



IAN DUNLOP

**CANARY
IN THE
COALMINE**

A former senior fossil fuel executive speaks out

IAN DUNLOP

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**“THE LESSON I
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THE ENERGY
INDUSTRY IS THAT
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OF HIGH RISKS
REQUIRES BRUTAL
HONESTY.”**

INTRODUCTION

IAN DUNLOP

This publication brings together some of my commentaries over the last three years on the need for real action on climate change. Not the normal variety of political action, but an emergency approach, akin to a wartime level of response, which before long will have to be adopted as impacts escalate around this hot, dry and vulnerable continent, and around the world.

Climate change is now an existential risk to humanity which, unless addressed immediately as a genuine emergency, will likely destroy civilisation as we know it within decades. We are not going to let that happen.

My life seems to have revolved around these types of risks. As a toddler, I was hugely impressed with the appearance of four duckponds in a line across my grandfather's farm in the east of England as a German bomber jettisoned its cargo while trying to avoid a pursuing Hurricane. Fortunately no-one was hurt, but it could easily have been otherwise. It prompted my rapid evacuation to Wales. Living on a former German airbase with my Royal Air Force parents immediately after World War Two, school was shared with displaced children who had lost everything in the war. Then came the Cold War, with that same airbase on 24-hour alert keeping supply lines open as part of the Berlin airlift, interrupted by regular emergency alarms.

Training as an engineer, and recognising in the 1950s that the world ran on energy, not money, I joined the oil industry, which for years was a hugely satisfying career, taking me to remote and fascinating parts of the world. I was also fortunate early on to become involved in long-term scenario planning which thought about issues like climate change, and the unsustainability of an economic system reliant upon perpetual economic growth. Not as immediate priorities, but as issues which sooner or later would become a constraint on global society, as the Club of Rome was identifying around the same time.

Risk-management experience was eventful. I was on the first semi-submersible oil rig offshore of Scotland soon after it started operations when the proverbial one-in-a-hundred year storm hit, dragging the rig on an inadvertent voyage, 300 kilometres down the North Sea. Then there was coal-mining in Australia, where well-established geological conditions could suddenly change into deadly working environments overnight.

By the end of the 1980s, as James Hansen gave his first testimony on climate change to the US Senate, climate science was becoming ever more definitive and the evidence of climate impact was mounting. The risks had reached the point where action to reduce carbon emissions from fossil fuels was essential. Accordingly I left the industry in the early 1990s, to work toward that end, and more broadly the evolution of genuinely sustainable societies.

After working constructively with other industry leaders in the late 1980s on responses of the coal industry to climate change, I rather naively assumed that their successors would continue with a progressive approach. But it was not to be. As the 1990s progressed, the introduction in Australia of perverse short-term incentives, combined with myopic conservative politics, ensured that climate concerns took a back seat to the expansion of fossil fuels and climate denialism reigned supreme. The same is true globally. Since the UN climate negotiations were initiated in 1990, the world has emitted as much carbon to the atmosphere as had occurred from the Industrial Revolution till 1990. And global emissions are still increasing.

The result is an immediate existential threat to our civilisation as irreversible climate tipping points begin to trigger. The drought and bushfires devastating large parts of Australia are early signs that these tipping points are starting to manifest themselves here.

The lesson I learnt from the energy industry is that the successful management of high risks requires brutal honesty in assessing those risks at the outset, otherwise inadequate solutions are adopted and chaos ensues, as we are now seeing.

The further lesson is that in a genuine emergency, early action is essential, otherwise the impacts become so overwhelming that all resources are devoted to addressing symptoms, particularly recovery from disaster, rather than paying adequate attention to the underlying cause. The result is a "death-spiral" toward social collapse, as impacts escalate unconstrained. This is already evident in our politicians' response to the growing bushfire threat, as they perform ever more grotesque contortions to avoid emergency climate action.

After three decades of deliberate refusal to face reality, it is clear that our political system is not prepared to learn these lessons, rendering it incapable of managing the climate threat. Even worse, the government and its conservative business and media paymasters appear hellbent on maintaining their denialist, pro-fossil fuel stance irrespective of the immense damage it will do to global and local communities.

We no longer have time for interminable royal commissions and inquiries, whose conclusions are invariably ignored. The government and opposition must make way for a new governance structure with leadership and expertise capable of handling the immediate climate emergency.

This is a drastic step which I do not propose lightly. I hope these articles will explain why it is now essential. The status quo is not an option.

As indicated, some of the commentaries were co-authored by my Breakthrough colleague, David Spratt.

AUSTRALIA, DEEP IN CLIMATE CHANGE'S 'DISASTER ALLEY', SHIRKS ITS MORAL RESPONSIBILITY

CO-AUTHORED WITH DAVID SPRATT

A government's first responsibility is to safeguard the people and their future well-being. The ability to do this is threatened by human-induced climate change, the accelerating effects of which are driving political instability and conflict globally. Climate change poses an existential risk to humanity that, unless addressed as an emergency, will have catastrophic consequences.

In military terms, Australia and the adjacent Asia-Pacific region is considered to be "disaster alley", where the most extreme effects are being experienced. Australia's leaders either misunderstand or wilfully ignore these risks, which is a profound failure of imagination, far worse than that which triggered the global financial crisis in 2008. Existential risk cannot be managed with conventional, reactive, learn-from-failure techniques. We only play this game once, so we must get it right first time.

This should mean an honest, objective look at the real risks to which we are exposed, guarding especially against more extreme possibilities that would have consequences damaging beyond quantification, and which human civilisation as we know it would be lucky to survive.

Instead, the climate and energy policies that successive Australian governments adopted over the last 20 years, driven largely by ideology and corporate fossil-fuel interests, deliberately refused to acknowledge this existential threat, as the shouting match over the wholly inadequate reforms the Finkel review proposes demonstrates too well.

There is overwhelming evidence that we have badly underestimated both the speed and extent of climate change's effects. In such circumstances, to ignore this threat is a fundamental breach of the responsibility that the community entrusts to political, bureaucratic and corporate leaders.

A hotter planet has already taken us perilously close to, and in some cases over, tipping points that will profoundly change major climate systems: at the polar ice caps, in the oceans, and the large permafrost carbon stores.

Global warming's physical effects include a hotter and more extreme climate, more frequent and severe droughts, desertification, increasing insecurity of food and water supplies, stronger storms and cyclones, and coastal inundation.

We only play this game once, so we must get it right first time.

Climate change was a significant factor in triggering the war in Syria, the Mediterranean migrant crisis and the “Arab spring”, albeit this aspect is rarely discussed. Our global carbon emission trajectory, if left unchecked, will drive increasingly severe humanitarian crises, forced migrations, political instability and conflicts.

Australia is not immune. We already have extended heatwaves with temperatures above 40 degrees, catastrophic bushfires, and intense storms and floods. The regional effects do not receive much attention but are striking hard at vulnerable communities in Asia and the Pacific, forcing them into a spiral of dislocation and migration. The effects on China and South Asia will have profound consequences for employment and financial stability in Australia.

In the absence of emergency action to reduce Australian and global emissions far faster than currently proposed, the level of disruption and conflict will escalate to the point that outright regional chaos is likely. Militarised solutions will be ineffective. Australia is failing in its duty to its people, and as a world citizen, by playing down these implications and shirking its responsibility to act.

Nonetheless, people understand climate risks, even as their political leaders underplay or ignore them. About 84 per cent of 8000 people in eight countries surveyed recently for the Global Challenges Foundation consider climate change a “global catastrophic risk”.

The result for Australia was 75 per cent. Many people see climate change as a bigger threat than epidemics, weapons of mass destruction and the rise of artificial intelligence.

What is to be done if our leaders are incapable of rising to the task?

First, establish a high-level climate and conflict taskforce in Australia to urgently assess the existential risks, and develop risk-management techniques and policies appropriate to that challenge.

Second, recognise that climate change is a global emergency that threatens civilisation, and push for a global, coordinated, practical, emergency response.

Third, launch an emergency initiative to decarbonise Australia’s economy no later than 2030 and build the capacity to remove carbon dioxide from the atmosphere.

