



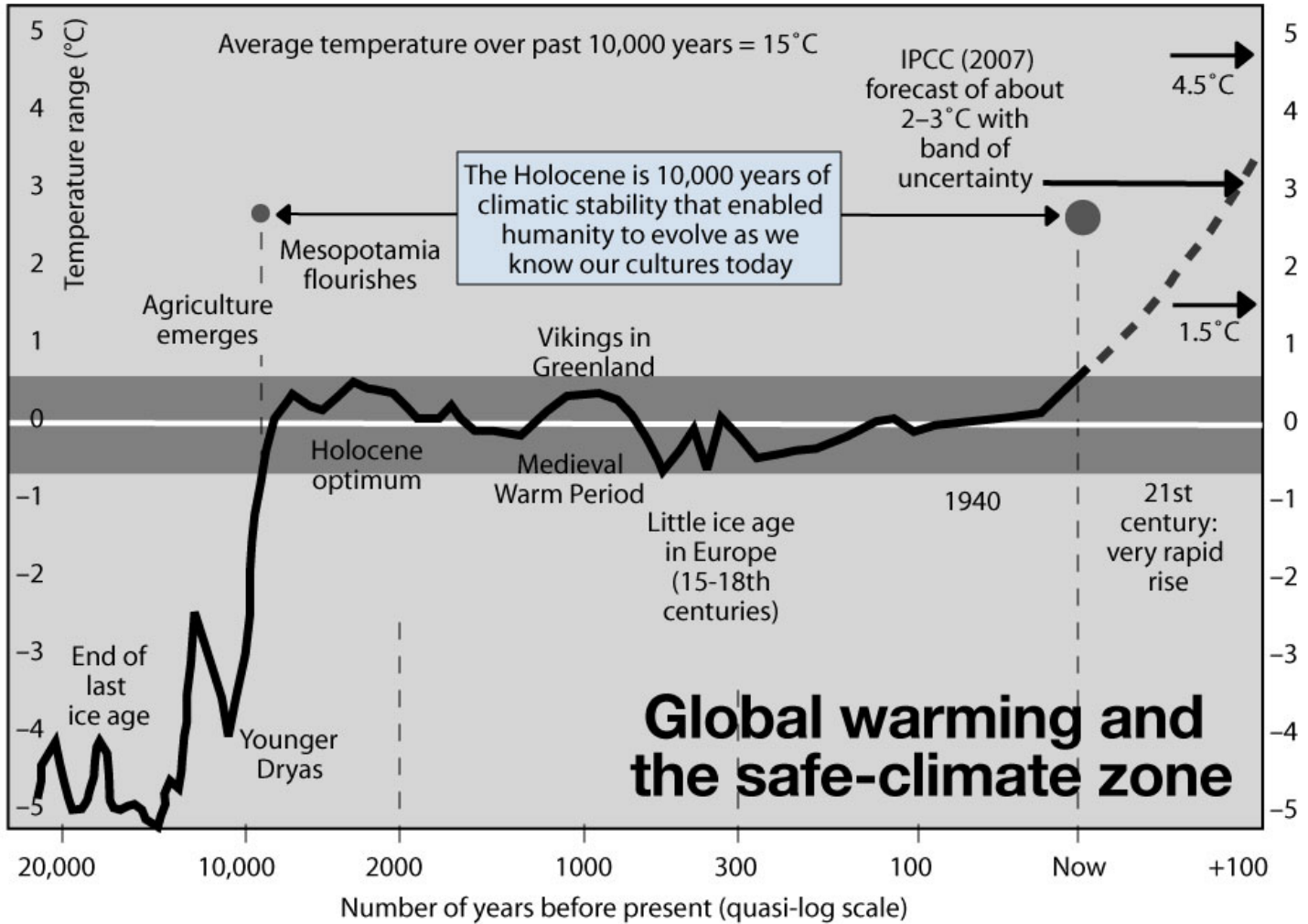
climate reader

compiled by the Melbourne Climate Action Centre and Carbon Equity



January 2009

open letter to Obama • ten lessons from 2008 • Penny Wong in Siberia • rewriting the terms of debate • missing the point



why

This collection of provocative ideas, stories, reflections and science has been assembled by the Climate Action Centre (Melbourne) and CarbonEquity as a contribution for participants in the first national Australian Climate Action Summit held 31 January to 3 February 2009 in Canberra. For more try www.carbonequity.info and see back page. If you like our work you can make a donation to help it continue at www.carbonequity.info/donate.html.

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looking back moving forward: ten lessons for the climate movement

by Damien Lawson

*“First they ignore you, then they laugh at you,
then they fight you, then you win.”*

– Mahatma Gandhi

Looking back at the growth of the climate movement, it is clear we have made significant progress. More climate groups, better coordination of grass-roots actions, increasing public concern, and even the election of the Rudd government are significant markers.

However, that progress is yet to translate into a meaningful shift in policy, let alone spark the transformation of society in Australia and globally that is needed to prevent catastrophe and ensure a return to a safe climate.

1 Changing government does not mean a change in policy

The honeymoon of the Rudd government on climate is over; divorce is in the air. Many people are outraged with the outcome of 5% by 2020 (4% on 1990 Kyoto levels) and the polluter-friendly trading scheme.

But did we really think that the level and depth of mobilisation we have seen to date would lead to the type of transformation that is needed? Even the scale of the Whitlam government reforms, which represent the most substantial changes made by a peacetime Australian government, are minor compared to the transformational changes that are needed to halt climate change. So we will need a public mobilisation that dwarfs any that Australia or the world has seen. This means far more than a change in government.

