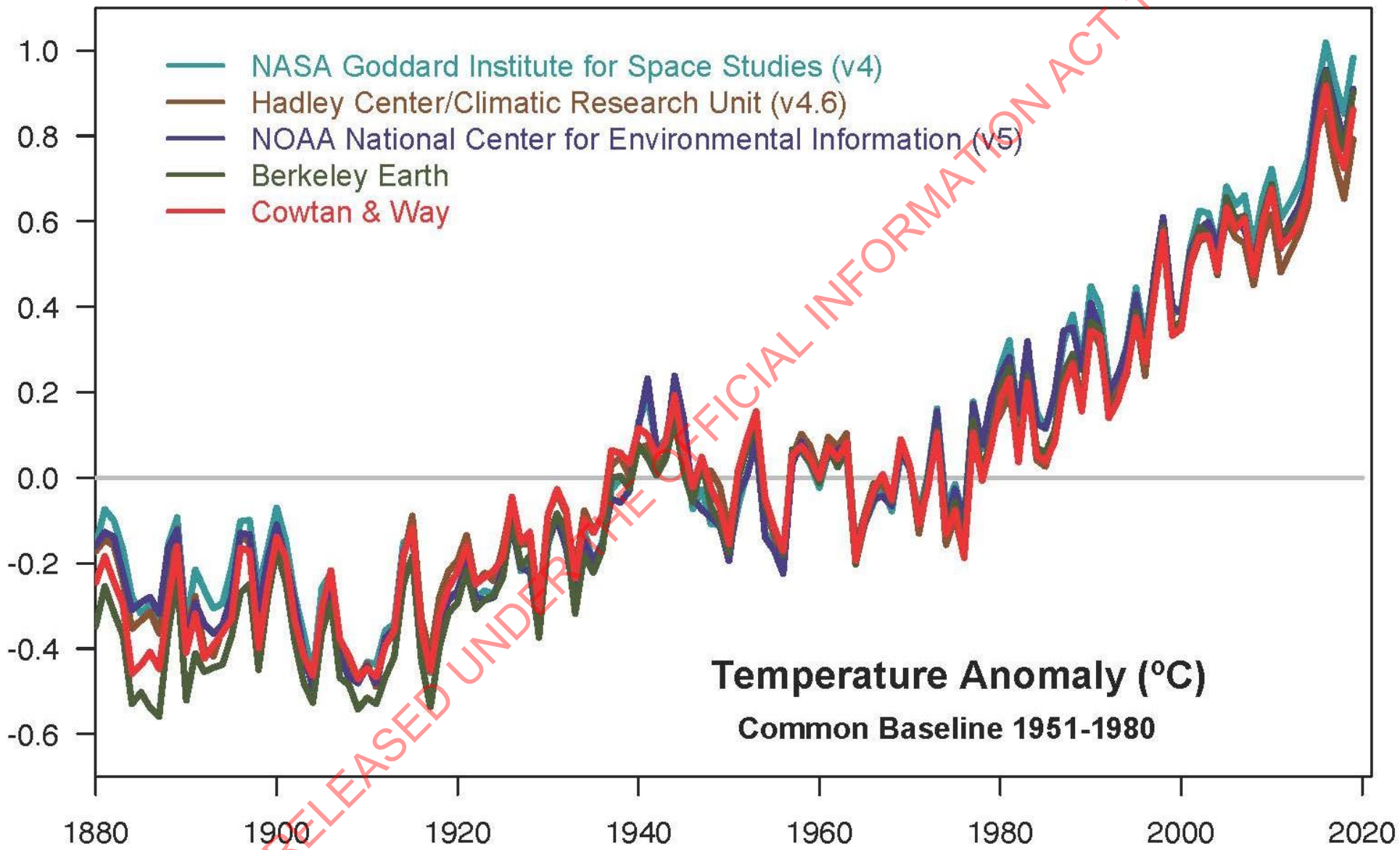
Words

Action

Source: Assoc. Prof. John Cook, George Mason University

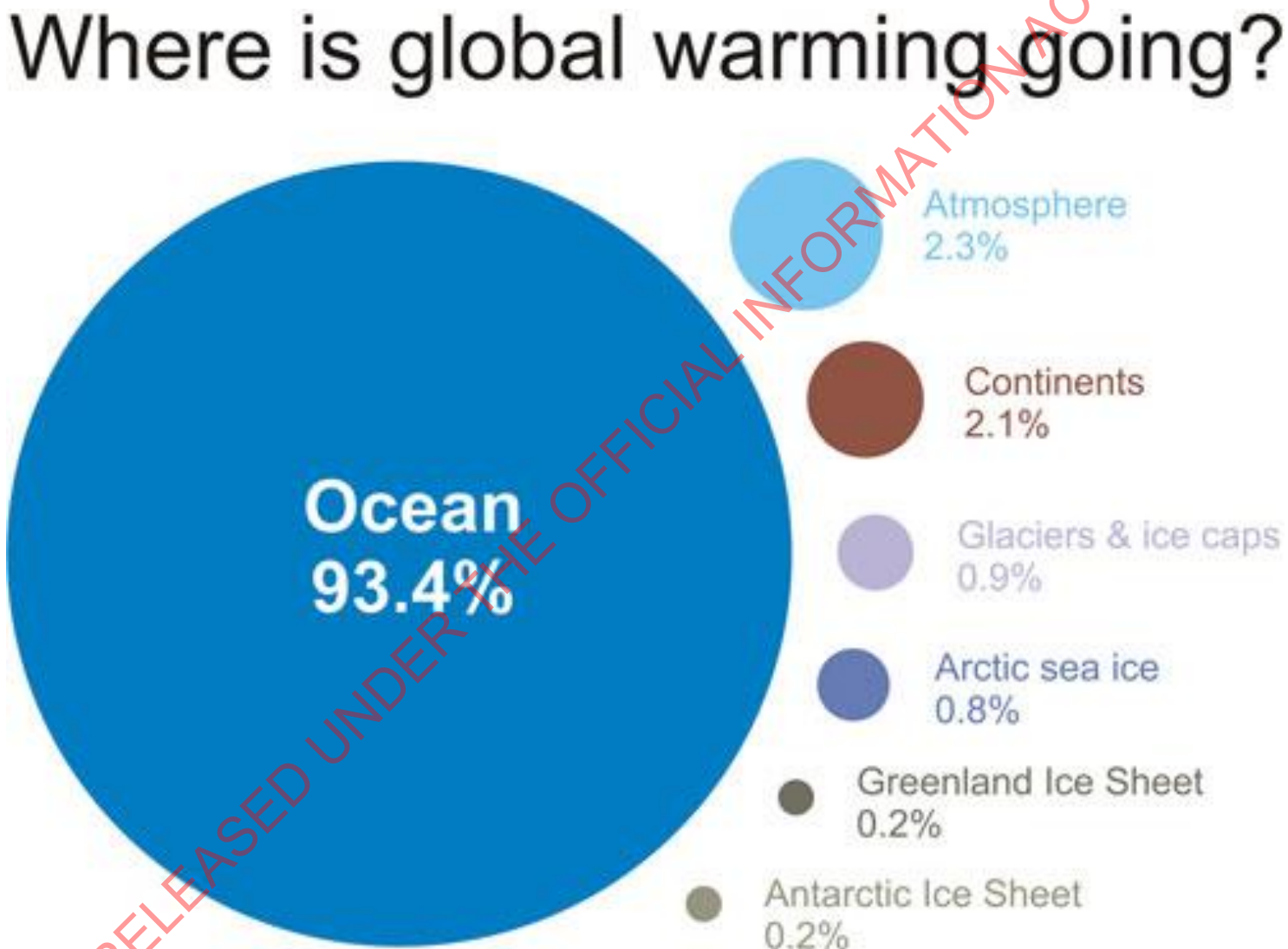
- 1.5 Science
- Words
- Action

Global warming is happening



Source: https://climate.nasa.gov/scientific-consensus/ accessed Feb 2020;

Its not just the air that's warming



Source: https://skepticalscience.com/graphics.php?g=12; A visual depiction of how much global warming heat is going into the various components of the climate system for the period 1993 to 2003;