Fourth, help to build more resilient communities domestically and in the most vulnerable nations regionally; build a flexible capacity to support communities in likely hot spots of instability and conflict; and rethink refugee policies accordingly.

Fifth, ensure that Australia’s military and government agencies are fully aware of and prepared for this changed environment; and improve their ability to provide aid and disaster relief.

Sixth, establish a national leadership group, outside conventional politics and drawn from across society, to implement the climate emergency program.

A pious hope in today’s circumstances? Our leaders clearly do not want the responsibility to secure our future. So “everything becomes possible, particularly when it is unavoidable”.

HOSTAGE TO MYOPIC SELF-INTEREST: CLIMATE SCIENCE IS WATERED DOWN UNDER POLITICAL SCRUTINY

CO-AUTHORED WITH DAVID SPRATT

Scientific reticence allows politicians to neglect the real dangers we face. But waiting for perfect information means it will be too late to act.

Three decades ago when serious debate on human-induced climate change began globally, a great deal of statesmanship was on display. There was a preparedness to recognise that this was an issue which transcended nation states, ideologies and political parties, an issue which had to be addressed proactively in the long-term interests of humanity, even if the existential nature of climate risk was far less clear cut than it is today.

Then, as global institutions were put in place to take up this challenge and the extent of change this would impose on the fossil-fuel dominated world became more obvious, the forces of resistance mobilised.

Today, despite the diplomatic triumph of the Paris climate agreement, debate around climate change policy has never been more dysfunctional, indeed Orwellian, particularly in Australia.

In his book *Nineteen Eighty-Four*, George Orwell describes a double-speak totalitarian state where most of the population accepts “the most flagrant violations of reality, because they never fully grasped the enormity of what was demanded of them, and were not sufficiently interested in public events to notice what was happening. By lack of understanding they remained sane.”

Orwell could have been writing about climate change and policymaking.

International agreements talk of limiting global warming to 1.5–2 degrees Celcius (°C), but in reality they set the world on a path of 3–5°C. Goals are reaffirmed, only to be abandoned. Coal, by definition, is “clean”. Just 1°C of warming is already dangerous, but this cannot be said. The planetary future is hostage to myopic, national self-interest. Action is delayed on the assumption that as yet unproven technologies will save the

day, decades hence. The risks are existential, but it is “alarmist” to say so. A one-in-two chance of missing a goal is normalised as reasonable.

Climate policymaking for years now has been cognitively dissonant, “a flagrant violation of reality”. So the lack of understanding among the public and elites of the full measure of the climate challenge is unsurprising. Yet most Australians sense where we are heading: three-quarters of people see climate change as a catastrophic risk and half see our way of life ending within the next 100 years.

The previous norms of statesmanship and long-term thinking have long since disappeared, replaced by an obsession with short-term political and commercial advantage, particularly where climate and energy policy is concerned.

An emergency-scale transition to a post-fossil-fuel world is essential to address climate change. But this is considered to be too disruptive. The orthodoxy is that there is time for an orderly economic transition within the current short-termist political paradigm. Discussion of what would be safe – less warming than we presently experience – is non-existent. And so we have a policy failure of epic proportions.

In the magical thinking of Australian policymakers, a pathway of gradual change, constructed over many decades in a growing, prosperous, coal-fired world stretches enticingly before us. The world not imagined is the one that now exists: of looming financial instability; of a global crisis of political legitimacy; of a sustainability crisis that extends far beyond climate change to include all the fundamentals of human existence, and of severe global energy sector dislocation.

The Intergovernmental Panel on Climate Change (IPCC) was established by the UN in 1988 and charged with regularly assessing the global consensus on climate science as a basis for policymaking. The IPCC assessment reports produced every five to six years play a critical part in the public framing of the

The previous norms of statesmanship and long-term thinking have long since disappeared, replaced by an obsession with short-term political and commercial advantage.

climate narrative. The IPCC has done indispensable work in pulling together a periodic consensus of what must be the most exhaustive scientific investigation in history.

However, the process suffers from all the dangers of consensus-building in such a wide-ranging and complex arena. For example, its reports, of necessity, do not always contain the latest available information. Consensus-building can lead to “least drama” lowest-common-denominator outcomes which overlook critical issues, particularly the implications of the “fat-tails” of probability distributions, namely high impact but relatively low-probability events where scientific knowledge is limited. Vested interest pressure is acute; climate denialists accuse the IPCC of alarmism, whereas climate action proponents consider the IPCC to be far too conservative. To cap it all, the IPCC conclusions are subject to intense political oversight before being released, which has had the effect of substantially watering down sound scientific findings.

These limitations were not of overriding importance in earlier years. However, it is now clear that the risks are far greater than previously anticipated. Climate change has moved from the twilight period of much talk but limited impact; it is now turning nasty, as witnessed with Hurricanes Harvey and Irma, in South Asia, and not to forget Cyclone Debbie in Australia earlier this year.

The distinction between climate science and risk is now the critical issue, for the two are not the same. Scientific reticence, the reluctance to spell out the full risk implications of climate science in the absence of perfect information, has become a major problem, allowing politicians to ignore the real dangers we face. But waiting for perfect information means it will be too late to act, as any sensible risk manager or military leader knows only too well. Like an iceberg, there is great danger in ignoring “what lies beneath”.

The irresponsible invective passing for political debate on climate and energy policy is replete with assurances that politicians are devoted to ensuring the security of the Australian people. Nothing could be further from the truth. Those assurances are meaningless unless climate risk is honestly addressed and that must happen long before we are confronted with our own equivalent of Irma. At present that risk is totally ignored.

IF BUSINESS LEADERS WANT TO REGAIN OUR TRUST, THEY MUST ACT ON CLIMATE RISK

Empty rhetoric from corporates is not enough as climate change is accelerating far faster than expected.

Business leaders seem astonished that community trust in their activities is at an all-time low, trending toward the bottom of the barrel inhabited by politicians. To the corporate leader dedicated to the capitalist, market-economy success story of the last 50 years, that attitude is no doubt incomprehensible and downright ungrateful.

But it is hardly surprising given continuing scandals and declining ethics across the corporate and banking worlds, driven by the pernicious impact of short-termism, rising inequality and undue political influence; in large part the outcome of the oxymoron of “pay-for-performance” remuneration. So how is trust regained? The need for stronger leadership, ethics, greater transparency, open communications and improved culture feature prominently in current responses.

But a far more fundamental requirement is ignored, namely that business must lead on really critical issues, particularly the point raised long ago by economist Kenneth Boulding: “Anyone who considers economic growth can continue indefinitely

in a finite system is either a madman or an economist.” The constraints Boulding anticipated have now arrived, as burgeoning population and economic growth crash into global biophysical limits which cannot be circumvented.

Those constraints, encompassing resource shortages, biodiversity loss and pollution in various guises, do not feature in the capitalist economic lexicon, as technology and the market are supposed to overcome all as we march toward the sunlit uplands of the neoliberal nirvana.

In the real world, the entire growth model under which the Australian and global economies operate is no longer sustainable; it sowed the seeds of its own destruction some time ago and is rapidly driving itself into the ground as growth rates decline.

This is the great “black elephant” of business and politics; a known, knowable fact that no one wants to acknowledge. It is the unmentionable in the recent Business and Governance

Summits around the country, as our leaders strive to compound the problem with self-defeating subterfuges to maximise growth, not least corporate tax cuts and trade agreements.

To the community, these constraints are increasingly obvious as the quality of life for the average person deteriorates in myriad ways. The rhetoric of much-vaunted corporate social responsibility no longer holds water when our supposed leaders are not prepared to address the issues that really count for our survival, let alone prosperity.

These range from basic considerations such as ensuring food and water availability, to the creation of genuinely sustainable global societies. However, the first priority must be human-induced climate change, manifest as the lack of an atmosphere into which we can continue dumping carbon pollution from the burning of fossil fuels, agriculture and deforestation, without causing catastrophic consequences.