Yet the strategy of most environment NGOs in 2006–08 seemed to be one of mobilising the community to elect a Labor government, and then talk softly to the new government behind closed doors, rather than continue the mobilisation. As we learned in 2008, lobbying is meaningless unless the one

lobbied believes there will be real political consequence from them failing to act.

2 Continuous mobilisation

So our aim must be the continuous mobilisation of the community. Not turning people on and off like a tap when an issue or election comes up. This means a far greater depth of education, community involvement and coordination. For example, why was The Big Switch website which sought to link individuals in their community with their local MPs put in the freezer after the election? Arguably this type of resource is needed more now than ever. We must also see our efforts to mobilise community as a long-term project of getting every organisation in a particular locality to recognise the full implications of climate change and to put the heat on local MPs until they become advocates for the movement, not barriers to action. We need to create movement resources that can do this; the Melbourne Climate Action Centre is one such modest attempt.

3 If we are not frightened then no-one else will be

For a long time there has been a debate in the environment and now the climate movement about “fear versus hope”. Some say talking too much about the problem will depress people too much or cause them to switch off. We need to advocate “positive solutions” is the common catch-cry. But this false dichotomy is often a mask for conservative positions that seek to maintain a delusional strategy on climate change, which sees advocacy of small immediately “achievable” steps as the only

3

moving forward

approach that will work.

But the desire to propose small steps that can be easily adopted by government not only leads to advocacy of solutions that won't solve the climate problem, but often also prevents the truth about the real extent of the climate problem being told. As US activist Ken Ward points out, there is an odd disconnect between our raising of the alarm and then advocacy of tiny steps that can lead to a disbelief on the part of those who receive our message.

It is reasonable to be terrified knowing where the planet is heading. But the truth is, unless we behave like terrified people then why should anyone else? And unless people are terrified they will not support the scale of action that is needed to solve the problem. As Oscar Wilde said: "The basis of optimism is sheer terror."

4 Knocking on doors is as important as climbing smoke-stacks

The grassroots movement has contributed to public understanding of the urgency of the climate problem by civil-disobedience actions that create media attention and flag the seriousness with which some citizens take the issue. But there is a danger that a one-sided emphasis on such actions can substitute for the less glamorous work of engaging the community. We need to find ways to take the urgency of climate change direct to people in their communities through door knocking, local events and other direct communications. Imagine a national door-knock day where grassroots activists fan out across the suburbs bringing a single message of the need for urgent action. Imagine a day where we all protest on sports ovals that will be destroyed by climate change or mark the sea-level rises on our foreshores and in our community.

But climbing smoke stacks is still important too. We do need more civil disobedience not less. However, the task is to focus on actions that can mobilise large numbers in civil disobedience actions, rather than small heroic groups. Small actions can be part of such mobilisation but cannot substitute for wider mobilisation. Only when we have thousands gathered to sit-in at power stations will such actions move from the symbolic and become truly powerful.

5 Alliance building is more than box-ticking

It's easy to "build alliances" by having some taking heads sign a joint statement at the end of a one-day seminar. But if it goes no further, this is not alliance building, it's just box ticking. If all it does, for example, is give a green stamp-of-approval to "clean coal" proponents or welfare groups who oppose feed-in tariffs, it's worse than doing nothing. The important action is not the signature and the media release, it's about the allies – whether they be welfare groups, unions, churches, farmers or business groups – taking committed action to educate, resource and mobilise their member organisations and their individual members in support of the propositions and commitments signed on to. Alliance building is about being able to mobilise real political force across diverse sectors, and if that isn't the power that has been gained by building alliances, then in the long run they are not worth the paper they are written on.

6 Propose solutions that will work

Rudd's 5% policy should make clear the bankruptcy of the strategy, as one environment NGO leader described their own climate campaign decision-making, of taking the science and put it through a "political filter". The targets and proposals we propose as a movement will be used by politicians to judge how much and how little they must do, and by the public to assess the actions of politicians. If we continue to advocate policies just beyond what the government wants to do (the approach adopted by most of the big climate NGOs), then we will get less than that and have mislead the public as well.

Surely the only credible and viable approach is to patiently build support for a solution that can fully solve the problem. This means educating the politicians and public about why such a solution is necessary. Initially the actions of politicians will fall short of our goals, but then they must face the judgement of an educated public armed with the truth, not the "truth" put through a "political filter".

When leading scientists are talking about the safe zone being 280 to 325 ppm and the need for zero emissions, why can't the leading climate NGOs get on board and put the science first?

ten lessons

7 Stop talking about the reef and start talking about people

The latest campaign by the ACF about Australia's iconic places is an example of the communications failure of the movement. As long as we continue to talk only about the Great Barrier Reef and Kakadu, we will continue to reinforce a perception of climate change as a threat only to the environment and not the whole of society and civilisation. We also message a sense that it can be managed like other environment problems.

To make progress, climate needs to be understood NOT as an "environment sector" issue, but as a whole-of-society problem that is as much about human rights as anything else. Fundamentally we need to talk more about the impact on people, not beautiful places.

The emphasis on Australian impacts by many of the environment NGOs also reinforces this problem. Because it means, for example, the more than one billion people facing the loss of the Himalayan glacial melt water are not part of the debate. The idea that Australians only care about Australian places in the context of a globalised cosmopolitan society is narrow in the extreme.

8 But is it the economy, stupid?

The movement was taken down a rabbit hole partly of its own making after the election when we allowed the debate to be about the "economic cost" of climate change. As long as the terrain of debate remains on costs, we will lose because while it is technically possible to show how the "cost of inaction" is greater than the "cost of action", politically and emotionally it reinforces a fear of economic down-turn, loss of jobs and cost to the public. The bankers and corporations we will always win such a debate, as we have seen. The planet cannot be reduced to the economy.