The essential truths about climate change in Ten words

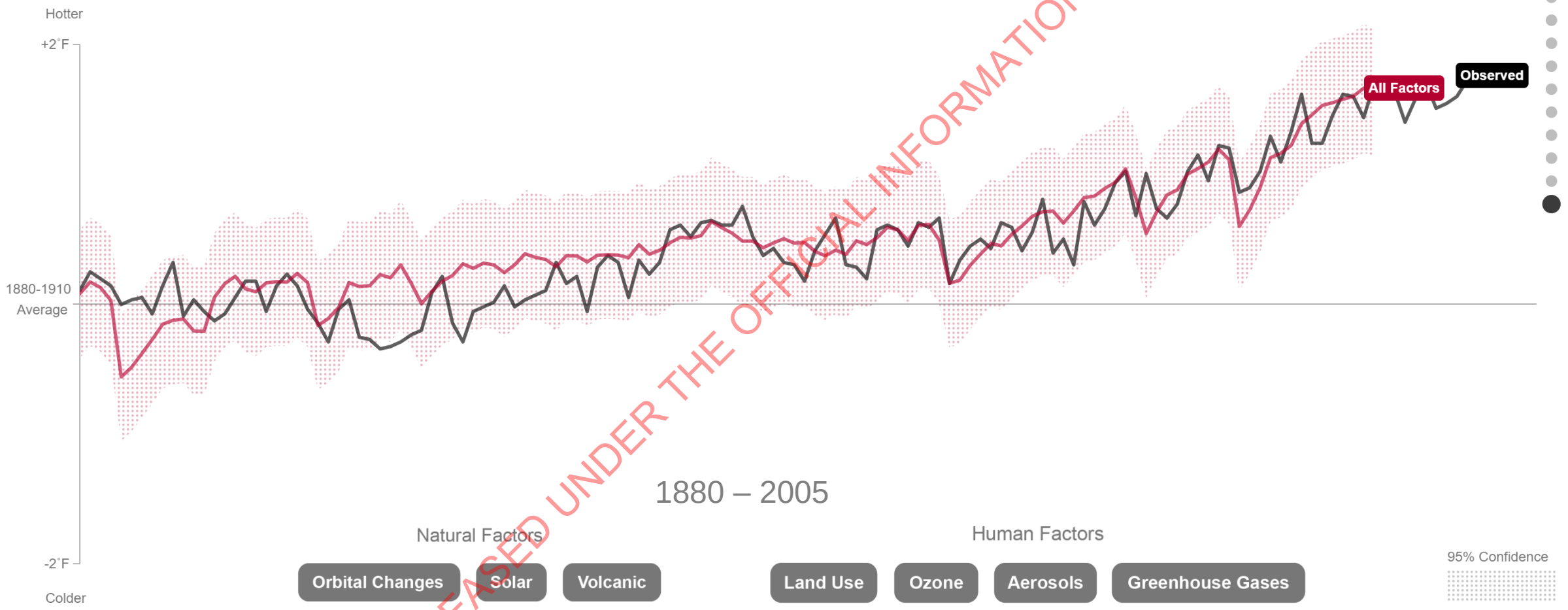
1.5 Science

Words

Action

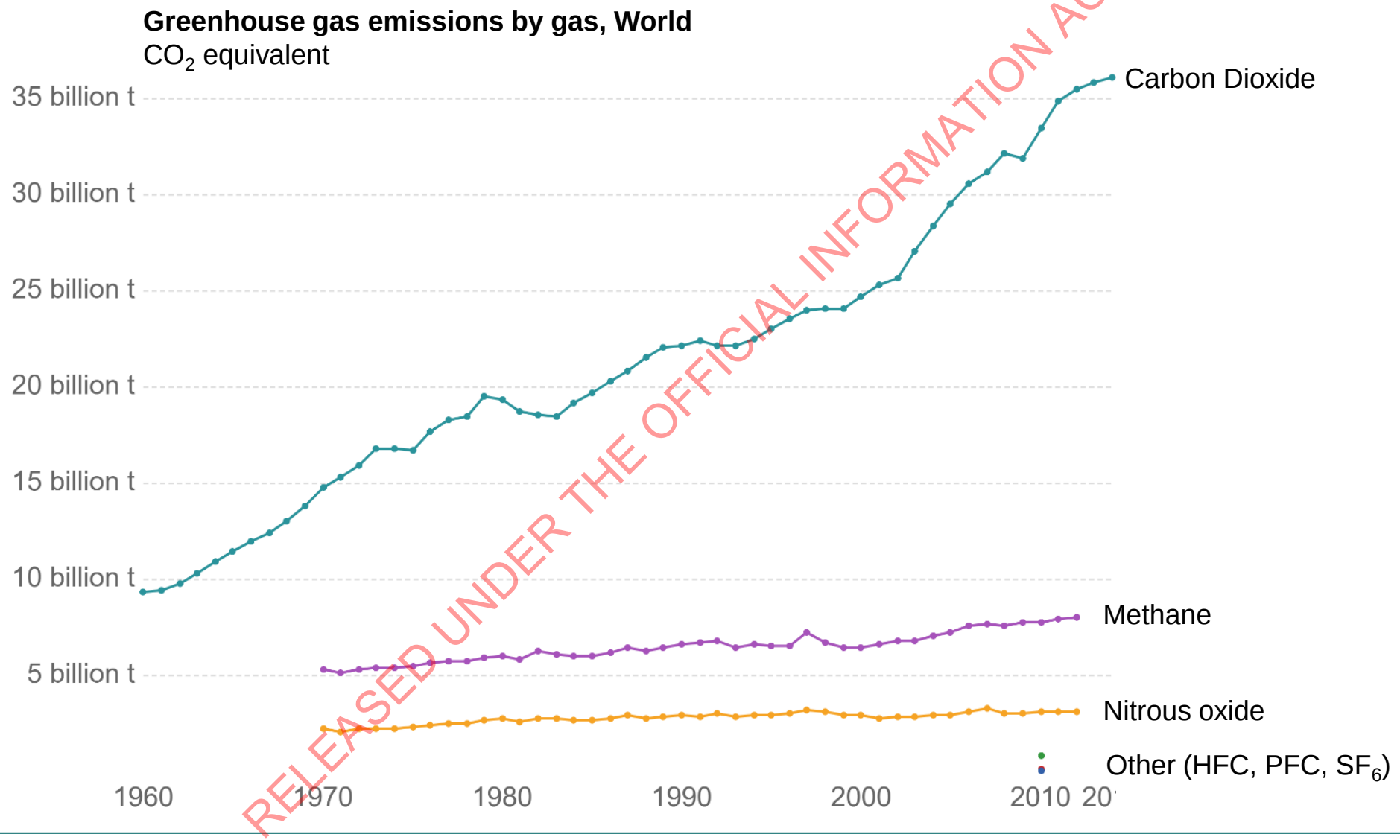
Source: Assoc. Prof. John Cook, George Mason University

Human Activity is the main cause



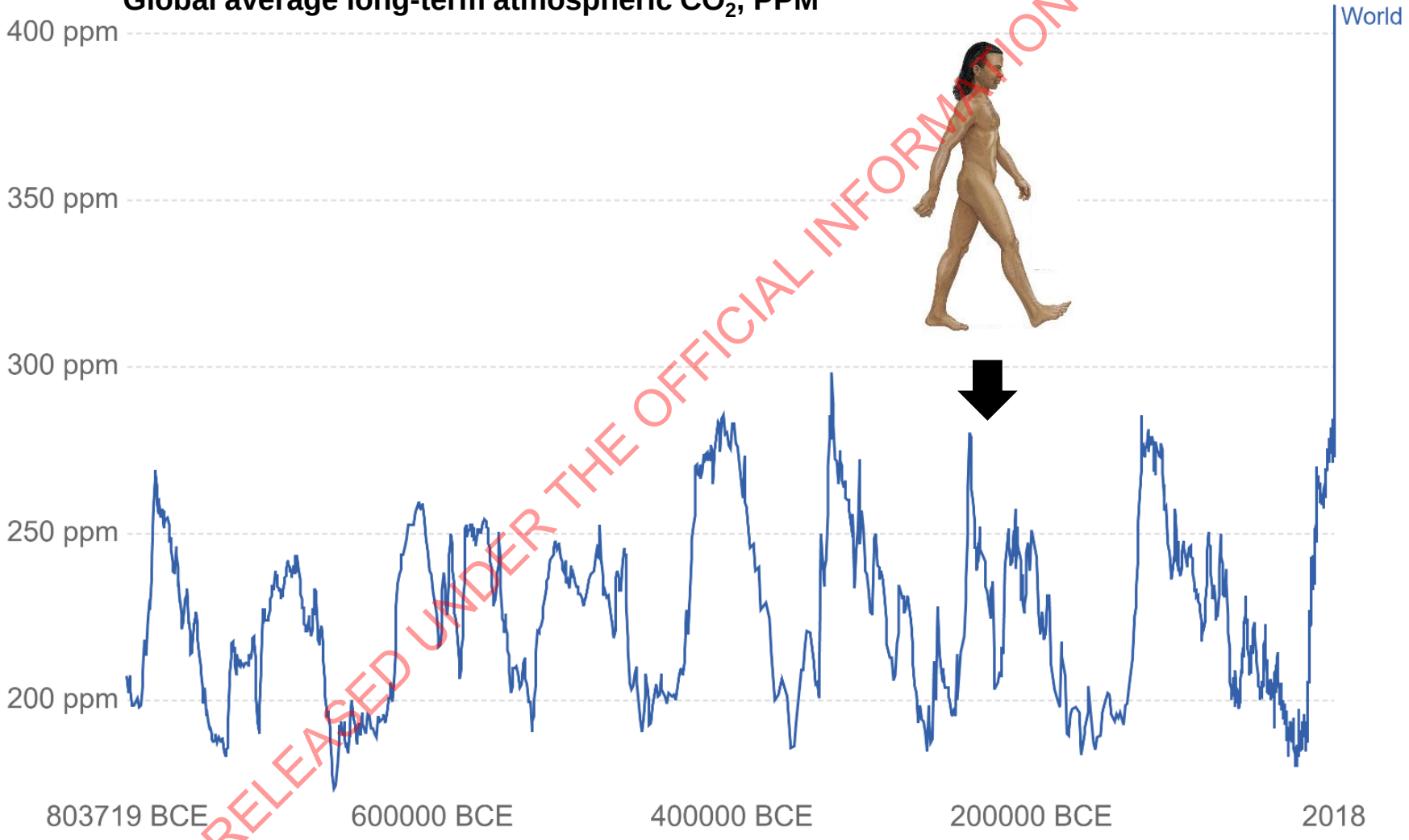
https://www.bloomberg.com/graphics/2015-whats-warming-the-world/ in collaboration with NASA; "*Detonating four Hiroshima atomic bombs per second*", http://4hiroshimas.com/#Science

CO_2 is the biggest issue globally



Source: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#global-warming-to-date

CO_2 concentration hasn't been this high since well before homosapiens



Source: https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions#global-warming-to-date citing NOAA 2018