Climate change is accelerating far faster than expected, to the point where it now represents an existential threat to humanity, that is a threat posing permanent large negative consequences which will be irreversible, an outcome being locked in today by our insistence on expanding the use of fossil fuels.

This should be a major concern in Australia given that we are more exposed than most, but instead our leaders would have us embark on massive fossil fuel expansion.

Already one of the world's largest carbon polluters when exports are included, Australia is complicit in destroying the conditions which make human life possible. There is no greater crime against humanity.

The economic and social impacts will be devastating unless that policy is rapidly reversed. The unprecedented hurricane season in the Atlantic, bushfires in the Californian winter, extreme heat in many parts of South Asia and rapid heating of the Arctic with associated instability in the northern hemisphere weather system, are only the most recent portents of what is to come. The worst outcomes can only be avoided now by emergency action, akin to restructuring economies on a war-footing.

It finally seems to be dawning on corporate and investor leadership that climate change is a real and present danger which is not going away.

Company directors are personally liable for failing to assess and act upon climate risk, but the greenwash continues. Major corporates parade their credentials in support of serious climate action, but none of their scenarios and policies are in line with the Paris objective of constraining global temperature increase "well below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C".

Australia is complicit in destroying the conditions which make human life possible. There is no greater crime against humanity.

Fortunately, as understanding of the risks improves, regulatory pressure mounts. The recommendations triggered by Mark Carney, governor of the Bank of England, via the Task Force on Climate-Related Financial Disclosure (TCFD) are gradually being taken up, with companies voluntarily disclosing the impact which a 2°C policy framework would have on their organisation, assuming such a framework was ever put in place (by governments?). Progress, but reactive and certainly not leadership. The question that must be answered is: "what are you doing proactively as a company to create a 2°C world" – more realistically closer to 1.5°C as it is now patently clear that 2°C is far too high?

If business genuinely wishes to regain trust, it must proactively face up to the challenge posed by climate change and initiate emergency action. Beyond that, it must open up honest debate on a new economic model to replace conventional growth. It is the only way business will be sustainable in the 21st century with a real social licence to operate.

In Churchill's words: "Sometimes we have to do what is required".

POLITICIANS MUST SET ASIDE BLINKERED IDEOLOGIES IN THE CLIMATE ENDGAME

CO-AUTHORED WITH DAVID SPRATT

The rapidly disintegrating 'agreement' to the NEG yet again sees the Coalition refusing to face up to the threat of climate change.

Humanity has a big decision to make very soon about its future on a warming planet, but the federal Coalition is still in denial that human-induced climate change even exists, let alone that the climate endgame is upon us.

The National Energy Guarantee (NEG) is the latest manifestation of that denial. A third-rate, complex, over-engineered policy that will most likely fail to contribute to meeting all three of its main objectives, namely increased reliability of electricity supply, lower energy prices and a long way third, reducing carbon emissions.

It is compromise upon compromise designed to placate the scientifically and economically illiterate Coalition right wing, which ignores the first priority of any government, to ensure the security of the people. For climate change is now the greatest threat to that security. The party room's rapidly disintegrating "agreement" to the NEG yet again sees the Coalition refusing to face up to this reality as we reach yet another low point in Australian government policymaking.

According to conservative Coalition voices, the NEG can only bring reliability to electricity supply by ensuring

"dispatchable" power (shorthand for increased coal generation) is readily available to meet extreme demand conditions. Yet "dispatchable" is readily available today from numerous renewable energy and storage combinations. Claims the NEG can only deliver lower energy prices by massive investment in new high-efficiency low-emission (HELE) coal-fired power stations ignore the evidence that these stations are now more expensive than renewable energy/storage options by a margin that will increase substantially in coming years.

Supposedly the NEG will enable Australia to meet our wholly inadequate, voluntary 26-28% carbon emission reductions under the 2015 Paris agreement, but the bulk of this reduction will occur before the NEG is even implemented. Even so, conservatives demand that any reductions be "backloaded" to the end of the commitment period, or that we should, aping Trump, withdraw entirely from Paris.

The federal government's denial of climate risk is evident in its failure to even talk about that risk. As a result, climate and energy policy is a shambles, endlessly trying to reconcile the irreconcilable: expanding our fossil fuel-based economy, particularly coal, while pretending to address climate issues.

Excruciating contortions by conservatives to rationalise this nonsense have only highlighted the danger to Australia's security and people of allowing scientific illiteracy to dominate decisionmaking on critical issues, particularly when the risks are the destruction of human society as we know it.

For climate change is now an existential risk to humanity. That is, a risk posing large negative consequences which will be irreversible, resulting *inter alia* in major reductions in global and national populations, mass species extinction, economic disruption and social chaos, unless carbon emissions are reduced far more rapidly than proposed under the Paris agreement.

The risk is immediate, in that it is being locked in today by the insistence of Australian conservatives and their global kin to expand the use of fossil fuels when the carbon budget to stay below sensible temperature limits is already exhausted.

It is no longer possible to follow a gradual transition path to restore a safe climate. We have left it too late; emergency action, akin to a war footing, will eventually be accepted as inevitable. The longer that takes, the greater the damage inflicted upon humanity.

Those still sceptical of this reality only have to look at the extreme climate conditions in the northern hemisphere now, in the Arctic, Europe, Asia and North America. Such conditions of record heat and devastating bushfires, with severe impacts on crop yields, may well be replicated in Australia this summer.

Our latest updated report, *What Lies Beneath*, released on Monday, demonstrates that special precautions going well beyond conventional risk management practice are required if the increased likelihood of very large climate impacts – known as “fat tails” – are to be adequately dealt with. The potential consequences of these lower-probability, but higher-impact events would be devastating for human societies.

The bulk of climate research underplays these risks, exhibiting a preference for conservative projections and scholarly reticence, although increasing numbers of scientists have spoken out in recent years on the dangers of such an approach.

Climate policymaking and the public narrative are based around the important work of the Intergovernmental Panel on Climate Change (IPCC). However, IPCC reports also tend towards reticence and caution, downplaying the more extreme and damaging outcomes.

While this has been understandable historically, given the pressure exerted upon the IPCC by political and vested interests, it is now becoming dangerously misleading with the acceleration of climate impacts globally. What were lower probability, higher-impact events are now becoming more likely.

This is a particular concern with potential climatic tipping points – passing critical thresholds which result in step changes in the climate system – such as melting polar ice sheets (and hence increasing sea levels), permafrost and other carbon stores, where the impacts of global warming are nonlinear and difficult to model with current scientific knowledge.

The extreme risks which these tipping points represent justify strong precautionary risk management. Under-reporting on these issues is irresponsible, contributing to the failure of imagination that is occurring today in our understanding of, and response to, climate change.

A reframing of scientific research within an existential risk-management framework is urgently required, both in the work of the IPCC and in UN climate negotiations. Current processes will not deliver either the speed or the scale of change required.

In the foreword to *What Lies Beneath*, Hans Joachim Schellnhuber, one of the world's leading climate scientists, says that the issue now “is the very survival of our civilisation, where conventional means of analysis may become useless” and that “climate change is now reaching the endgame, where very soon humanity must choose between taking unprecedented action, or accepting that it has been left too late and bear the consequences”.

Either we act with unprecedented speed or we face a bleak future. Australian politicians need to accept climate reality, set aside blinkered ideologies and start working for the people, not destroying their future.

Like an iceberg, there is great danger in “what lies beneath”.

AS AN EX-COAL BOSS, I'M TELLING POLITICIANS: WAKE UP TO CLIMATE THREAT

Human-induced climate change is happening faster than officially acknowledged. Extreme events intensify, particularly in Australia, Asia and the Pacific. Victoria and Tasmania are ablaze again. Queensland needs a decade to recover from recent floods. Much of south-east Australia has become a frying pan, curtailing human activity.

The economic and social cost is massive – as Reserve Bank deputy governor Guy Debelle warned us this week – but too many of our leaders refuse absolutely to acknowledge climate change as the cause.