Instead we should show clearly that the scale of the disaster means we must act regardless of the cost. The emergency message and the war-time

analogy are crucial in this debate.

9 We are activists not policy advisors

There is a danger in all movements of being so close to an issue that we start to believe that all we need to do is create and describe a perfect solution and our job is done. But in reality policy outcomes are never about the elegance of a solution, but about power. As long as we continue to focus on emission wedges and the technicalities about how to get to zero, we will keep losing. Our job is to convince the public that the government must fix the problem, not come up with the perfect solution. This has been the usefulness of the message about "climate emergency" because it encapsulates in one phrase the scale of the problem and the scale of the solution that is needed.

10 Our movement is and must be global

The argument of the Howard and the Rudd governments that China and India must act and that climate change is a global problem has often been strongly opposed by the climate movement and for good reason. This argument is used as an excuse for inaction by Australia. However we should not let such a debate prevent us from seeing the truth in elements of Rudd's argument. We cannot solve the problem in Australia and we do need global action and cooperation. For us this means creating more global links and cooperation amongst grass-roots movements and continue to leverage off each other's actions, as we have done with the Climate Camp, for example.

We must look for opportunities in 2009 to work with groups and networks locally and internationally which have as a goal the mobilising of the global community around science-based demands.

Damien Lawson is coordinator of the Climate Action Centre, Melbourne and works for Friends of the Earth Australia. 19 January 2008

"The basis of optimism is sheer terror."

– Oscar Wilde

COAL: Save a bit here, ship a whole lot there

Barry Brook

Here's some figures to make you queasy after all that rich Christmas dinner. As was reported recently, Australia's bold new short-term greenhouse gas reduction target is to reduce carbon emissions by 4% on year 1990 levels by 2020. What does that mean in real terms? Well, according to the National Greenhouse Gas Inventory, our total emissions in that reference year were 552.6 Mt (million tonnes) of carbon dioxide equivalents (CO₂-e), with 286.4 Mt of that coming from energy generation. In 2006 (the latest inventory year), it was 576.0 Mt, with a whopping 400.9 Mt of that now coming from energy.

So, our world-leading aim is to 'only' be emitting 530.5 Mt CO₂-e by 2020 — a saving of 22 Mt on 1990 levels. Forgive me if I'm less than impressed.

But in reality, it's far, far worse than that — actually, ridiculously so.

Why? Go read this news story. To quote Prime Minister Kevin Rudd:

...\$580 million of today's investment will be used to expand capacity and rail corridors to service the Hunter, the Hunter Valley Coal mines, and of course their connection to the Port of Newcastle.

The reporter then blandly notes that this investment will more than double the export capacity at Newcastle (New South Wales) from 97 to 200 million tonnes of coal a year.

Hmmmm. Let's see — that's an extra 103 Mt of coal being shipped out each year. Now, when you burn a tonne of coal, you yield about 3.6 tonnes of CO₂ (since the carbon atom combines with 2 x oxygen atoms). So that's \$580 million of taxpayers money being channeled into a handout to the fossil fuel industry that will result in an additional 371 Mt CO₂-e being pumped into the global atmosphere each year.

Oh, but silly me — it's all heading offshore, so as the cartoon says, it's no longer our problem. Easy as that! Never mind that this tidy little half-billion buck infrastructure by the Rudd government will 'offset' (read: cancel) our measly 2020 savings almost 17 times over...

But wait, there's more! Actually, this was from earlier in the year, but the wound still smarts when you rub salt into it. In April 2008, 'Environment' Minister Peter Garrett gave the green light for a



multi-billion dollar three-phase plan to expand the Wiggins Island Coal Terminal in Gladstone (Queensland), such that it will be able to export an additional 84 Mt of coal per year — a decision applauded by the Queensland State Government.

Okay, so that's another 302 Mt CO₂-e released by someone, somewhere, up into the great aerial ocean. But hey, again, it's for export, so it's just not our problem. All 371 + 302 = 673 Mt CO₂-e of it. It doesn't matter that these two infrastructure projects, announced in 2008, will result in emissions 17% greater than Australia's TOTAL CO₂-e annual emissions, and cancel out our 4% reduction by 2020 commitment more than 30 times over. Nah, no sweat. It's all covered by offshore sequestration.

Treasurer Wayne Swan reckons the above stimulus is our 'best shot' at avoiding recession. What he doesn't say is that it's also our best shot at ensuring deadly climate change. But it's the economy, stupid!

So, we're stuffed, because as Jim Hansen said:

If we cannot stop the building of more coal-fired power plants [or supplying them in Australia's case], those coal trains will be death trains — no less gruesome than if they were boxcars headed to crematoria, loaded with uncountable irreplaceable species.

Reduce 22 Mt here, add 673 Mt there. Yet Mr Rudd says this trade-off "...gets the balance right".

Professor Barry Brook holds the Foundation Sir Hubert Wilkins Chair of Climate Change and is Director of the Research Institute for Climate Change and Sustainability at the University of Adelaide.

<http://bravenewclimate.com/2008/12/26/save-a-bit-here-ship-a-whole-lot-there/>

end game for the climate policy paradigm ken ward

Hansen received with deafening silence... again and early warning signs at the Global Warming Café
19 May 2008

Intro. It takes effort to suit up in the quasi-business/academic garb of the professional environmentalist and enter the lion's den of DC politics or the state houses. Our beliefs are so fundamentally at odds with the very fabric of civic life that it requires an effort of will, particularly in the early years, not to scream bloody murder and run for the door.