The essential truths about climate change in Ten words

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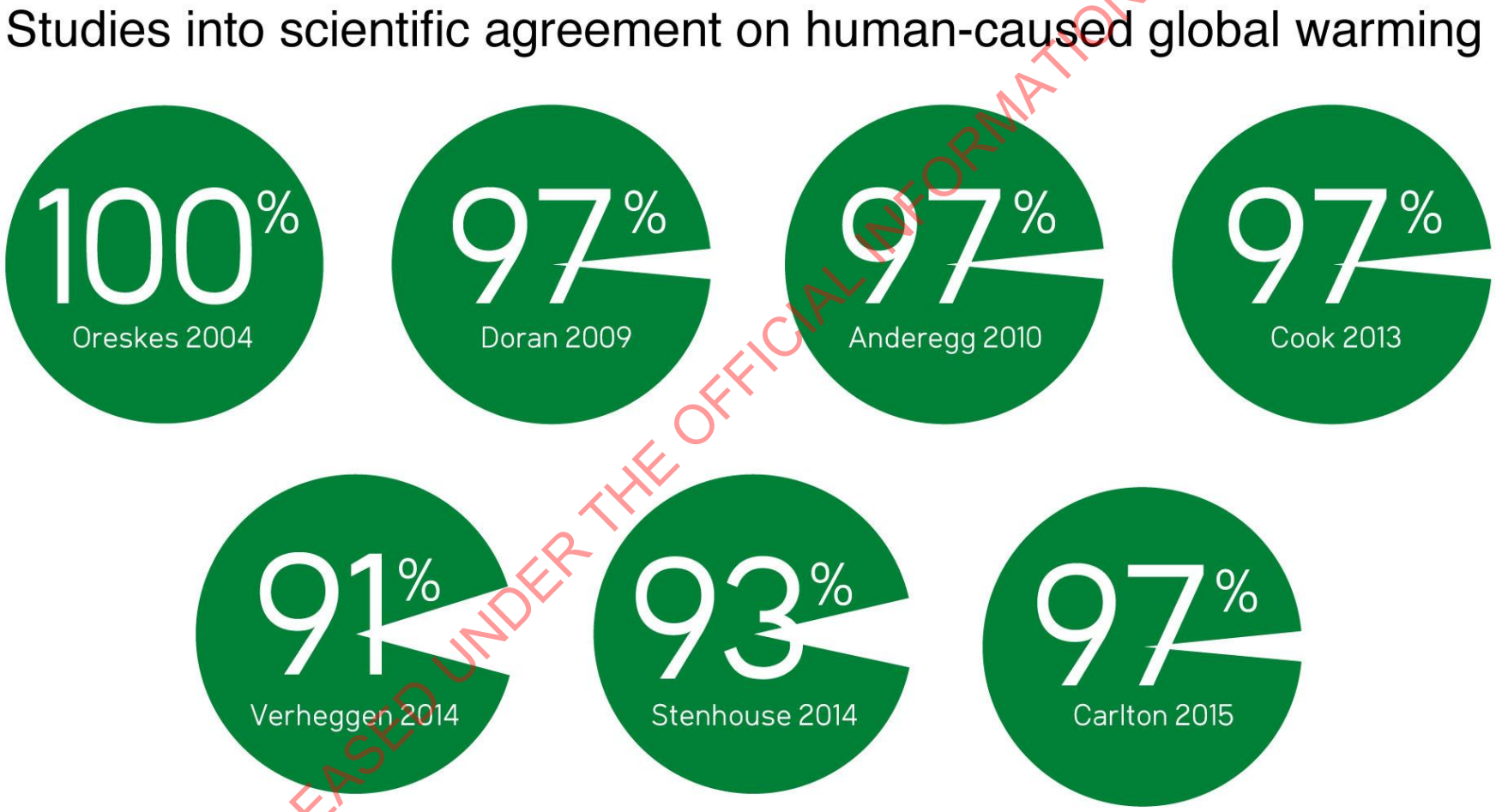
Source: Assoc. Prof. John Cook, George Mason University

There's scientific consensus on human-caused global warming



Source: Cook, J., Supran, G., Lewandowsky, S., Oreskes, N., & Maibach, E., (2019). America Misled: How the fossil fuel industry deliberately misled Americans about climate change. Fairfax, VA: George Mason University Center for Climate Change Communication.

The essential truths about climate change in Ten words

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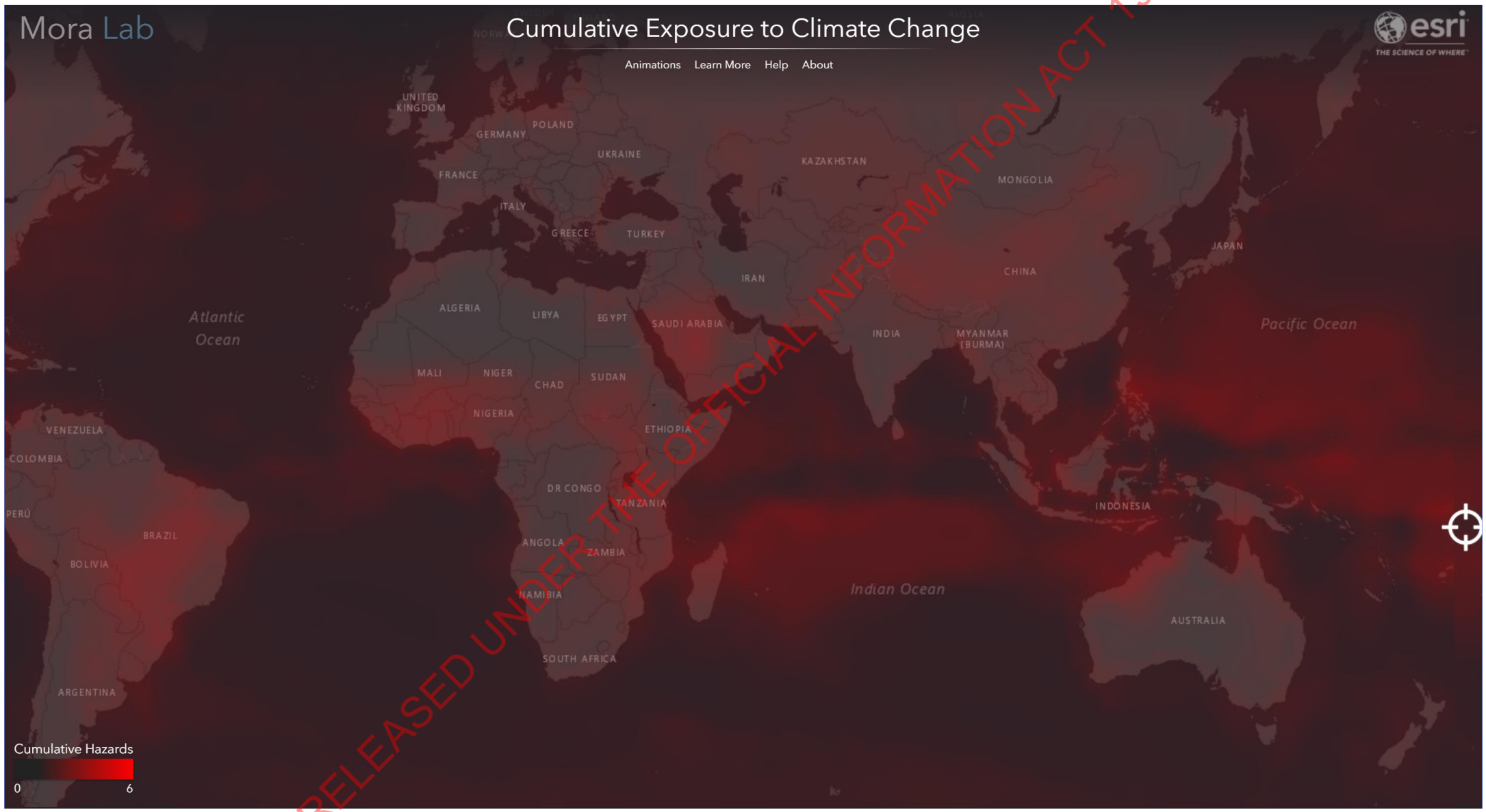
Source: Assoc. Prof. John Cook, George Mason University

“It is worse, much worse, than you think”

David Wallace Wells
The Uninhabitable Earth

[Q7]: *When do you think climate change will start to harm people in the New Zealand?* Average lies between 25 and 50 years [4.3 where 4 is 25 years and 5 is 50 years]; Australian surveys (Morrison et al) showed 25+ years average in 2013 and 2016 studies

… and its complicated…



Source: https://maps.esri.com/MoraLab/CumulativeChange/index.html accessed January 2020

There are many examples of the physical risks - Dorian

Source: Bloomberg, Accuweather

The World Economic Forum has identified climate change and associated as the biggest global risk

WORLD ECONOMIC FORUM

MARSH & McLENNAN COMPANIES

ZURICH

Source: World Economic Forum in Partnership with March & McLennan and Zurich Insurance Group

One of the biggest predictors for policy support is having experienced local weather change

Source: Bloomberg; Hornsey, Matthew J., Harris, Emily A., Bain, Paul G., & Fielding, Kelly S. (2016), “Meta-analyses of the determinants and outcomes of belief in climate change.”, Nature Climate Change, 6,

National and regional risk exposure in low-lying coastal areas

Replacement cost
of all buildings
$19B (2011)