Given the overwhelming evidence and repeated warnings of the dangers we face, even as a former oil, gas and coal industry executive I find it incomprehensible that proposals for new fossil fuel projects proliferate, encouraged by government and opposition alike: Adani's Carmichael, Glencore's Wandoan, Kepco's Bylong, Whitehaven's Maules Creek, Shenhua's Watermark, along with 20 other NSW coal projects, Shell's CSG and LNG expansion, Northern Territory and West Australian fracking, Statoil in the Great Australian Bight, HELE coal-fired power stations ... the list goes on.

These projects are crimes against humanity. Fossil fuel investment must stop, now. As the cost of three decades of climate denial mount, the incumbency becomes evermore hysterical, lying and dissembling to avoid accountability – “we will meet our climate obligations at a canter”.

The government's 26-28% emission reduction by 2030 is laughable in the context of the real obligations of climate policy, which Australia signed up to in 1992 with the UN Framework Convention on Climate Change, namely: “stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

We have failed totally to meet those obligations. Dangerous climate change is occurring with the 1°C warming already experienced. The lower 1.5°C degree limit of the Paris Agreement will be here this decade. The upper 2°C degree limit is now the boundary of extremely dangerous climate change.

On our current emissions trajectory, warming will be 3°C to 4°C long before 2100. This is a world incompatible with maintaining civilised society.

Natural ecosystems can no longer adapt to climate change, as accelerating species extinction and the collapse of the Great Barrier Reef demonstrate. Food production is under threat. Sustainable development is impossible within the current economic paradigm.

The task now is to avoid triggering irreversible, non-linear tipping points, where climatic changes spiral rapidly beyond our sphere of influence, with the potential to eradicate humanity. This is an immediate existential threat, with little time to act.

The West Antarctic Ice Sheet has passed its tipping point, quite possibly locking in a metre of sea-level rise by 2100. The Arctic permafrost, East Antarctic Ice Sheet and Amazon rainforest are close behind. Yet we continue to increase emissions with abandon, even though the dire implications have long been known.

The current climate and energy debate is irrelevant. We must decarbonise our economy no later than 2030. This requires emergency action, akin to wartime: the suspension of political and corporate "business as usual", to do whatever it takes to resolve the climate crisis.

Other countries must do more, but rhetoric that our domestic emissions of 1.3% of the global total make us an insignificant player in the emission stakes is utter nonsense.

As LNG exports increase, Australia will shortly become the world's fourth largest carbon polluter when exports are included, as they must be, given that climate change is a global problem. What Australia does matters.

We face massive societal and cultural change, but Australia has far greater potential to prosper in the low-carbon future than in the high-carbon past. Realising that potential requires an all-encompassing commitment to emergency action. Certainly there will be costs, but we have solutions and the cost of ignoring climate change will be far greater.

This requires leadership prepared to honestly articulate these risks, and the real way forward, particularly the need for a fair transition for those adversely affected. At present Australia is totally unprepared for what is about to happen. Politicians must bury their differences and cooperate for the common good.

Business, investors and lobbyists must stop immoral, predatory delay. They must stop publicly advocating urgent climate action while privately maximising returns from unsustainable practices before the shutters finally come down on fossil fuels.

To halt our suicidal rush to oblivion, the community must ensure no leader is elected or appointed in this country unless they are committed to emergency action.

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of the Great Barrier
Reef demonstrate.**

IS THE AUSTRALIAN PUBLIC SERVICE FIT-FOR-PURPOSE TO HANDLE EXISTENTIAL CLIMATE RISK?

CO-AUTHORED WITH DAVID SPRATT

The first duty of a government is to “protect the people”, their safety and well-being. Nowhere is this duty more important than in addressing climate change, which now constitutes a near-term existential threat to human civilisation.

It is an open, and pressing, question whether the Australian Public Service (APS), and particularly the intelligence services, currently have the capacity to properly consider and assess the climate threat to the people of Australia, and to offer sound advice on action to minimise that threat.

Recently, UN Secretary General António Guterres noted that “we face a direct existential threat” from climate change as “we career towards the edge of the abyss”. A recent research paper is typical of concerns which have been expressed by scientists for years, yet ignored by incumbent leaders:

Only a drastic, economy-wide makeover within the next decade, consistent with limiting warming to 1.5°C, would avoid the transition of the Earth System to the Pliocene-like conditions that prevailed 3-3.3 million years ago, when temperatures were ~3°C and sea levels 25 metres higher. Unmitigated scenarios of greenhouse gas emissions

produce climates like those of the Eocene, which suggests that we are effectively rewinding the climate clock to approximately 50 million years ago, reversing a multimillion year cooling trend in less than two centuries.

The 2018 *Global Catastrophic Risks* report found that in midrange climate scenarios, “entire ecosystems would collapse, much agricultural land would be lost, as would most reliable freshwater sources, leading to large-scale suffering and instability. Major coastal cities – New York, Shanghai, Mumbai – would find themselves largely under water, and the populations of low-lying coastal regions – currently more than a billion people – may need to be relocated. In high-end scenarios, the scale of destruction is beyond our capacity to model, with a high likelihood of human civilization coming to an end.”

No wonder that Professor Hans Joachim Schellnhuber, Founder of the Potsdam Institute for Climate Impact Research and climate adviser to Chancellor Angela Merkel and to Pope Francis, says that: “Climate change is now reaching the end-game where very soon humanity must choose between taking unprecedented action, or accepting that it has been left too late and bear the consequences.”

Climate change is now an existential threat to human civilisation, and Australia is one of the most exposed continents. The duty of government to protect the people from this threat, should be the top national and human security priority. After three decades of predatory delay in addressing the issue, there is nothing more important.

Existential risk management is fundamentally different from conventional risk management. But there is little evidence that the APS understands the threat, let alone the risk-management response required to address it. Likewise the intelligence services, and the broader intelligence community, seem oblivious to what is now the greatest threat confronting this country, and indeed the rest of the world.

Unease about Australia's bureaucratic preparedness was not ameliorated by Geraldine Doogue's recent interview on ABC's *Saturday Extra* programme with Nick Warner, the Director-General of the Office of National Intelligence (ONI). In the interview, Warner named Australia's biggest threats as intensifying China-US competition, Indo-Pacific great power competition, India-Pakistan, North Korea, a rules-based order under threat, challenges of South Pacific, accelerating technological change, and terrorism.

Climate change didn't get a guernsey. By way of comparison, the 2019 risk survey of international private and public sector leaders by the World Economic Forum found that the top five risks were extreme weather events, the future of climate change mitigation and adaptation, natural disasters, data fraud or theft, and cyber-attacks. In terms of impact, the top five were weapons of mass destruction, future of climate change mitigation and adaptation, extreme weather events, water crises, and natural disasters.

Intelligence organisations globally have woken up to the reality that climate change is now a major threat multiplier, and is behind many of the current flashpoints, such as the Syrian conflict, Brexit and Trump's Mexican wall. It is fundamentally altering policy across the board, whether defence, security, migration, agriculture, health, economic, social, urban and transport, let alone our current fixation on climate and energy policy or the lack thereof.

On the risk methodology of the ONI, the interview including this exchange:

Warner: "What any intelligence assessment organisation does is produce assessments based on all sources, tells truth to power, it doesn't look at worst-case scenarios."

Doogue: "Doesn't it, because I have been told that is exactly what a good intelligence agency does."

Warner: "That is exactly what we don't do, what we do is tell the government how we see the situation now and how we think it will develop, not the worst case .. what we think actually is happening now, what actually will happen in the future.

If you go around putting forth worst-case scenarios all the time you will alarm and probably alarm needlessly so that is exactly what we don't do."

Whilst this may be understandable in some circumstances, in a climate context it is disastrous, for it is the worst-case, "fat-tail", tipping point scenarios we have to guard against. If ONI, as the primary threat advisor to the government, are not focused on the worst-case implications of our greatest threat, then who is?

The comments reinforce our concern that emerged around the Senate Inquiry into the Implications of Climate Change for National Security last year, that the real implications of climate change are not understood within Australia's political and bureaucratic incumbency. Climate change was acknowledged as an existential threat, yet the inquiry recommendations completely ignored the implications.