Over decades, layers of accommodation and polite behavior have built up by accretion, while our rough edges have been worn down. The net result is a worldview – we may call it the “Climate Policy Paradigm” – that is so universally accepted that it goes unnoticed, yet its power is so great that we have abandoned the precautionary principle, environmentalism's central guide for action, with barely a murmur when the two came in conflict.

Post. Two hundred people turned out to hear Ross Gelbspan speak at the Jamaica Plain Forum (<http://www.jamaicaplainforum.org/>) a couple months ago. He gave us an hour of unvarnished truth, summarized recent climate science, and drove home the reality that nothing short of immediate, transformative, global action is sufficient.

Climate campaign staff followed up at a “Global Warming Café,” presenting our standard 3-part story: first, we can turn things around, indeed we are already starting to do so; second, sound energy policy is good for America, because it will reduce dependence on foreign oil and create green jobs; and third, there are two things individuals can do: urge members of Congress to support emissions reduction bills and reduce our own carbon footprints.

The audience joined in small group discussions, contributing their own tips on mulching and

insulating hot water pipes, but the disparity between the terrible picture Ross painted and the flimsy action activists were invited to take left a palpable pall in the auditorium.

If the purpose of campaigning is to raise hope, spirits and courage in the face of long odds and channel that energy into productive political change, then we are failing. Participants in the reduce-your-carbon-footprint workshops were not joined to some larger purpose and few appeared to leave more energized than they arrived.

To the growing and increasingly sophisticated climate core – anxious individuals responding directly to climate scientists, who now address them directly via op-eds in *The New York Times* – our invitation to lobby Congress for tepid legislation is un-galvanizing, to put it mildly. Gifted with 200 potential activists in a national election year, our best idea is to engage them in private carbon emissions navel gazing.

Common sense and organizing experience ought to tell us that we are beginning to lose touch with our base, but we no longer think much in terms of building the environmental core. In the long strange trip between Earth Day 1970 and the Global Warming Café, the transformative vision of environmentalism – which spoke to people's fears (as well as their hopes), sketched a vision in broad strokes of society rebuilt (in addition to lobbying for reforms), thought in terms of movement and belief (not just organization and policy) and saw environmentalism as outside the left/right spectrum, equally appealing and equally challenging to all traditional politics (and not just one of the progressive herd) – has morphed into something cramped, Balkanized and self-conscience.

Our eco-fundamentalist vision is still there, but it is buried. The way we see the world, on a day-to-day basis, is through the lens of our Climate Policy Paradigm, an internally consistent body of beliefs which guides and structures our actions. US environmentalists, from self-avowed critics to the most mainstream, agree on three things, which are the cornerstones of the Paradigm: 1. our most important work is to advance climate policy; 2. we must be optimistic, and; 3. climate must be put in terms other than environmental interests.

Policy is our business.

Most of our time and creative energy is bent toward policy. Books on climate, organizational manifestos and Gristmill posts argue the finer points of carbon taxes versus cap and trade and other, often arcane, details. Very little of our thinking or resources go into social change theory, political strategy (aside from elections), organizing and campaigning, applying lessons from US history, public communications, or insights from cognitive psychology, sociology, theology, economics or any number of other arts and sciences.

We elevate climate policy above other avenues because we believe that it is the primary responsibility of environmentalists to craft the climate change solution.

Why so? Because we think that if we hit upon just the right formula – the perfect blend of incentives, quasi-free markets trappings, tax breaks and so on – we can accomplish the political equivalent of changing lead into gold, and pass effective climate legislation without major opposition. But political power is immutable and we are not alchemists.

Policy – a plan of governmental action – is an outcome of power, not a means of achieving it. We do not have enough power to win functional climate policy in the US, and until we do so, there will be no global climate solution.

For twenty years we have approached the problem by pre-negotiating with ourselves on behalf of our opposition. We don't think about it in those terms, but that is what climate policy is all about. We calculate what concessions are necessary to placate whichever interest, power or nation is thought must be mollified, and then devise a scheme to fit within those limits.

There are powerful arguments against the anything-is-better-than-nothing philosophy, but there is an even more basic problem with our "policy-first" approach. The world can only draw back from the climate tipping point by transformative political action. The details (i.e. policy) of that action are unknowable to us because we are unaware of, and cannot predict, the conditions, resources and timetable that will dictate the terms of action when America does accept responsibility for global leadership.

It is possible for us to talk about what America can do when we mobilize to face a global threat, by drawing on US history. The Marshall Plan and post-WWII reconstruction are often used as analogies for a climate solution, but the US gear-up for war after the bombing of Pearl Harbor is more useful example of the potential speed and scale of American mobilization.

After Pearl Harbor, the US government told Detroit to stop manufacturing automobiles for private use, and start building tanks and other war materiel. Automobile production was 162,000 in 1941 and zero in 1942. Tank production was <300 in 1940 and 25,000 by 1942.

When the US does act decisively on climate, our government will tell the private sector to stop burning coal and start getting power from renewables within one year, and they will do it because it is feasible. The US can't solve the climate crisis unilaterally, so we will pay for China to go solar in exchange for shutting down its coal mines (the two nations control 40% of the world's coal reserves), just as we couldn't win the war alone, and paid the Soviet Union to keep the second front open.

Our agenda must aim for that level of action, nothing short of it is sufficient, and the details will

not be worked out beforehand. Our present agenda, focused on US domestic emissions and anything-is-better-than-nothing, has more in common with the pre-war policies of isolationism and appeasement,

The people sitting on folding chairs in low carbon footprint workshops are much more sophisticated than they were a few years back, and they're not easily snowed by charts and graphs peppered with labels – "wedges" this and RPS that – that purport to show how emissions can go down without our power first going up.