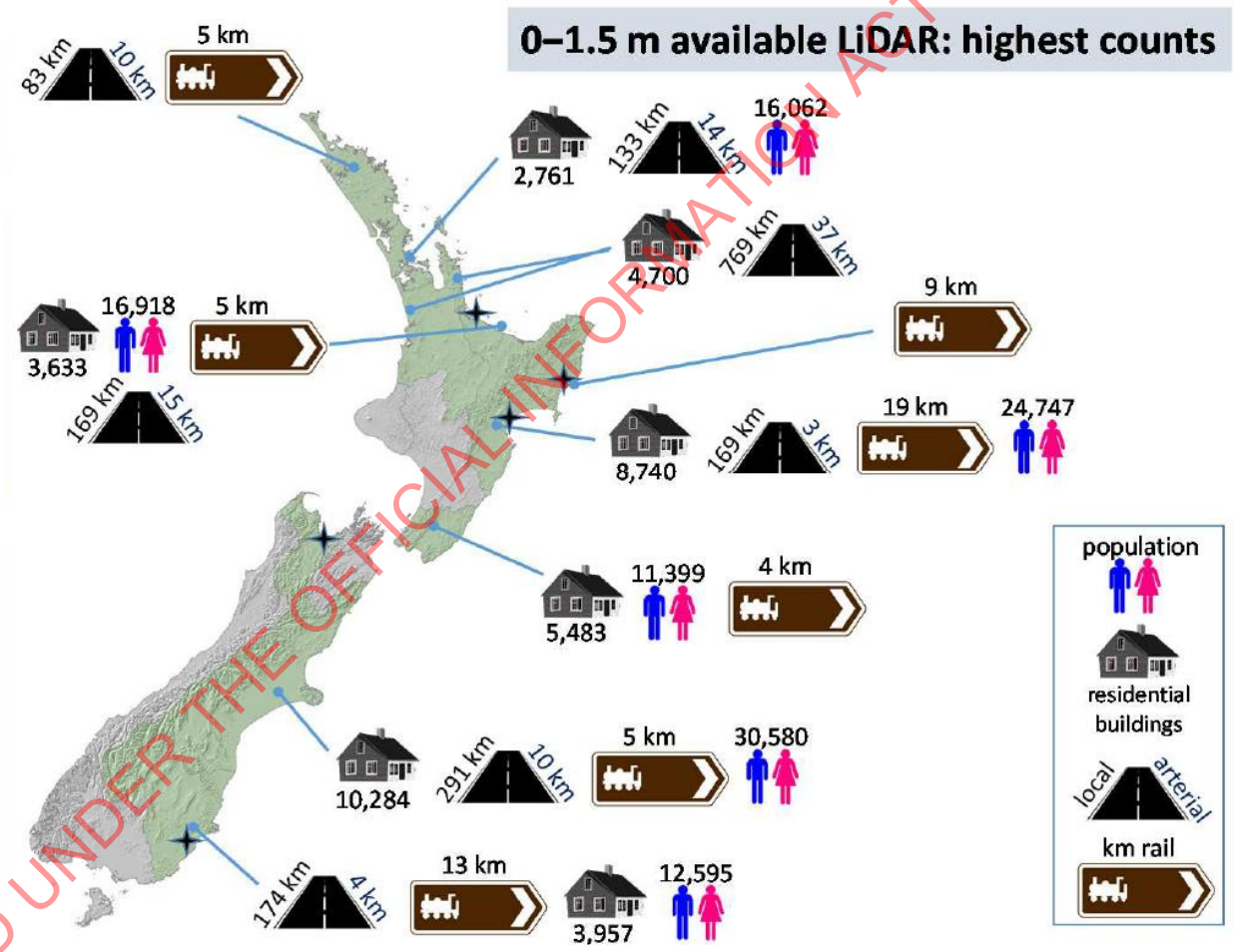
Total No. of
residential buildings
43, 680

Total No. of buildings
68, 170

Total resident population
133, 265 (Census 2013)

National Infastructure

- **382** *critical-facility buildings*
- **5** *airpoints*
- **1,547** *jetties & wharves*
- **2, 121km** *of roads (1, 930km local roads)*
- **48km** *railway*

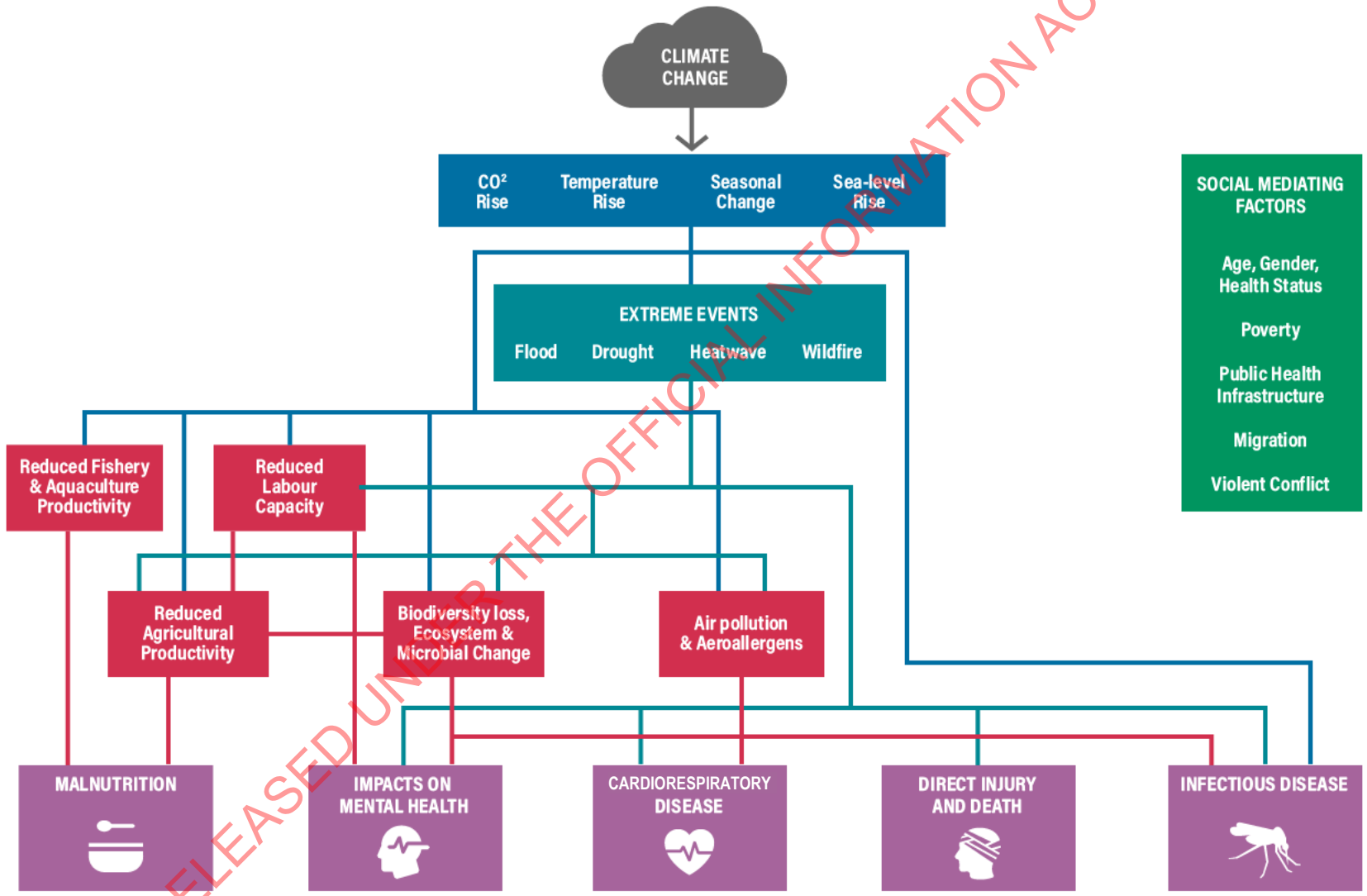


Source: NIWA; Prepared for the Parliamentary Commissioner for the Environment; October 2015

Council “walkback” is already happening but being kept below the radar

Source: Stuff

The impacts are serious and affect people



Source: Lancet (http://www.lancetcountdown.org/data-platform/climate-change-impacts-exposures-and-vulnerability for dynamic model)

The health and wellbeing impacts of continued global warming are significant and well recognised