The posturing around climate change in the current election campaign is largely irrelevant to solving the problem. Events will force us to make far greater change, far faster, than anything currently proposed. We urgently need an honest discussion on what is really required, and proactive leadership to achieve it.

ONI has a critical role to play. It would be reassuring to think ONI does understand the full climate threat and the "fat-tail" risks, and is doing a lot more to address it than it is prepared to acknowledge publicly. But it is hard to be confident this is the case.

Contrary to the prevailing neoliberal mantra, the transformation to a low-carbon economy cannot be handled by the market alone. It will require strong government and an equally strong public service, equipped to deal with the existential threat ahead. The adversarial political nihilism of the last two decades, and the continual emasculation of the APS, has to be reversed, with leaders prepared to co-operate in addressing a threat which is far beyond party politics. The election campaign is proof, if proof were needed, that our current political system is unlikely to rise to this challenge.

We need leaders with the integrity to honestly talk with the community about the real climate threat, and to act accordingly. This is unlikely to come from the two main political parties in the short-term. However it will emerge, probably elsewhere, as extreme climatic events take an increasing toll.

Meanwhile, the various reviews in train should ensure the APS is fit-for-purpose to handle the very different world ahead, particularly to understand and address existential climate risk.

STOPPING ADANI IS A NATIONAL NECESSITY, ECONOMICALLY, FINANCIALLY AND FOR OUR SURVIVAL

Central banks, regulators and insurers are starting to acknowledge that the risks of human-induced climate change will have far greater economic and financial consequences than the 2008 Global Financial Crisis. Likewise, global investors and corporations are finally accepting that climate risk is fundamentally changing their business models.

In that context, one might reasonably expect our “foremost economic and financial media” to seriously investigate the likely climate impact on Australia’s economic and financial future.

The two mainstream journals who would immediately lay claim to the title, are *The Australian* and the *Australian Financial Review (AFR)*. The former long since abandoned any objectivity in addressing climate change, becoming more hysterically denialist by the day as the prospects of serious climate action increase.

Indeed the Murdoch press have already inflicted a massive cost on the community by using their influence to delay sensible climate policy implementation; for which they will be held accountable legally in due course.

The *AFR* for many years maintained a semblance of balanced reporting, but of late seems intent upon outdoing the denialist stance of *The Australian*.

To wit, a recent *AFR* Editorial “Approve Adani and end the age of activists, *AFR* 11th April 2019”, railing against the continuing delay in approving the Adani Carmichael coal mine, claiming it is “an embarrassment to Australia, and governments that have kowtowed to activists”.

It is reprehensible that, in 2019, the *AFR* can publish an editorial replete with minutiae but completely ignore the main reason Adani has not, and should not, be approved. Namely, the existential threat to the survival of humanity which we now face from climate change.

If Adani proceeds, it will inevitably lead to the opening up of the entire Galilee coal basin with development of several more mega-coal mines, making a disastrous climate situation immeasurably worse. Scott Morrison and Bill Shorten both assure us any decision on Adani will be based upon the science.

But the real science tells a very different story from the politically-massaged version currently being served up:

- The Paris Climate Agreement voluntary emission reduction commitments, if implemented would lead to a temperature increase of around 3.5°C by 2100 if not earlier – a world which leading national security experts describe as “outright social chaos”. At present, we are on track for around a 4.5°C increase, which would be “a world incompatible with any organised society”, resulting in a substantial reduction in global population.
- Dangerous climate change is occurring at the 1°C temperature increase already experienced. The 2°C Paris upper limit now represents the boundary of extremely dangerous climate change.
- To stay below 2°C, global emissions must peak now and be reduced by around 7% annually, something no country has ever achieved. The lower 1.5°C Paris target requires even more rapid reduction. Meanwhile, emissions rise in line with worst case scenarios.
- This IPCC analysis assumes only a 50-66% chance of meeting the targets. Not good odds for the future of humanity. To have a sensible 90% chance, there is no carbon budget left today to stay below 2°C, let alone 1.5°C. Thus all fossil fuel consumption should stop immediately. Obviously that is not going to happen, but new investment must stop now, and the existing industry wound down as fast as possible.
- Emissions from continued fossil fuel investment lock-in irreversible, existential climatic outcomes today. By the time the climatic impact of these investments becomes clear, it will be too late to take avoiding action. Hence the risk is immediate.
- Atmospheric aerosols produced by burning coal and oil are cooling the planet by around 0.5°C. As aerosol concentrations reduce with the phase-out of fossil fuels, a commensurate one-off increase in temperature is likely, compounding the problem of staying below warming limits.
- Proposed solutions to meet the 1.5°C target rely heavily on carbon removal from the atmosphere using negative emissions technologies, none of which exist at scale today. This is extremely dangerous, creating a false sense of security.
- The recent IPCC 1.5°C report understates key risks in moving from 1.5°C to 2°C warming. For example, increasing climate-driven refugees, exceeding tipping points that could push the world on to an irreversible path to a “Hothouse Earth”, Greenland and Antarctic ice sheet instability triggering multi-metre sea level increase. Exceeding 1.5°C poses huge risks both for humans and natural systems, but it is now likely that will occur within a decade.

Three decades of predatory delay by political, corporate and media incumbents mean it is now impossible to limit temperature increases to 1.5°C, and probably to 2°C unless global leaders rapidly unite in support of fundamental change.

To open up a new coal province, indeed any new fossil fuel investment, in such circumstances is simply suicidal: socially, economically and financially. The typical justifications for Adani are indefensible.

Supplying coal to India will increase poverty rather than alleviate it. India is already suffering from climate extremes as temperatures, drought and extreme rainfall events escalate. The fact that Galilee coal may be slightly better quality than alternatives is irrelevant. India has better energy alternatives with the rapid spread of renewables.

The drug dealers argument: “if we don’t supply, others will”, quite apart from its ethical irresponsibility, holds no water in a world where coal demand will drop dramatically.

Claims that Adani is essential to the development of Northern Australia, improving job opportunities and economic growth, are grossly misleading. It is one of the regions most exposed to climate change. Preliminary impacts are blindingly obvious with extensive drought on the one hand and the disastrous Townsville floods on the other, let alone the destruction of the Great Barrier Reef.

Developing Galilee coal would add around 1.3 times Australia’s total domestic emissions to the annual global total when it should be rapidly reducing. This would contribute substantially to worsening climate impact, playing havoc with northern agricultural production and communities. Not much point in developing an energy resource which destroys the industries and jobs it is supposed to create.

Northern Australia development should be built around renewable energy which is now cheaper, more reliable and dispatchable than coal, coupled with the sensible application of science, which the government is so keen to encourage yet ignores in a climate context.

Conventional wisdom has it that Australia is such a small player in the emission stakes, our domestic emissions being only 1.3% of the global total, that anything we do domestically, such as Adani, is irrelevant to addressing the global problem. Utter nonsense. As LNG exports increase, we are about to become the fourth largest carbon polluter in the world when fossil fuel exports are included, as they must be given that the climate impact rebounds on us irrespective of the point of consumption. What Australia does matters where climate change is concerned.

If Adani proceeds, the economic cost to Australia from misallocation of capital, diversion and misuse of resources, particularly water, stranded assets and worsening climate impact, will be massive, far outweighing any short-term financial and employment benefit.

As for activists, if the incumbency is not prepared to honestly face up to the science and evidence of climate change, then do not expect the community to sit transfixed as rabbits in the headlights waiting to be run over by the proverbial climate truck. The community will act, as increasing civil disobedience worldwide demonstrates. Approving Adani will generate more activism not less.

It is time to set aside ideology, denialism, and the minutiae of electioneering and party politics. We face a climate emergency which requires an all-encompassing commitment to do whatever it takes to address this existential challenge, akin to wartime. There is nothing more important. Alarmist? Certainly, long overdue, but a view which is increasingly echoed by responsible people globally.

Over the last two decades, not a single decision on climate and energy policy has been based on a real acceptance of climate science. In Australia "political reality" has dominated, creating the current shambles. Those days are over; this is no longer a matter of right or left politics, but of national survival. We need the best leaders, co-operating with the best scientific, technological, economic and social expertise available to accelerate our transformation to a low-carbon world.