What we have going for us is truth and righteousness. What we need is a disciplined, committed climate core. Both are compromised if we keep flogging flimsy policy that cannot solve the problem.

We must be upbeat. Every day we receive communications from our organizations enthusing about this or that victory. Here's one...

Great news. Yesterday, the House of Representatives passed a strong renewable energy standard requiring utilities to provide 12.5% of the state's electricity from clean, renewable energy sources like wind and solar by 2025.

If the world must immediately shut down coal plants to get below 350 ppm, as Hansen advises, then the utilities mentioned in the blurb above have just won themselves a great victory.

We can't have it both ways. If we are on the fast road to cataclysm and nothing short of massive, global transformation is meaningful, then we must stop seeking and celebrating dinky achievements. At the very least, we must rephrase how they are trumpeted...

Yesterday, the House of Representatives passed a renewable energy standard requiring utilities to provide 12.5% of the state's electricity from renewable energy sources like wind and solar by 2025. That is 1/6 of total cuts utilities must make in coal emissions to pull back from the climate "point of no return." We believe it is crucial to get the renewable standard language onto the books, and have accepted the low percentage. [Our campaign] is pledged to immediately return to the legislature to speed up the transfer from coal to solar and wind."

Climate must be pitched to other interests. Climate programs spanning the gamut from Rising Tide, to Apollo and NWF assume that people won't respond to direct calls for climate action. Whether this mass communications approach is advisable is neither here nor there, because it is certainly a disaster for the climate core and it is a terrible bargain to trade a small but deeply committed base for a supposed majority that is paper thin.

The folks at the Global Warming Café heard two

different stories. Ross talked about the end of the world, yet managed to encourage hope in the face of darkness. The gist of our story is that we don't believe climate change is nearly the problem Ross and the scientists say it is.

We convey our skepticism in two ways. First, we blur our descriptions of the problem so as not to be too alarmist, and second, we put the primary case for climate action in terms other than avoiding disaster.

To cry catastrophe! and then list benefits like green jobs and reduced oil imports to be gained if we take preventative measures, is odd and confusing behavior, like running into a crowded movie theater and shouting "Fire! ... and don't forget to buy popcorn on the way out, with all the unexpected traffic, it's on sale!"

Unmoored from principle.

We are in crisis because the Climate Policy Paradigm has demonstrably failed to solve the problem. It also prevents us from perceiving that we are in crisis. One unambiguous signal that we have sailed into murky waters is our abandonment of the precautionary principle – environmentalism's central assumption – without debate.

Environmentalists won inclusion of precautionary language in the Rio Declaration on the Environment and the Kyoto Protocol. Climate scientists consistently refer to this language as the benchmark for deciding are necessary and appropriate responses to climate change.

In 2005 Jim Hansen published "On A Slippery Slope," laying out the case for a 450 ppm "bright line" and outlining a scenario of glacier surface ice melt leading to ice shelf break-up and rapid sea level rise. Hansen's position was significantly more conservative – that is, precautionary – than the 550 ppm Kyoto target, and was not endorsed by any major US environmental organization for several years (even, ironically, as US environmentalists rushed to support Hansen when the Bush administration sought to gag him).

Three years later, Hansen has circulated a paper making the precautionary case for a swift return below 350 ppm atmospheric carbon. Once again, nothing is heard from US environmentalists but a deafening silence. As a matter of intellectual honesty, we have two options: endorse or refute. As a matter of environmental principle, there is no option, and the longer we remain silent, the greater the moral burden, the tighter our grip on the familiar, and more impossible the task that can commence only when the way is cleared.

A second unambiguous example that our thinking is out of whack is that we have yet to take even the simplest of steps to join forces. The Paradigm evolved from decisions of energy advocates and program officers, whose calculus of environmental

power was organizational, rarely coalitional, not institutional, and never movement based.

Ten years ago, that kind of thinking might be excused, but today? Where is the gathering of Green Group leadership to plan strategy? Where is the national training conference for our core? Where is the proposal to create infrastructure (communications center, training academy, fundraising, technology, etc.)? An organization or foundation that represents itself as addressing climate change based on its own resources and program alone, has not accepted reality.

Easing out from under the paradigm. We can keep plodding down the dark road of deepening despair, rigid defense of inadequate policy, and preservation of organizational power at the expense of common purpose until our base disintegrates and/or an internal flash point is reached.

Or, we can acknowledge that our Climate Policy Paradigm has failed, experiment with new program and campaigning, and craft a more robust approach. [I have argued that we might bridge the gap by creating an in-house, experimenting campaigns center to germinate and test new ideas.] Even small steps in this direction will be instantly rewarded, as a new atmosphere of creative ferment supplants sterile labor. When reality – however terrible – is accepted in place of false optimism, we will tap a wellspring of courage, joy and hope.

How we choose to act at this critical juncture determines whether environmental principles and our institution will survive; whether a just and sustainable climate solution will be put before the world; and whether America will be mobilized to lead a last minute global drive to avert collapse of civilization and eco-cataclysm. To achieve these things – to save the world – we must do what may be the hardest thing humans are ever called upon to do; give up deeply held beliefs of which we are barely even aware. In our case the challenge is made easy because we have merely to unearth the values and principles we already hold but have held too long in secrecy.

Which vision will go over best at the next Global Warming Café? Two years back it would have been a tough call whether the climate core preferred terrible truth + long odds but functional global solution, or buffered truth + personal action and comfortable but ineffective politics. Now, if offered an alternative to civics by pre-packaged constituent email and activism defined as refusing junk mail, there is little doubt they would seize it, because they have accepted reality and it terrifies them.

Ken Ward is an environmental strategist and former deputy director of Greenpeace USA.