World Health Organization

NZMA
New Zealand Medical Association
Te Hauora mō ngā Iwi Katoa

NEW ZEALAND COLLEGE OF PUBLIC HEALTH MEDICINE

OraTaiao
NZ Climate & Health Council

AUSTRALASIAN COLLEGE FOR EMERGENCY MEDICINE
ACEM

Source: Press releases, websites

Climate change will disproportionately impact Maori communities

Source: Te karere

The essential truths about climate change in Ten words

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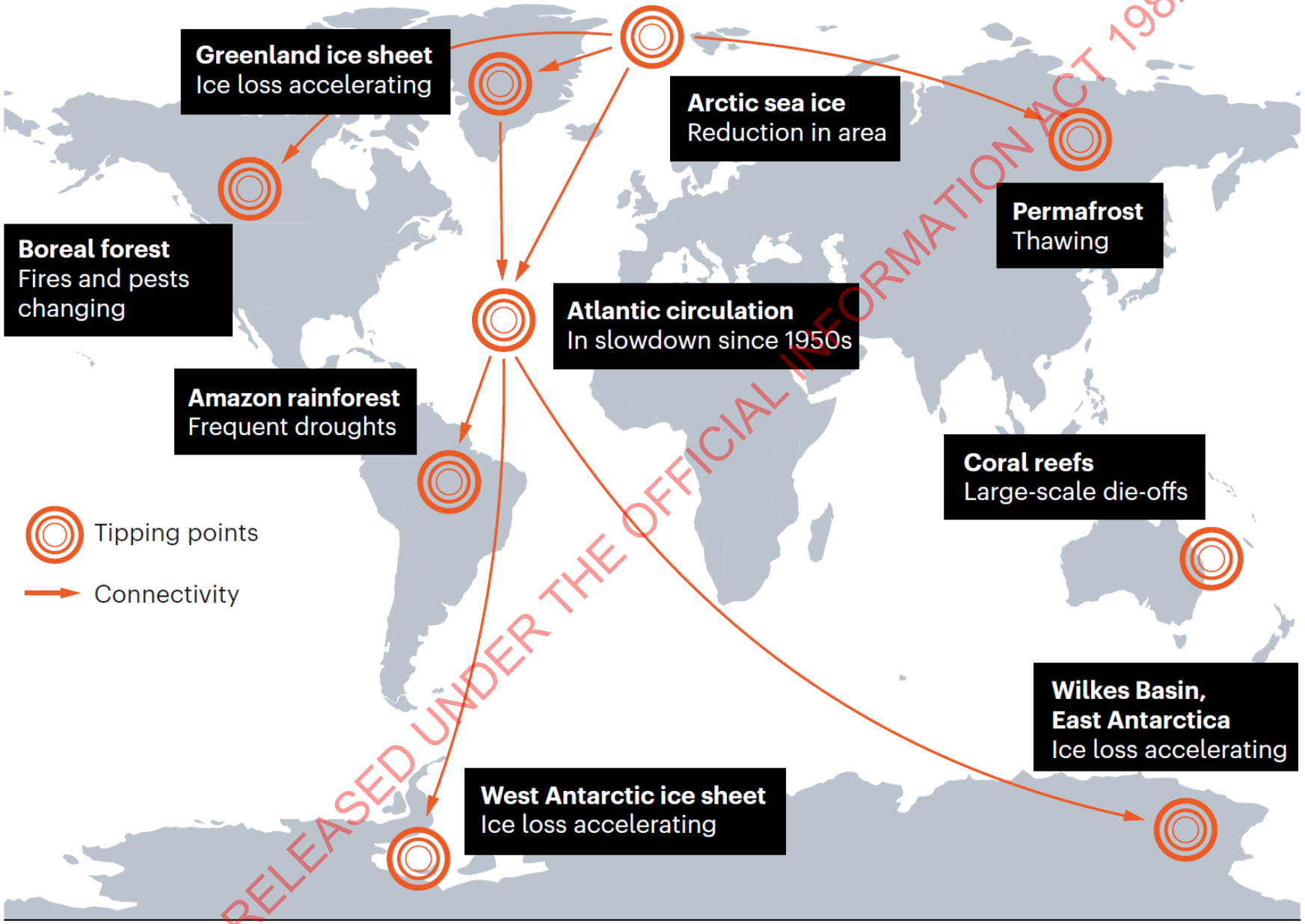
Source: Assoc. Prof. John Cook, George Mason University

The scientists are screaming that we mustn't go beyond 1.5C



Source: Tim Lenton et a, "Climate tipping points —too risky to bet against", Nature November 2019

New Zealand health professionals call for emissions to remain below 1.5C

Climate Change and Health
Health Professionals Joint Call for Action, July 2018

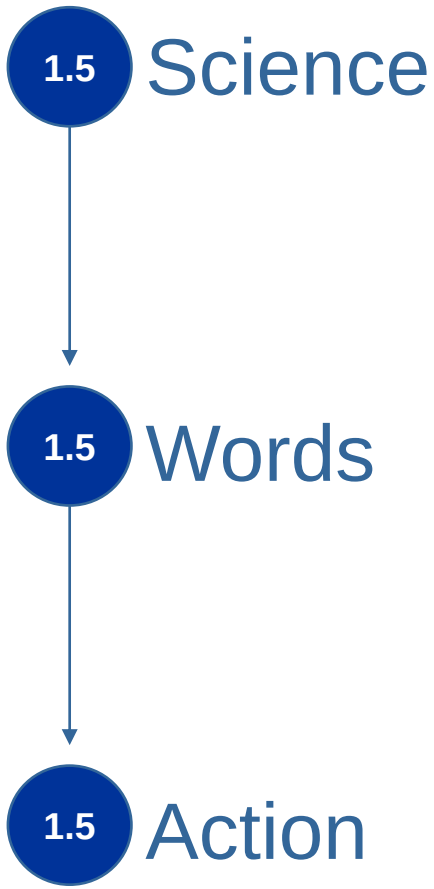
"*Health professional groups* ***recognise human-caused climate change as an increasingly serious and urgent threat to health and health equity*** *in New Zealand and worldwide."*

…

As health professional organisations we call for:
"A national emissions reduction target of net zero greenhouse gas emissions by 2040."

Source: Press releases, websites

There is hope if the science, words and action align soon around 1.5C



The investor and legislative narrative is moving to 1.5C

1.5 Science

1.5+ Words

Action

BANK OF ENGLAND

FSB FINANCIAL STABILITY BOARD

New Zealand Government
Te Kāwanatanga o Aotearoa

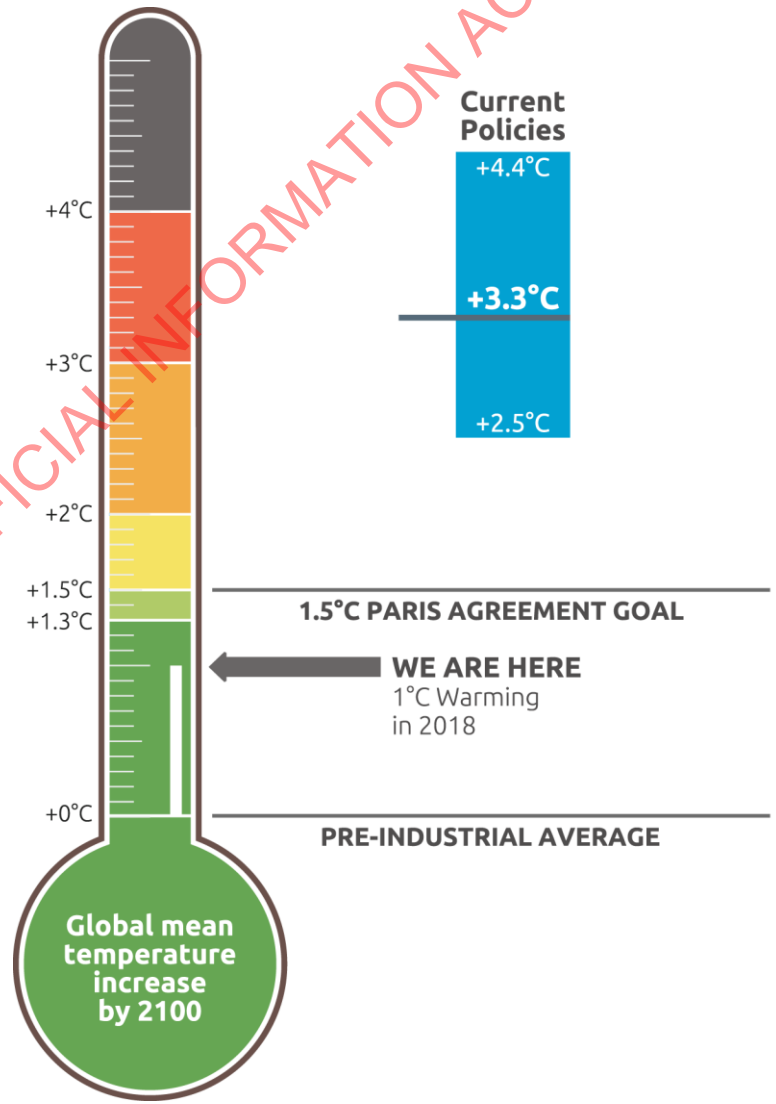
Auckland Council
Te Kaunihera o Tāmaki Makaurau