The Coalition cannot be trusted, as their current denialist policy offerings demonstrate. The ALP are marginally better, but cannot continue sitting on the fence over issues such as Adani. Much more is required than either party are offering, and much faster. Neither Morrison nor Shorten show the leadership capacity to honestly articulate the challenge and build community support for action. That will have to come from elsewhere, not necessarily from politicians.

In this context, a responsible media should be playing a critical, constructive role assisting the transformation, particularly in the economics and financial arena. At present our "foremost commentators" are abjectly failing in their fiduciary responsibility to provide a balanced, objective view to the community they should be serving, apparently in the mistaken belief of short term political and financial gain. Absent rapid action, they will have to live in the chaotic world they are helping to create.

The AFR, in its own self-interest, should join the leaders, not remain stuck in blinkered denial. The real "embarrassment to Australia" is government and media that cannot face reality.

**CLIMATE CHANGE IS
NOW AN EXISTENTIAL
RISK TO HUMANITY WHICH
WILL BE IRREVERSIBLE
AND RESULT IN MAJOR
REDUCTIONS IN
GLOBAL AND NATIONAL
POPULATIONS, MASS
SPECIES EXTINCTION,
ECONOMIC DISRUPTION
AND SOCIAL CHAOS.**

WE MUST MOBILISE FOR THE CLIMATE EMERGENCY LIKE WE DO IN WARTIME. WHERE IS THE CLIMATE MINISTER?

CO-AUTHORED WITH DAVID SPRATT

Unfortunately, much scientific knowledge produced for climate policymaking is conservative and reticent.

The second Morrison ministry contains no one with nominal responsibility for “climate” in any sense, despite the fact that it is the greatest threat facing the country. Angus Taylor, who spent much of his pre-parliamentary career fighting windfarms, claiming repeatedly that there is “too much wind and solar” in the system, is now minister for energy and emissions reduction. No mention of climate here, despite the fact that climate is what it is all about, or should be.

Sussan Ley has been made the environment minister, but more intriguing, David Littleproud is minister for water resources, drought, rural finance, natural disaster and emergency management. Let’s take another look at this: water (or lack thereof) ... drought ... disaster ... emergency management.

Is it possible that someone is starting to join the dots – a tacit admission of an escalating climate emergency? In the National Party, where competition to develop sensible climate policy is

nonexistent, Littleproud has at least pushed for serious policy to address climate impacts on farmers. His title, truth be known, should be the minister for the rural climate emergency.

But when he gets a briefing from disaster management officials, he may be in for a shock. During the 2017-2018 Senate inquiry on the implications of climate change for Australia’s national security, the most compelling evidence was led by Mark Crossweller, the head of a resilience taskforce in the Department of Home Affairs, who used to be the director general of Emergency Management Australia.

He described potential worst-case climate scenarios as being of an “existential nature”. This analysis was taken up in the inquiry’s final report.

In contrast, the submission to the Senate inquiry by the Department of Foreign Affairs and Trade downplayed concerns

about the impact on Australia's economy of climate security threats, noting our dependence on strong international trade and investment and stating that:

Climate-related costs have the potential to be a disruptive economic force, albeit accompanied by opportunities presented by global transition to a lower emissions, more climate-resilient economy."

This rather misses the point. By mid-century, a plausible scenario is one of escalating extreme weather events, related conflict and migration, so affecting the international order and global trade that Australia itself would face dramatic political, economic, social and human security consequences in an increasingly chaotic world overwhelmed by climate impacts.

If Littleproud is to take his rural climate emergency duties seriously, he needs to understand why that might be so.

We have addressed these issues in a new Breakthrough policy paper, *Existential climate related security risk*. In the foreword, retired admiral Chris Barrie says the paper has "laid bare the unvarnished truth about the desperate situation humans, and our planet, are in, painting a disturbing picture of the real possibility that human life on Earth may be on the way to extinction, in the most horrible way".

A realistic assessment of climate-related impacts and threats depends on understanding the strengths and weaknesses of climate science projections. Unfortunately, much scientific knowledge produced for climate policymaking is conservative and reticent.

In reality, climate change now represents a near- to mid-term existential threat to human civilisation. A new approach to climate-related risk management is required, paying particular attention to the high-end and difficult-to-quantify "fat-tail" possibilities, such as climate tipping points. This should be the key task of the minister's new department. What sort of approach should the government bring to emergency risk management in the face of existential climate risk?

It is essential these high-end, bad possibilities, not just middle-of-the-road probabilities, are seriously considered. This may be most effectively explored by scenario analysis. In our paper a 2050 scenario is outlined in which accelerating climate-change impacts pose large negative consequences to humanity which might not be undone for centuries.

To reduce such risks and to sustain human civilisation, including the Australian farming sector which is the minister's particular concern, it is essential to build a zero-emissions industrial system very quickly. This requires the mobilisation of resources on an emergency basis, akin to wartime, rather than reactively responding to disasters when they arise. By that time it will be too late to avoid the worst climate impacts.

For the best form of natural disaster and emergency management is proactive prevention, and that is only possible if the threat is first understood and acknowledged.

This requires a whole of government taskforce, cutting across conventional ministerial and departmental boundaries, charged with the overriding objective of planning and implementing a rational response to the climate emergency. The plan would encompass the full gamut of national activity, including defence, industry, economic, financial, scientific and social considerations.

For the best form of natural disaster and emergency management is proactive prevention, and that is only possible if the threat is first understood and acknowledged.

Clearly the Morrison government, along with the ALP, have yet to reach that point as they contemplate further expansion of our fossil fuel industry in the Galilee Basin and elsewhere, which will only exacerbate climate pressure on our farmers.

Littleproud arguably has the most crucial and important role in cabinet. How to convince his colleagues of the real climate disasters which now confront this country, and particularly the agricultural sector, unless we rapidly move away from our fossil fuel past?

If he does not, he and his cabinet colleagues will fail catastrophically in their primary responsibility, which is their duty of care to protect the Australian people, their safety and wellbeing.

TIME TO FLICK CLIMATE EMERGENCY SWITCH: A PLEA TO OUR NEW PARLIAMENT

A year ago, there was little discussion of climate change as an existential threat, or the corresponding need for emergency action.

Today, in the face of rapidly accelerating climate impacts, “existential threat” and “climate emergency” are common currency globally, existential meaning the potential to destroy humanity as we know it.

Organisations representing 66 million people in 13 countries have adopted formal climate emergency resolutions.

But Australia still has its head in the sand. We are among the most exposed to this threat, yet we return a government that has been incapable of delivering any credible climate or energy policy. As international climate impact specialist Stefan Ramstorf tweeted: “A country so vulnerable to drought and

wildfire, to floods and tropical storms and sheer heat, voting for coal: that’s turkeys voting for Christmas.”

In the new Morrison ministry, climate does not rate a mention, but henceforth it will dominate our lives. Industry continues to demand policy clarity, built around the fourth-rate compromise of the so-called National Energy Guarantee (NEG).

Energy Minister Angus Taylor is not even prepared to contemplate even that. Resources Minister Matt Canavan demands new coal-fired power and coal mines in the Galilee Basin. And the ALP shows every sign of walking away from its more ambitious, but still inadequate, climate policy.

Yet the newly elected members of this Parliament will, in time, be held accountable for their actions on climate – or their failure to act. As it stands, they will fail catastrophically

in their duty of care to citizens, even as the Prime Minister commits his ministry to act in the interests of all Australians. Here, for the benefit of MPs, is a summary of the emergency that confronts them:

The 2015 Paris Climate Agreement is far from adequate. Its emission-reduction commitments, if implemented, would lead to a temperature increase of 3.5°C by 2100. This is described by global security experts at the US Centre for Strategic and International Studies as “outright social chaos”.

We are currently on track for a 4-5°C increase, a world “incompatible with any organised society”, according to a Royal Society paper, resulting in a substantial reduction in global population before 2100.

Dangerous climate change is already occurring at the 1°C rise experienced so far. The 2°C upper Paris limit is the boundary of extremely dangerous climate change.