Bubbling Our Way to the Apocalypse

Despite some public stunts that suggest concern about carbon, the Rudd Government's global warming plan just doesn't add up

★ *By David Spratt and Damien Lawson* ★

KEVIN RUDD SHOULD SEND THE Minister for Climate Change and Water, Penny Wong, to Siberia.

Not as punishment, but because our future may depend on Penny Wong and climate policy-makers around the world understanding what's going on there. For beneath its frozen landscape a catastrophe is lurking, and Siberia may be about to become the scene of global retribution for our extravagant consumption of fossil fuels.

"Siberia" has become a metaphor for exile and deprivation. In the nineteenth century more than

a million prisoners were deported there. Last century at least 18 million people were banished to the Soviet Union's infamous labour camps, known as the Gulag, scattered across the stunningly inhospitable region of north-east Siberia.

The land is cold, its average temperature zero. It holds the world record for the lowest surface temperature of -71.2°C in the eastern town of Oymyakon. For scientist Sergei Zimov, this forbidding landscape holds the key to our planet's future. Zimov is Director of the Northeast Science Station in Cherskii, inside the Arctic Circle and

just 150 kilometres south of the Arctic Ocean. He is consumed by a deep concern that global warming will literally melt the world beneath his feet, with apocalyptic consequences.

Twenty per cent of the world's land mass (half of it in Siberia) is covered by permafrost, or permanently frozen ground, rich in organic carbon and tens of metres in depth. As this ground thaws, methane and carbon dioxide – the two principal greenhouse gases – are released into the atmosphere.

While carbon is frozen, it is safe; if permafrost

Illustration by ROCCO FAZZARI

ROLLING STONE, NOVEMBER 2008 • 53

melts in large quantities, hell may break loose. Zimov says the situation is grave: "Permafrost areas [in Siberia] hold 500 billion tonnes of carbon, which can fast turn into greenhouse gases. The deposits of organic matter in these soils are so gigantic that they dwarf global oil reserves . . . If you don't stop emissions of greenhouse gases into the atmosphere, this will lead to a type of global warming which will be impossible to stop [and it will make] the Kyoto Protocol seem like child-ish prattle . . ."

Zimov is not alone. The National Centre for Atmospheric Research in the U.S. predicts that half of the permafrost in the Arctic north will thaw to a depth of three metres by 2050. Glaciologist Ted Scambos says: "That's a serious runaway – a catastrophe lies buried under the permafrost".

Permafrost melts at the edges of lakes that previously were iced all year-round, according to Katey Walter of the University of Alaska. She says organic material, the remains of rotted plants and long-dead animals which has been "locked up in permafrost since the end of the last ice age", then subsides into the lake from the soil and "is being released into the bottom of lakes, providing microbes a banquet from which they burp out methane as a by-product of decomposition". In dry conditions, the warming soil releases carbon dioxide.

The western Siberian peat bog is amongst the fastest-warming places on the planet. In August 2008, Örjan Gustafsson, the Swedish leader of the International Siberian Shelf Study confirmed that methane was now also bubbling through seawater from permafrost on the seabed.

So the question is no longer whether the permafrost will start to melt, but when the time-bomb will go off. When it does, it will sweep the climate system away from our capacity to stop further dramatic "tipping points" being passed. All the carbon in the permafrost is equivalent to twice the total amount of all carbon dioxide in the atmosphere, so losing even a significant portion of it will create a very different planet from the one we know.

Scientists are warning that the

DAVID SPRATT is the co-author of *Climate Code Red: the case for emergency action* (Scribe, 2008). DAMIEN LAWSON is National Climate Justice Coordinator for Friends of the Earth Australia

temperature at which it will be triggered is closer than we think. Research published in mid-2008 by scientist Dmitry Khvorostyanov shows the trigger is warming in the Arctic of around 9°C, and that once initiated it will maintain itself, leading to three-quarters of the carbon being released within a century.

If a time-bomb is ticking, we need to know how much time we have to defuse it. There are two factors. The first is that warming is greatest at the

the coal mine for climate warming and now . . . the canary has died," says NASA glaciologist Jay Zwally.

These dramatic changes in the Arctic have shocked the scientific community and called into question the adequacy of some of the projections of the United Nations' panel of climate scientists, known as the Intergovernmental Panel on Climate Change (IPCC). They had said the Arctic sea-ice would likely last to the end of this century.

"With a 3°C rise, the climate will kick into a new state and run away from the human capacity to live with it. Tens, perhaps hundreds, of millions of people will not survive."



OUT OF THE LOOP Leading scientists are concerned Prime Minister Kevin Rudd and Minister for Climate Change, Penny Wong, aren't aware of new developments.

poles. Global average temperatures have warmed just less than 1°C since the Industrial Revolution, but average temperatures in Siberia, Alaska and western Canada are now 3°C to 4°C warmer than 50 years ago. So by mid-century the increase could easily be 4°C to 6°C.

The second factor is the rapid loss of eight million square kilometres of thin sea-ice that floats on the Arctic Ocean. Each summer it is melting fast, with a current loss by volume of 80 per cent, and it is likely to be entirely gone each summer within five years. With the heat-reflecting ice lost and replaced by dark, heat-absorbing seas, it is expected that regional temperatures in the Arctic will increase by around 5°C. "The Arctic is often cited as the canary in

Put these factors together, and add in human greenhouse gas emissions that are still increasing rapidly, and the result is spine-chilling as the clock ticks down. The "tipping point" for unstoppable permafrost melting could be reached as early as the middle of this century, and very likely by the end of this century, unless the world acts dramatically to stop carbon pollution.