We're a long way from Paris…

1.5 Science

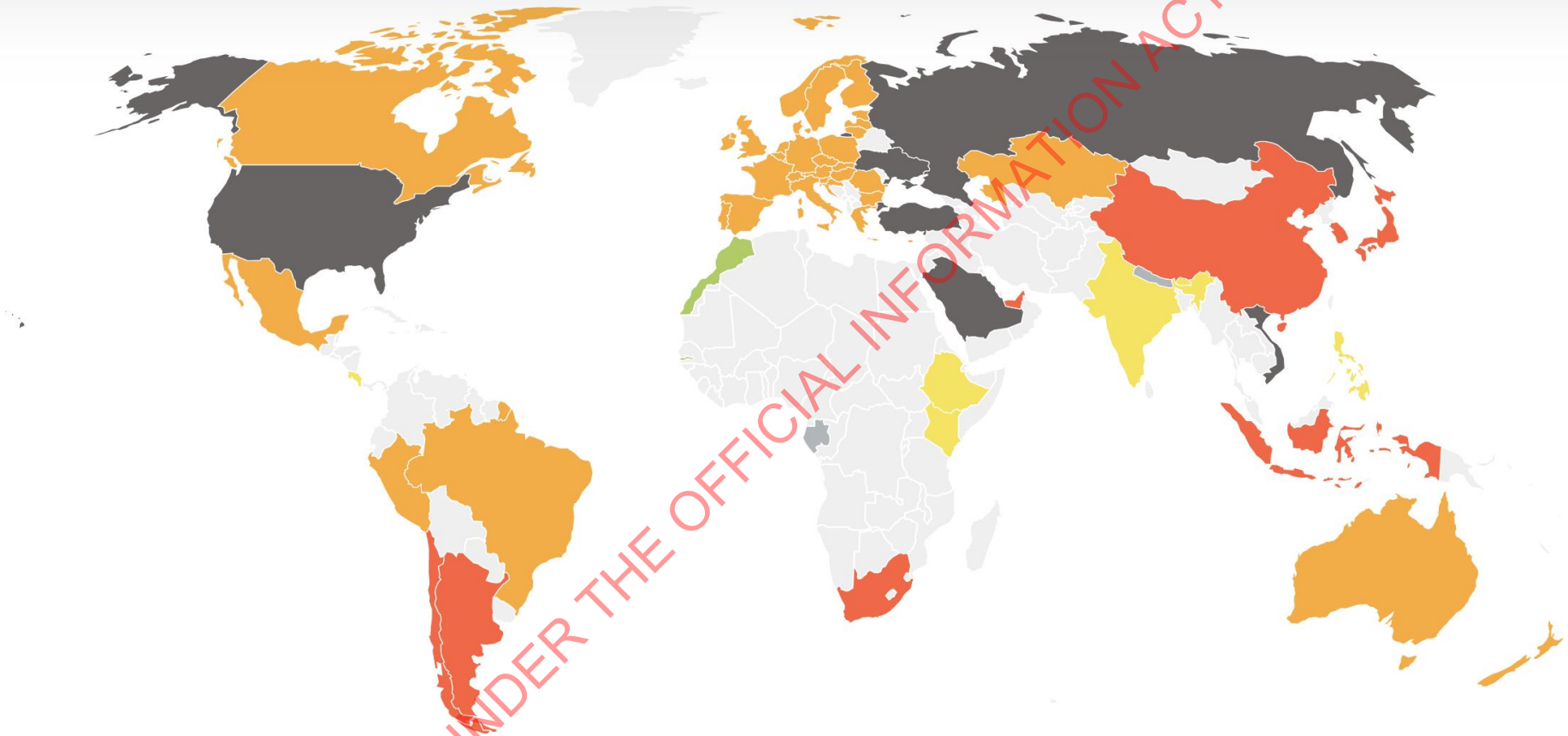
1.5+ Words

~3 Action



Source: Climate Action Tracker

New Zealand's response is better than some but Insufficient



The maps displayed are for reference only.

LAST UPDATE: *December 2019*

CRITICALLY INSUFFICIENT	HIGHLY INSUFFICIENT	INSUFFICIENT	2°C COMPATIBLE	1.5°C PARIS AGREEMENT COMPATIBLE	ROLE MODEL

Source: Climate Action Tracker

1.5 Science

1.5 Words

1.5 Action

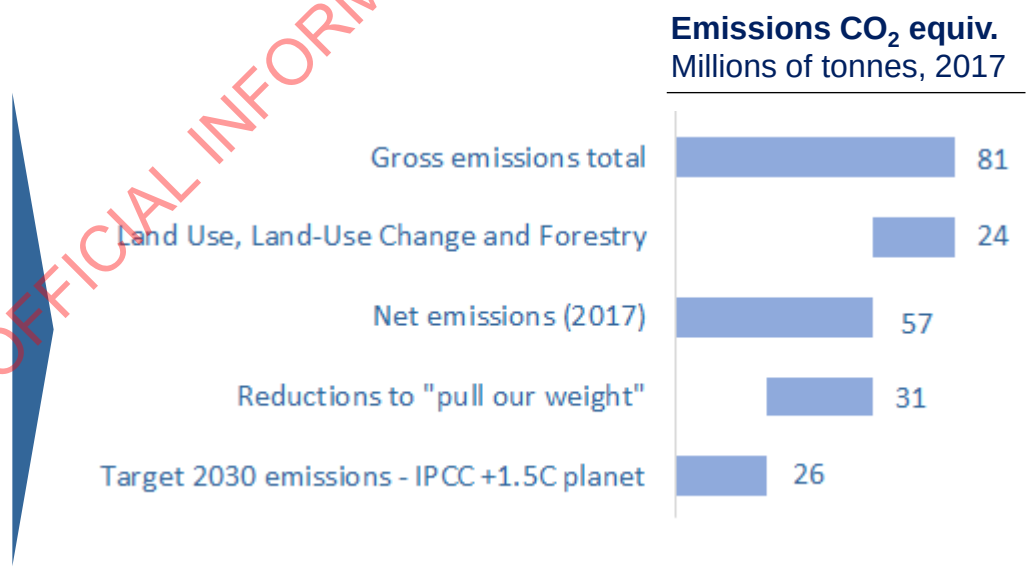
What happens in New Zealand if they all line up?

We must cut emissions 50-60% by 2030 to pull our weight in the global community

"*In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline by about 45% from 2010 levels by 2030*"*,

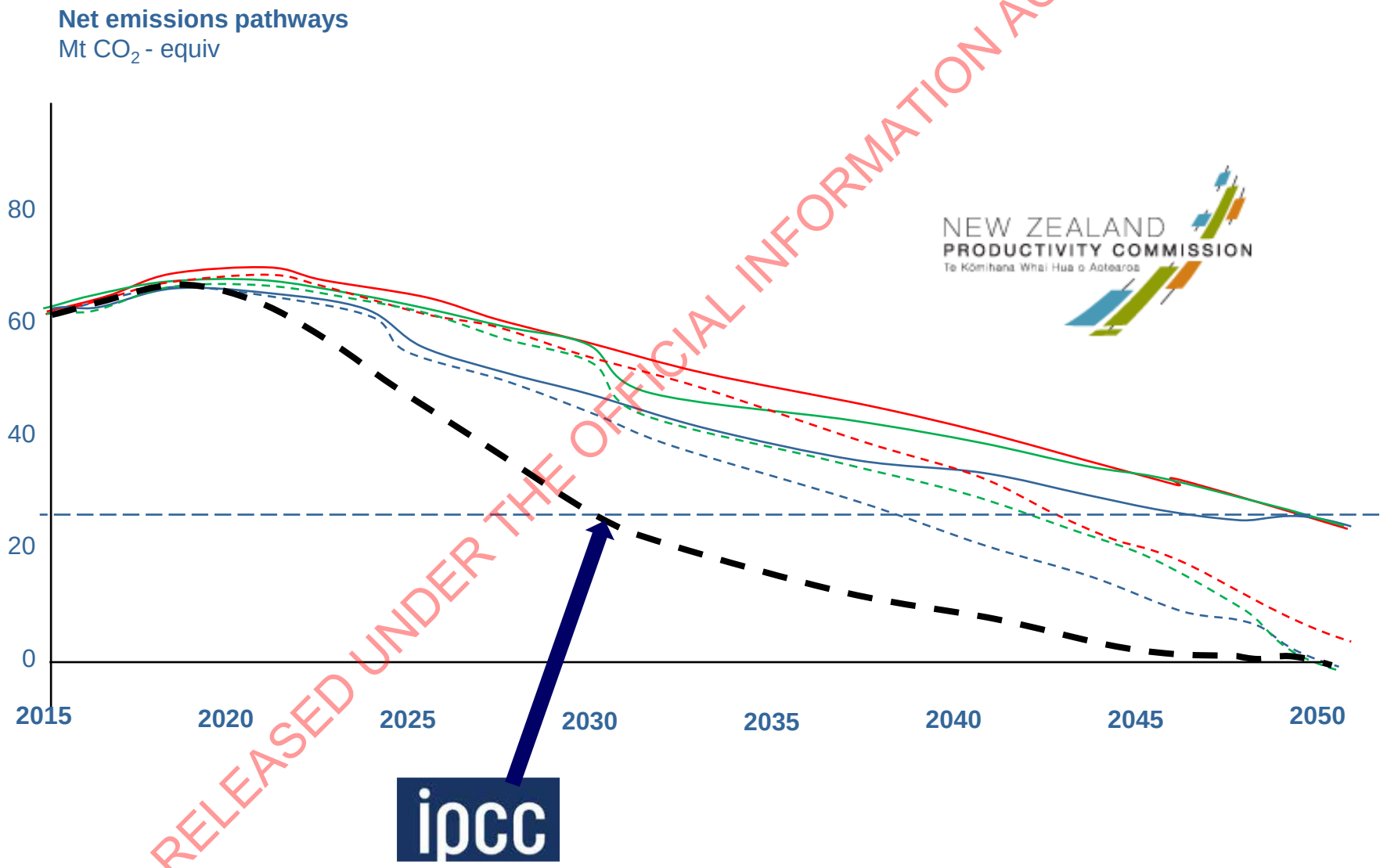
[nb 54% from NZ 2017 levels]