To stay below 2°C, global emissions must peak now and be rapidly reduced. The lower 1.5°C Paris target requires even more rapid reduction. Instead, emissions are rising in line with worst-case scenarios.

The planet has only a 50 to 66% chance of meeting these targets, the International Panel on Climate Change analysis assumes. Not good odds for the future of humanity.

To have a sensible 90% chance, there is no carbon budget left today to stay below 2°C, let alone 1.5°C. Thus all fossil fuel consumption should stop immediately.

Obviously that is not going to happen, but new investment must stop now, and the existing industry should be wound down.

Emissions from continued fossil fuel investment lock in irreversible outcomes. By the time their impact becomes clear, it will be too late to take avoiding action.

Atmospheric aerosols produced by burning coal and oil are cooling the planet by about 0.5°C. As aerosol concentrations reduce with the phase-out of fossil fuels, a commensurate one-off increase in temperature is likely, compounding the problem of staying below warming limits.

Proposed solutions to meet the emission targets rely heavily on carbon removal from the atmosphere using technology that does not exist today at sufficient scale. This creates a false and dangerous sense of security.

Three decades of dangerous delays mean it is now impossible to limit temperature increases to 1.5°C, and probably to 2°C, unless global leaders commit to emergency action. Australia is not exempt.

A country so vulnerable to drought and wildfire, to floods and tropical storms and sheer heat, voting for coal: that's turkeys voting for Christmas.

But there has been minimal discussion of what emergency action actually means.

Nation states will soon come to realise that it means action akin to wartime. Business as usual must be suspended – politically, socially and corporately. It requires an all-encompassing commitment to reduce emissions and address the threat.

It will require a new modus operandi that dispenses with conventional right and left politics. The best leaders – not necessarily politicians – will need to be convened in a governance structure that may resemble a government of national unity, supported by the best scientific, technical, economic, financial and social expertise.

This is way beyond anything yet contemplated in international negotiations, or in national policies, but it is the inevitable outcome of the evolving climate threat.

The Parliament we have just elected needs to understand the emergency, and to address it. And yet it cannot even agree on the beginnings of an energy policy.

AUSTRALIA'S CLIMATE STANCE IS INFLICTING CRIMINAL DAMAGE ON HUMANITY

CO-AUTHORED WITH DAVID SPRATT

The government opts for conflict rather than change, while suppressing details on the implications of its climate inaction.

The top priority of government is security of the people. Yet on the greatest threat of all, most governments are failing abysmally.

As the global influence of western democracies wanes with the ascendancy of China, India and other emerging countries, the resulting power struggle is diverting attention from the great issues the world faces, to their symptoms.

The neoliberal market economy, with its unregulated consumption and rapacious short-term outlook, is destroying modern civilisation. The warning signs are obvious, not least burgeoning high-consuming populations, massive biodiversity loss and multiple resource scarcities. Yet rather than reform an unsustainable system, political leaders scramble to prop it up and compound the problem. The result is Brexit, Trump's Mexican wall, escalating Middle East tension, the US-China trade standoff, a global arms and space race, Amazon deforestation and much more.

In their quest for power, leaders – both democratic and authoritarian – ignore the one issue that is inexorably changing that system, namely human-induced climate change. This is an

existential threat to human civilisation that will render current political priorities irrelevant as climatic consequences move beyond human influence.

Countering this threat requires unprecedented global co-operation to initiate emergency action. Yet leaders opt for conflict, while suppressing information on the implications of their climate inaction.

In May, we published a short paper that included a simple 3°C global warming scenario for 2050, outlining the hard-nosed practical impact of climate change, as opposed to more theoretical scientific and business risk disclosure situations. This information was not new, but prompted extensive global discussion: some considered the situation entirely credible, others felt it too extreme. What became clear was the thirst for practical information of this kind.

In response, we recently published a follow-up analysis: *The Third Degree: Evidence and implications for Australia of climate-related security risk*, detailing the basis for our assumptions on issues such as chronic water shortages, coastal inundation, mass migration and extreme heat – plus an in-depth global 3°C

scenario originally published by US national security experts in 2007. We also propose a major scenario-planning initiative for Australia. Scenario-planning does not forecast, predict or express preferences for the future; rather it is storytelling, painting pictures of alternative worlds that might emerge, to assist policymakers in imagining and thinking about future possibilities. Strategy is then assessed against each possible future.

One of the initial tasks is to identify the “official future” – the future as it is supposed to be, upon which prevailing strategy is based. A large amount of political capital is tied up in that view, typically the result of group-think generated by ideology or by business models that have stood the test of time but may be inappropriate in the future.

The top priority of government is security of the people. Yet on the greatest threat of all, most governments are failing abysmally.

Scenario-planning explores the future, allowing constructive discussion on alternatives incorporating the full range of credible evidence. In particular, there must be a preparedness to think beyond conventional wisdom, after which a reassessment of the official future is often inevitable, and proactively undertaken.

Nowhere is this more necessary than in Australia, the continent most exposed to climate change, where the official future for the last two decades has been, and remains, climate denial and delay.

Political expediency, blinkered ideology and short-term business thinking rejects or deflects climate science and expert advice. Predatory delay is used to prolong the life of our high-carbon economy for short-term financial gain, irrespective of the damage to society. Policy, such as it is, views climate change as a non-problem.

The blatant inconsistency of Australia’s position beggars belief. We are signatories to the UNFCCC, supposedly committed to avoiding dangerous climate change, which is already happening. Australia ratified the Paris agreement to restrict

temperature increase below 2°C and ideally towards 1.5°C, yet our emissions are rising rapidly even though there is no carbon budget remaining to stay below even 2°C. Incredibly, we ramp up new fossil fuel projects:

Adani coal, gas expansion, fracking in NT and WA, and more. Then we have the gall to carry over unused carbon credits from the Kyoto protocol to obscure the failure of our wholly inadequate Paris emission reduction commitments; credits which were unjustified in the first place.

We are already the fifth largest carbon polluter globally when exports are included – about 5% of global emissions. On current projections, by 2030 Australia will be responsible for a massive 13% of global emissions. Our fossil fuel industries are subsidised annually by about US\$29bn or 2.3% of GDP, far in excess of anything given to the low carbon industries. And this in a country with probably the greatest low-carbon energy potential in the world – potential we are wasting, blocked by deliberately obstructive federal policy.

Australia’s climate stance is totally untenable in geopolitical terms, nothing less than a crime against humanity, as Pacific countries continually point out.

The federal government does its utmost to hide these facts from public view. Accordingly, Australia must undertake serious scenario-planning to inform the public of the criminal damage being inflicted upon them by their government, and to develop contingencies for emergency action as the official future of accelerating high-carbon growth inevitably falls apart in the near future.

The government’s role should be to protect the future from the past, not the past from the future. When government refuses to lead, others must.

A LOCAL MAYOR CAN SEE WE FACE A CLIMATE EMERGENCY, WHY CAN'T THE PM?

Despite soaring rhetoric about Australian values and the absolute priority of securing the future of the Australian people, it is crystal clear that the federal government, the opposition and much of our corporate and media leadership have absolutely no understanding of the greatest threat facing this country, namely human-induced climate change.

Having dug themselves a massive climate denial hole, and lacking the honesty to climb out, they are now intent on dragging the rest of the community down with them.

Not so the mayor of Glen Innes Severn Council. Coming to grips with the loss of lives and properties in her community in this weekend's devastating fires, Carol Sparks had no doubt of the emergency we face. "We are so impacted by drought and the lack of rain," she said. "It's climate change, there's no doubt about it. The whole of the country is going to be affected. We need to take a serious look at our future."

As the mayor indicated, the key immediate threats are drought, water availability and the absence of any realistic climate change and energy policy. Climate change is the driver behind all three, whose impact has increased remorselessly since John

Howard initiated Australia's dominant climate denial mindset, and masterly inaction, in the 1990s. To the point that lives are now being lost, livelihoods destroyed and large parts of Australia condemned to economic and social decline.