The USA's most eminent climate scientist, James Hansen, says: "Recent greenhouse gas emissions place the Earth perilously close to dramatic climate change that could run out of our control, with great dangers for humans and other creatures. There is already enough carbon in the Earth's atmosphere for massive ice sheets such as West Antarctica

to eventually melt away, and ensure that sea levels will rise metres in coming decades. We must begin to move rapidly to the post-fossil fuel clean-energy system. Moreover, we must remove some carbon that has collected in the atmosphere since the Industrial Revolution."

IN OTHER WORDS, WE NEED to build a zero-emissions economy quickly. Unfortunately this enormous task is not enough; we will also need to cool the planet so we can restore the Arctic sea-ice and stop the whole catastrophe unfurling. This means ending logging of tropical and temperate forests, and taking carbon out of the atmosphere by planting more trees and storing it in the soil as agricultural charcoal.

So how much does Penny Wong understand about the real permafrost story and the recent science? Very little, it seems. In a mid-year meeting with a number of environment organisations, she was asked whether new developments in climate science since the last IPCC report (such as the rapid loss of the Arctic sea-ice) meant the Government needed to rethink its approach. Her answer was that she did not understand the question.

No wonder the Rudd Government's climate policies are delusional, and those of the conservative Opposition worse. The Government is gambling with our future with its policy of allowing a 3°C rise, which would destroy the Great Barrier Reef, tropical rainforests, cause widespread desertification, a mass extinction and a sea-level rise of perhaps 25 metres. At 3°C the climate will kick into a new state and run away from the human capacity to live with it. Tens, perhaps hundreds, of millions of people will not survive.

Our political leaders are not taking the actions that the science demands, because the conventional mode of politics is short-term, pragmatic, incremental and fearful of fundamental change. Kevin Rudd and Penny Wong have adopted a traditional Labor approach to the climate problem: something for the environmental lobby and something for business. But the problem is that solving the climate crisis cannot be treated like a wage deal, with the demands of each side balanced somewhere in the middle. It is not possible to negotiate with the laws of nature. The planet cannot be bought off. There are absolute limits that should not

be crossed, and doing something, but not enough, will still lead to disaster.

Since signing the Kyoto protocol in December 2007, the Rudd Government has continued its rhetoric on the threat of climate change. But instead of declaring a war on carbon polluters, the Government has adopted a policy of appeasement of the fossil fuel industry.

There can be no solution to the climate problem without confronting the problem of coal. Half of the greenhouse pollution from fossil fuels has come from coal. Yet as the oil runs out, burning of coal is set to grow. Coal is Australia's biggest export, generating 13 per cent of export revenue. Australians are the world's biggest exporter of coal and this feeding of the world's addiction doubles our carbon footprint. Most of our electricity is generated through burning coal, which is why we have one of the highest per capita greenhouse gas emissions in the world.

As during the Howard years, the coal industry mafia seems again to be writing the script. The Rudd and Victorian Labor Governments have committed to funding a new coal-fired power station in Victoria's La Trobe Valley. And while Environment Minister Peter Garrett has stopped coal developments in Queensland's Shoalwater Bay wilderness, many other coal infrastructure projects have been given the green light.

Over \$9 billion in subsidies go to the fossil fuel industry each year, much of it to coal. The coal industry received as much for research and development in the last budget as the whole of the renewable energy sector.

The power of the coal industry comes from its corporate and financial muscle. While many of the coal companies are foreign owned, they generate big revenues, particularly for State Labor Governments. It would take Churchillian courage to stand up to the coal industry.

Instead, the Australian Government is punting on two main policies to reduce emissions, neither posing much threat to the coal industry.

The first, promised during the 2007 election, is a target of 20 per

cent of all electricity generated by 2020 to come from renewable sources, known as the Mandatory Renewable Energy Target (MRET). With increasing emissions from economic growth and a rising population, this would likely do little more than hold emissions from generating electricity at their current level. Even this is under threat from a government review of climate change policies by finance bureaucrat Roger Wilkins,

own "green paper" are gloomy reading. The proposed reduction is too small (Europe's target is a reduction of 30 per cent by 2020 compared to Garnaut's recommendation for Australia of 5 to 20 per cent). Many emissions will not be accounted for, and free permits will be given to the biggest polluters. Many polluters will be able to avoid their responsibility by buying dubious carbon credits from the developing world.



The Coal Truth

Not only is Siberia ground zero for global warming indicators, the region is also rich in resources including coal, oil iron and natural gas. Right: Australia's main source of energy is coal, making us amongst the world's biggest per capita greenhouse gas polluters.

who says the MRET is "distortionary" of the market.

A large MRET set at a level in accordance with scientific advice could drive investment in solar, wind and geothermal energy, but the Government's current effort falls short of the mark.

THE SECOND MAIN POLICY is a carbon trading scheme, which aims to put a total limit (or cap) on emissions which is reduced over time, so that carbon polluters must buy permits which will rise in cost as less emissions are allowed. Like a carbon tax, it will mean polluters pay and pass on the cost to consumers.

The reports outlining carbon trading by the Labor-appointed Garnaut Review and the Government's



The more serious consequence is that it will delay the serious action that needs to be taken right now. In his report released in September, economist Ross Garnaut dropped the ball, and we are now being positioned by him and the Federal Government to accept slow suicide.

The only effective alternative is to break out of this politics-of-failure and campaign with all our heart and strength across the country for an emergency response – where we set out to fully solve the problem – and stop at nothing to get a result. There is no other choice.

The only realistic answer is that we must devote as many resources

as are necessary, and as quickly as possible, to the climate emergency. During the last global mobilisation, World War II, more than 30 per cent – and in some cases more than half – of the economy was devoted to military expenditure.