IPCC October 2018



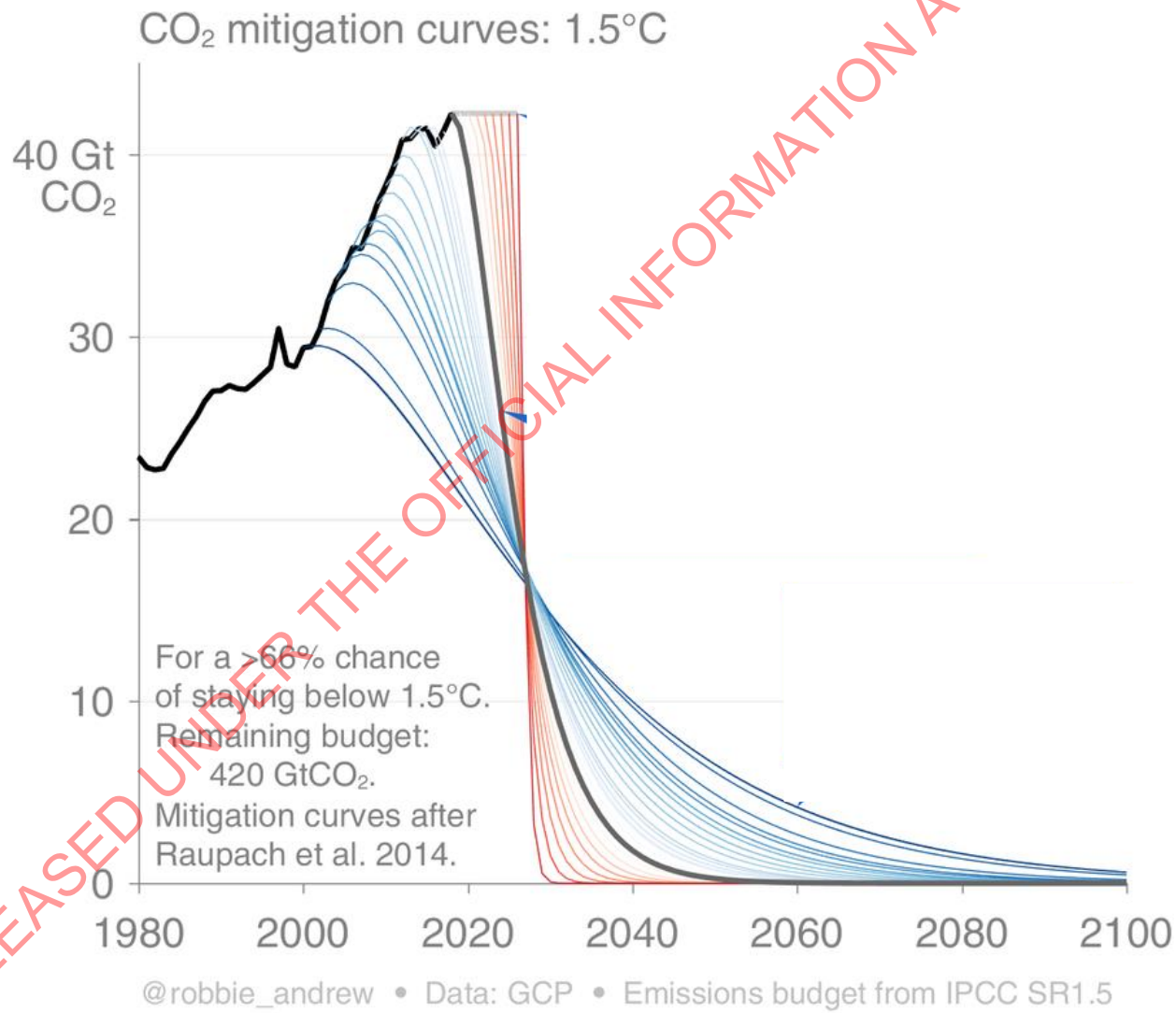
Source: IPCC SR1.5 2018, MFE data, Temple analysis

The goalposts have moved since the August 2018 productivity commission work



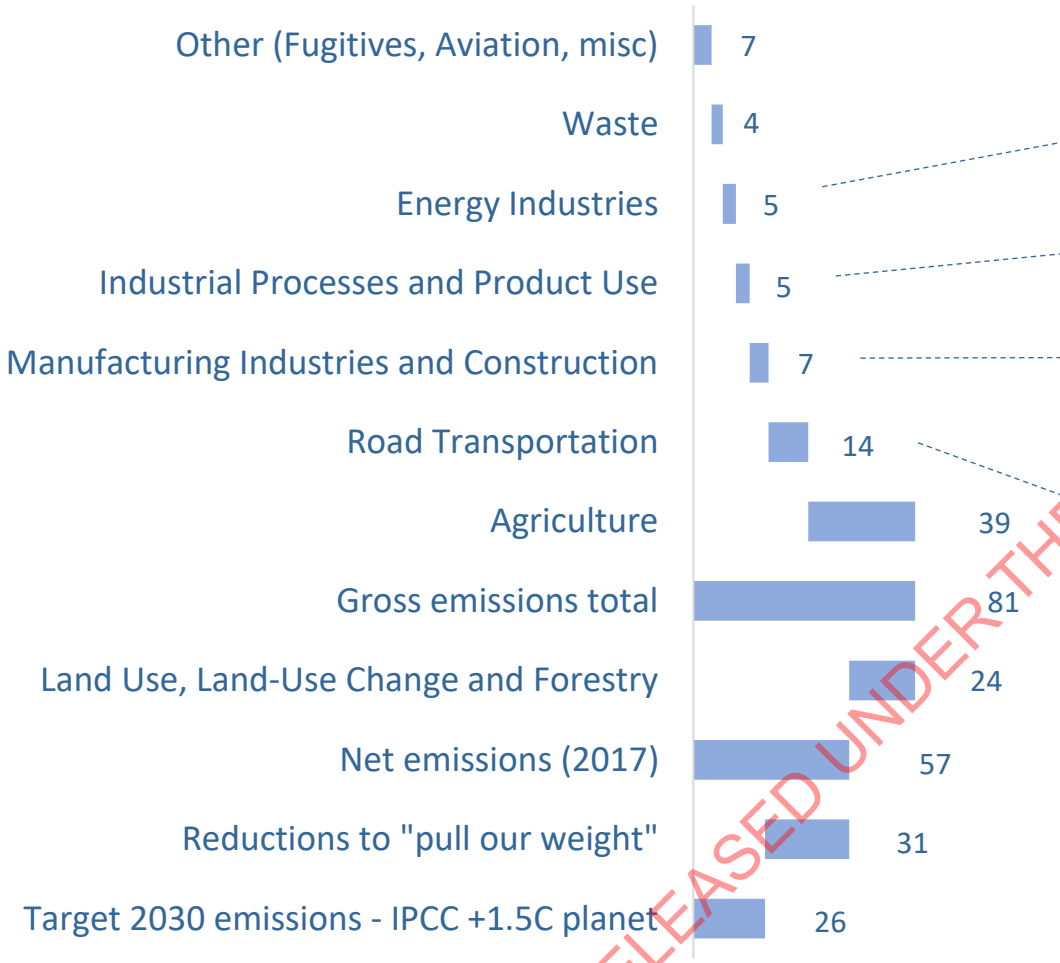
Source: IPCC Oct 2018, Temple analysis, New Zealand Productivity Commission 2018; **DD 0,** Disruptive Decarbonisation, is the most aggressive and "*features rapid technological change that disrupts current economic structures, with new technologies and products creating new markets, destroying demand in traditional industries and accelerating turnover in capital assets…..", taking emissions to 0 by 2050*

Emissions are cumulative so transition risk builds to 2030



Source: http://folk.uio.no/roberan/t/global_mitigation_curves.shtml

Who profits from emissions today and will they in the future?