For three decades, attempts to use science, evidence and rational debate to gain political and corporate commitment to urgent action have failed abysmally in the face of massed fossil fuel interests, supposed "conservatism" and political self-interest, determined to preserve our high-carbon "status quo" whatever the cost to the community.

Leaders have been repeatedly warned of the risks, but deliberately chosen to ignore them. We are now paying the price, and impacts will get much worse, absent emergency action.

The scientific rationale for emergency action has been well established for years. The world is currently on track for a temperature increase of 4.5°C degrees by 2100 which would trigger global collapse long beforehand. Even if the Paris Climate Agreement voluntary commitments were implemented, and there is little sign of that happening, temperature increase would be more than 3°C degrees probably long before 2100,

a world of social chaos. A 1.5°C degree increase, which now implies extremely dangerous climate change, is assured by 2030, irrespective of any action taken.

And yet the denial escalates. Asked if there was any link between climate change and the fires, the Prime Minister dodged the question. "My only thoughts today are with those who have lost their lives and their families, the firefighters who are fighting the fires [and] the response effort that has to be delivered."

He lectures the UN that "Australia is doing its bit on climate change". Minister Taylor assures us that Australia will meet its wholly inadequate Paris emission reduction commitments "at a canter" when it is patently obvious it will not, even including unused Kyoto carryover credits.

Emissions, we are told, are falling when they are going up. Minister Hawke insists the Australian government is doing "more than anyone else" on climate change. So the propaganda ramps up, completely ignoring reality.

The facts are that Australia, on any objective measure, is abjectly failing to contribute its fair share to global climate action. Not just failing, but adding fuel to the fire by attempting to massively expand coal and gas use when emissions must now fall dramatically if even worse catastrophes are to be avoided than those already happening.

We are not "just 1.3% of global emissions"; if the government has its way, we will shortly be the fourth largest carbon polluter in the world if exports are included, which is the only realistic way of assessing our climate impact.

The Prime Minister's knee-jerk response to mounting pressure for climate action is to invoke the perennial defence of national sovereignty to stop dastardly "global institutions" from interfering in our affairs; always handy when you have been caught with your pants down.

Sorry Prime Minister, climate change is a global problem which requires cooperation as never before. Without it we are headed for global collapse.

Nobody is seeking to "elevate global institutions above the authority of nation states". It is the nation states that are failing their communities.

People are waking up to that reality. As disasters mount, global protest at the inaction and climate denial of political, business and media leaders is escalating rapidly.

From the schoolchildren strikes, to Greta Thunberg's impassioned pleas and increasing civil disobedience from groups like Extinction Rebellion, community anger is rising.

As disasters mount, global protest at the inaction and climate denial of political, business and media leaders is escalating rapidly.

Responsible politicians would not fall into the trap of banning protest as the Prime Minister proposes, not dodge an opportunity to make the case for action, but face up to the abject failure of imagination and leadership which has characterised politics around this issue for decades, and commit to a genuine emergency response, akin to wartime. The solutions offer great opportunity, but implementation requires denialist politicians to get out of the way and let real Australian innovation take over. Most importantly, start addressing the real cause and stop the political blame game over the symptoms.

We are not going to sit as rabbits in the headlights to be run over by the climate leviathan at the behest of self-centred politics. Expect more protest, not less.

SCOTT MORRISON'S DUTY IS TO PROTECT THE AUSTRALIAN PEOPLE. THERE IS NO GREATER THREAT THAN CLIMATE DISRUPTION

CO-AUTHORED WITH DAVID SPRATT

The first duty of a government is to protect the people. There is no greater threat than climate disruption as the world heads to 3C or more warming, possibly by mid-century, yet the prime minister is unwilling to explain the implications.

Asked by Zali Steggall in parliament recently about the costs of 3C of warming, Scott Morrison replied that “we do understand there are costs associated with climate change”, but was incapable of saying what they were.

As a diversionary tactic in our climate debate, it invariably works, focusing attention on the supposedly horrendous costs of action, for example building the new zero-carbon energy system; a discussion which skates over the fact that replacing ageing coal-fired generators with renewable energy will be cheaper than rebuilding with coal or gas, as the solar/wind/battery option slips under the fossil-fuel-energy cost curve.

Commentators repeatedly frame debate around the recent 2050 net zero emissions policy adopted by the ALP, and now supported by many others, in terms of its “costs”, without mentioning the benefits: huge damages avoided by reducing the level of global warming by concerted global action.

In fact those damages, at only 3C, may be beyond quantification. Work from the University of Melbourne in 2019 has shown that on current global emissions patterns, a conservative estimate of costs for Australia would be \$584.5bn by 2030, \$762bn by 2050, and more than \$5tn in cumulative damages from now until 2100. On the other hand, the cost of effective emissions reduction is estimated to be \$35.5bn up to 2030, or 0.14% of cumulative GDP, a negligible impact.

Such estimates focus on infrastructure damage, agricultural and labour productivity losses, human health impacts and ecosystem losses, but this is the tip of the iceberg. The costs of extreme weather events are not included, and more importantly, neither are the economic damages that Australia will incur as 3C of warming sweeps through Asia and the Pacific, devastating nations, disrupting major trading partners and supply chains, and likely turning the region – the “disaster alley” of global climate disruption – into one of social chaos and breakdown.

Thirteen years ago, senior US national security analysts looked at the consequences of 3C of warming and concluded that it would “give rise to massive nonlinear societal events. In this

scenario, nations around the world will be overwhelmed by the scale of change and pernicious challenges ... Armed conflict between nations over resources ... is likely and nuclear war is possible. The social consequences range from increased religious fervour to outright chaos”.

Australia’s intelligence community, and the prime minister’s office, are well aware of this analysis, and have a duty of care to brief Morrison on its risk assessment. So when he refuses to admit the impacts of a 3C world, ignorance is not an excuse.

Australian government climate denial has played a leading role in ensuring that a 3–4C future has become accepted in global policy making circles as “politically realistic”. The increasing concern from climate researchers that such a world is likely to be climatically unstable and incompatible with the survival of human civilisation as we know it is totally ignored.

A survey of the scientific literature on the likely impacts of 3C paints a frightening picture. We described such an outcome in a recent report, *The Third Degree*, on the implications for Australia of existential climate-related security risks. In such a world, it is likely that the structures of societies will be severely tested, and some will crash. The poorest nations will suffer first and most deeply from climate change, but, after three decades of inaction, no nation will now escape.

Water availability will decrease sharply in the lower latitude dry tropics and subtropics, and affect almost two billion people worldwide. Agriculture will become nonviable in the

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dry subtropics. The Sahara will jump the Mediterranean, as Europeans begin a long trek north. Water flows into the great rivers of Asia will be reduced by the loss of more than one half, and perhaps much more, of the Himalayan ice sheet. Aridification will emerge over more than 30% of the world’s land surface, most severely in southern Africa, the southern Mediterranean, west Asia, the Middle East, rural Australia and across the south-western US.

Most regions in the world will experience a significant drop in food production and increasing numbers of extreme weather events, including heat waves, floods and storms. Food production will be inadequate to feed the global population and food prices will skyrocket, as a consequence of a one fifth decline in crop yields, a decline in the nutritional content of food crops, a catastrophic decline in insect populations, aridification, monsoon failure and chronic water shortages, and conditions too hot for human summer habitation in significant food-growing regions.

The lower reaches of the agriculturally important river deltas such as the Mekong, Ganges and Nile will be inundated, and significant sectors of some of the world’s most populous cities – including Kolkata, Mumbai, Jakarta, Guangzhou, Tianjin, Hong Kong, Ho Chi Minh City, Shanghai, Lagos, Bangkok and Miami – abandoned.

Deadly heat conditions will persist for more than 100 days per year in West Africa, Central America, the Middle East, South-East Asia and parts of Australia, which together with land degradation, aridification, conflicts over land and water, and rising sea levels will contribute to up to a billion people being displaced. Refugee conventions may give way to walls and blockades.

Of this, the Australian government has nothing to say, a total abrogation of its first responsibility to protect the people, and a massive failure of leadership and imagination.

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Restoration