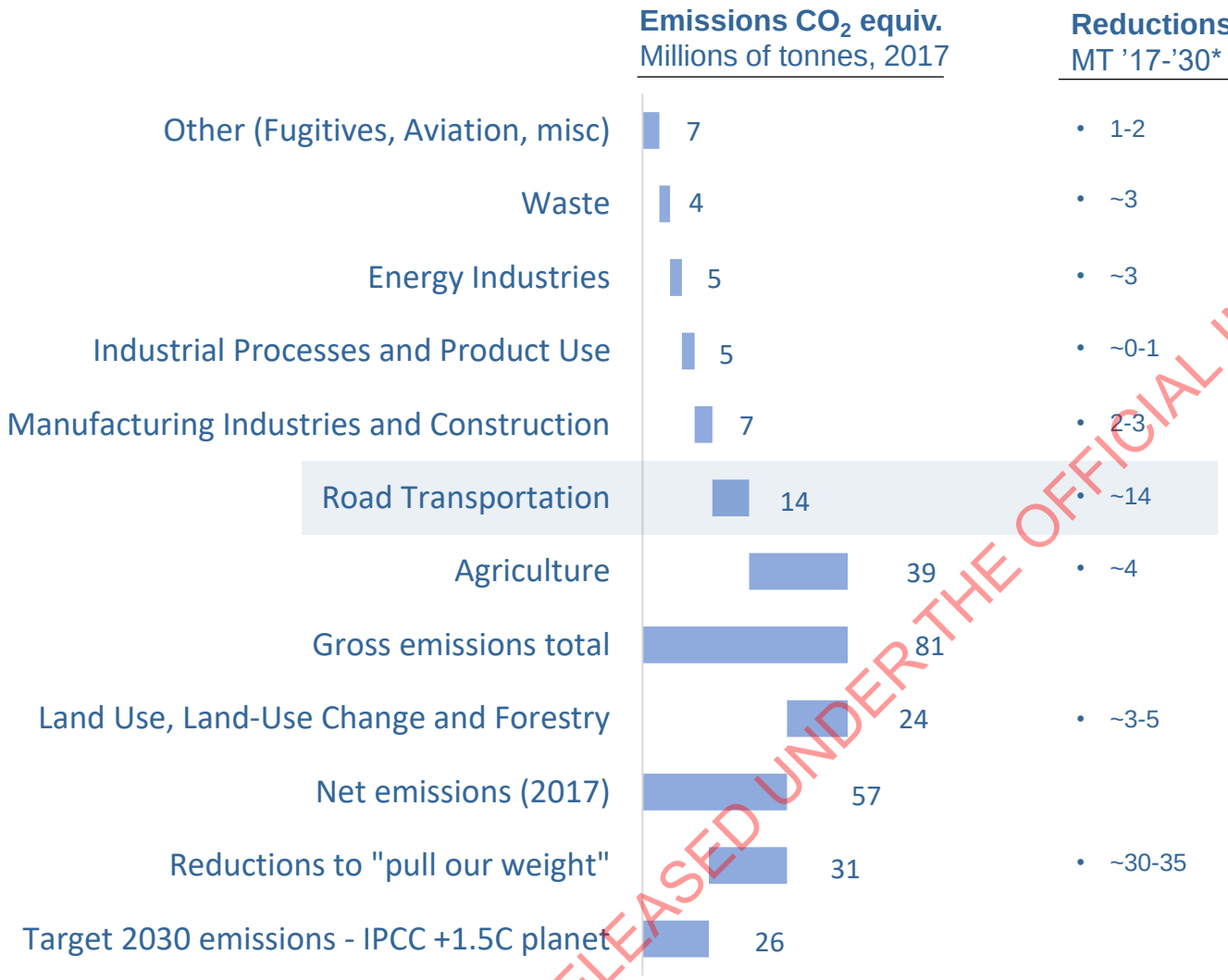
Typically 50-70% of category

Financing climate change

Supporting carbon asset values

Source: Temple analysis, interviews

To hit 1.5C we must largely eliminate petrol and diesel by 2030…



This is all underway, or the market will get us there

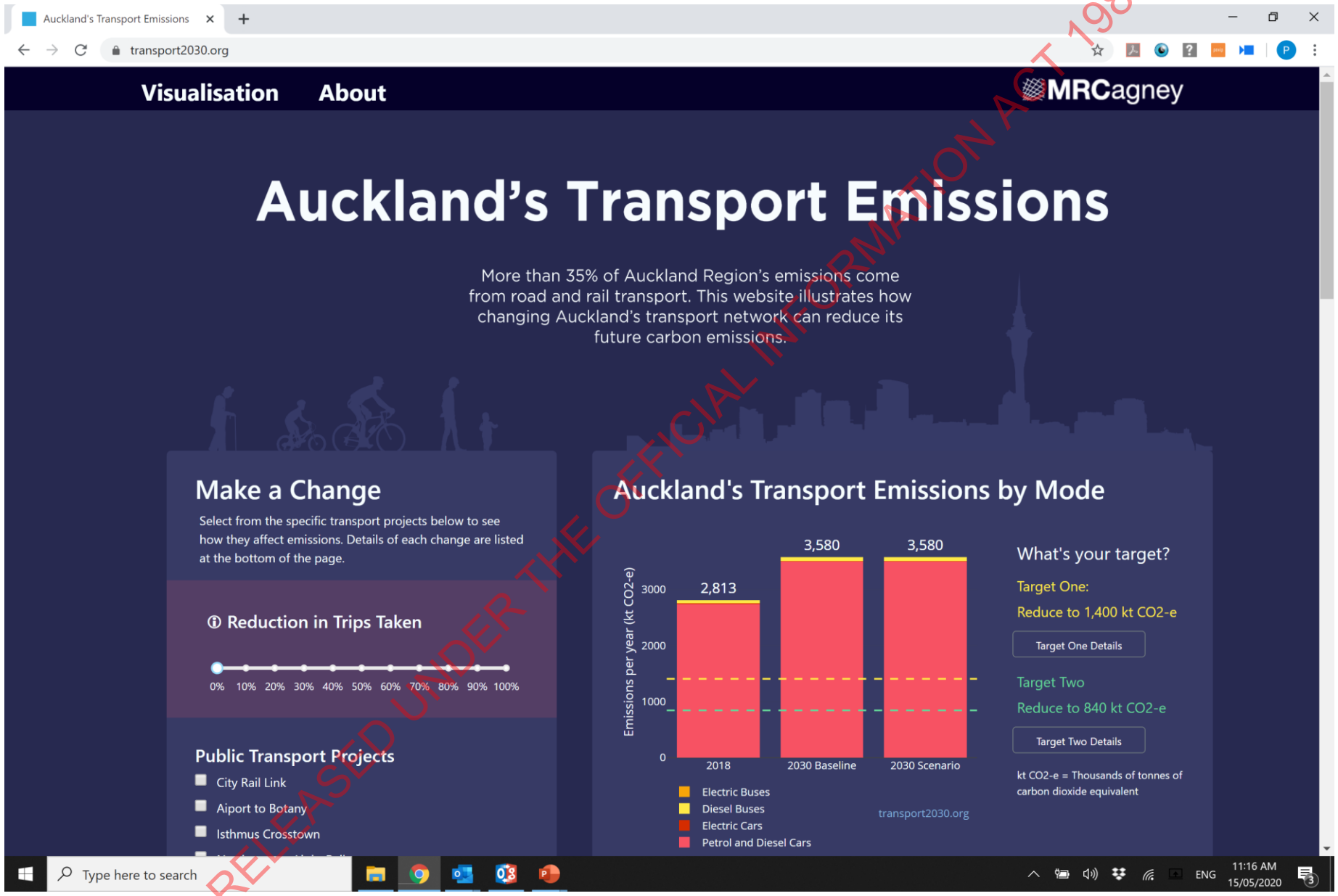
To hit 1.5C we'll need to largely decarbonise road transport

Zero Carbon Bill might give 10% and the politics/economics are terrible

"One Billion Trees"; low appetite / capacity for more

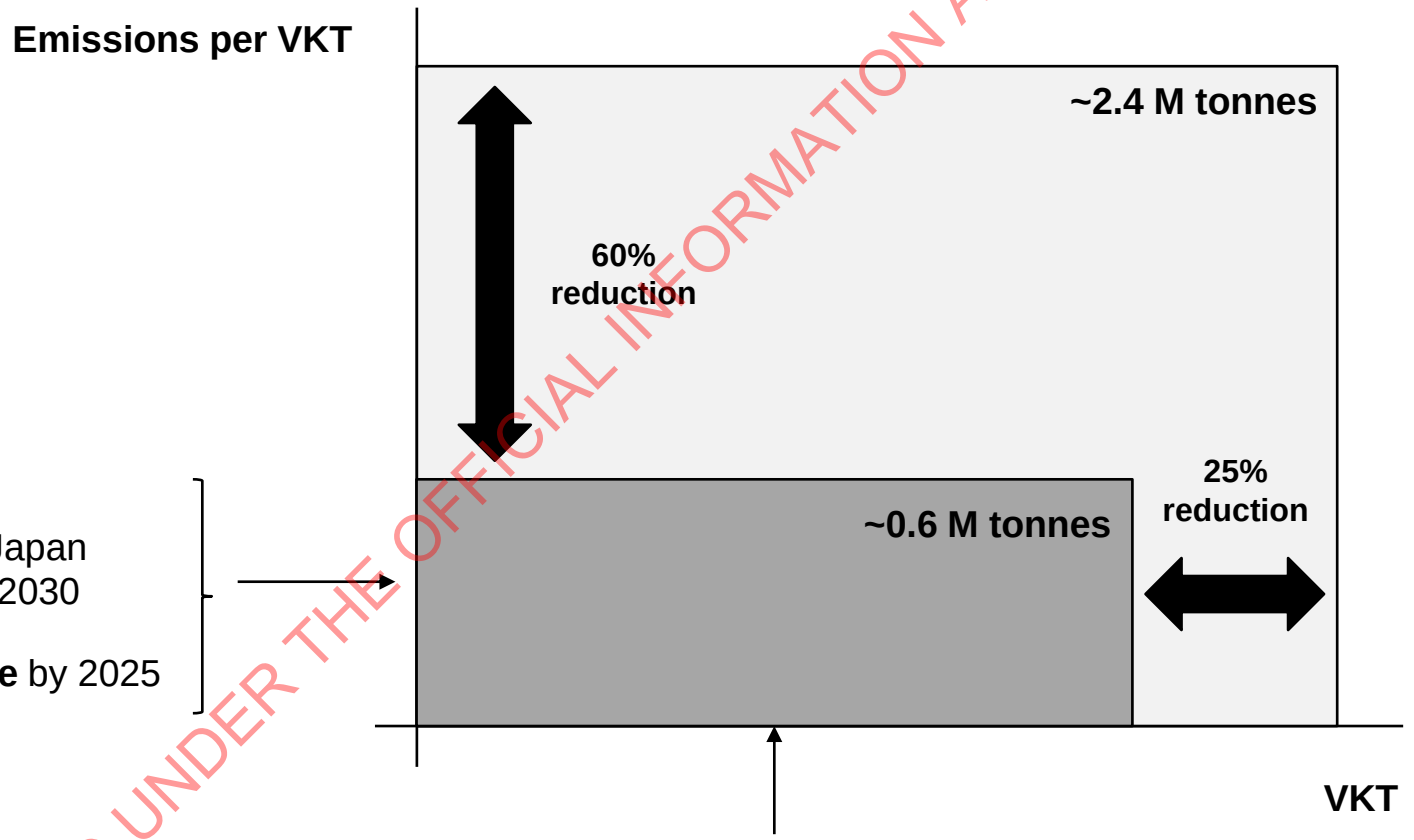
Source: Temple analysis, interviews

The change required is massive and poorly understood: Auckland example



Decarbonisation is possible but it bears no resemblance to the current plans

Auckland Light fleet example
M Tonnes CO_2 (2015)



- **Emissions** like new Japan cars were in 2014 by 2030
- Norway-like **EV uptake** by 2025

- All population growth picked up by new PT, cycling etc plus….
- Higher occupancy
- Road charging
- Parking charging
- Less PKT (remember April?)

A call to action aligned with the ZCA looks more like this….

90%+ less ICE VKT by 2030

No ICE VKT by 2035,

No new-to-fleet ICE-only after 2025

EV only from 2030

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