We need to be prepared for that level of commitment again if we are to save most humans and species from a global warming apocalypse. Shifting to a war-type economy will require us to live better by consuming less as we rebuild a more sustainable society.

In July, former U.S. Vice-President Al Gore challenged America's leaders to commit his nation "to producing 100 per cent of our electricity from renewable energy and truly clean carbon-free sources within 10 years . . . This goal is achievable, affordable and transformative. To those who argue that we do not yet have the technology, I've seen what they [entrepreneurs who will drive this revolution] are doing and I have no doubt that we can meet this challenge." With now over a million supporters and plenty of money it is possible his campaign will succeed in taking America in a new direction.

Climate change was a major reason for Labor's election victory last year. Al Gore opened Kevin Rudd's post-election Climate Summit in Canberra, but he is unlikely to be invited back to talk about his new, bold plan. But he should be, if only to tell Kevin Rudd and Penny Wong about the extraordinary scene Alex Rodriguez of the *Chicago Tribune* witnessed in Siberia earlier this year.

"Sergei Zimov waded through knee-deep snow to reach a frozen lake where so much methane belches out of the melting permafrost that it spews from the ice like small geysers. The Russian scientist struck a match to make a jet of the greenhouse gas visible. The sudden plume of fire threw him backwards . . . 'Sometimes a big explosion happens, because the gas comes out like a bomb,' Zimov said. 'There are a million lakes like this in northern Siberia.'"

Keeping the Arctic permafrost largely intact is non-negotiable. Australia's climate policy must be based on this understanding. As oceanographer Richard Spinrad says, "What happens in the Arctic . . . does not stay in the Arctic." ❧

During 2008, political attention in Australia was drawn to advocacy of emission cuts of “25 to 40% by 2020”.

In the USA, Bill McKibben launched a campaign for a stabilisation target of 350 ppm (parts per million) of carbon dioxide equivalent (CO₂e) greenhouse gases (GHGs). Both these targets are scientifically unsupportable and should not be adopted by any movement that wants to prevent catastrophic climate change. This paper outlines the problems with a 350 target, which if achieved would very likely fail to fully re-establish the Arctic sea-ice and therefore avoid crossing significant tipping points. Likewise the higher 450 target (which is consistent with the 25-40/2020 scenario) is now widely recognised by many scientists as not defensible, who view the range 280–325 ppm as necessary.

missing the point?

Is 350 “the most important number on Earth”?

During 2008, US environment writer Bill McKibben and colleagues established the climate activist group 350.org, with the aim of spreading the message that policy targets need to reflect the scientific imperatives.

The target of 350 ppm was embraced by Al Gore at COP14 in Poznan: “Even a goal of 450 ppm, which seems so difficult today, is inadequate,” said Gore, adding we “need to toughen that goal to 350 ppm.” In a blog from Poznan, Australian Conservation Foundation (ACF) CEO Don Henry called Gore’s speech “the high point” and wrote that Gore “said that even stabilizing greenhouse emissions at 450ppm was inadequate and that the science was indicating the we would need to move to 350ppm.” But Henry has not indicated whether ACF, whose corporate branding uses Gore prominently, would adopt this target or whether ACF’s Gore presenters would be permitted or encouraged to include Gore’s new target in their public presentations.

In Poznan the Least Developed Countries caucus and the International Youth Climate Network supported the 350 target, and 350.org used the occasion to announce an international day of action on 24 October 2009 to spread the number.

Why 350? The website proclaims 350 as “the most important number on earth”. McKibben says that “a year ago, nobody had ever heard of 350. But it turns out it’s the most important number on the planet... If people around the world know nothing else about global warming, we need them to understand that 350 represents a kind of safety – if we can get that message across, then they’ll demand dramatic action from their leaders.”

In a recent article for *Mother Jones*, McKibben explains why:

The final piece of the puzzle came early this year, and again from James Hansen. Twenty years after his

crucial testimony, he published a paper with several coauthors called ‘Target Atmospheric CO₂’. It put, finally, a number on the table—indeed it did so in the boldest of terms. ‘If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted,’ it said, ‘paleoclimate evidence and ongoing climate change suggest that CO₂ will need to be reduced from its current 385 ppm to at most 350 ppm’.

But that is only half the story. Here’s what else Hansen et al. said (emphasis added) in their article in *Open Atmos. Sci. J.* 2:217-231:

*Equilibrium sea level rise for today’s 385 ppm CO₂ is at least several meters, judging from paleoclimate history. Accelerating mass losses from Greenland and West Antarctica heighten concerns about ice sheet stability. An **initial** CO₂ target of 350 ppm, to be reassessed as effects on ice sheet mass balance are observed, is suggested.*

It is important to note that this paragraph is not about the Arctic sea-ice tipping point, it’s about Antarctica. Hansen explains in the same article that 350ppm is a precautionary target to stop global loss of ice-sheets, because the paleoclimate record shows 450ppm ± 100ppm as boundary for glaciation/deglaciation of Antarctica. In the next paragraph, attention turns to the question of Arctic sea ice:

***Stabilization of Arctic sea ice cover** requires, to first approximation, restoration of planetary energy balance. Climate models driven by known forcings yield a present planetary energy imbalance of +0.5-1 W/m². Observed heat increase in the upper 700 m of the ocean confirms the planetary energy imbalance, but observations of the entire ocean are needed for quantification. CO₂ amount must be reduced to 325-355 ppm to increase outgoing flux 0.5-1 W/m², if other forcings are unchanged. A further imbalance reduction, and **thus CO₂ ~300-325 ppm**, may be needed to*

restore sea ice to its area of 25 years ago.

The central point is that Arctic sea-ice is undergoing dramatic loss in summer, having lost 70-80% of its volume in the last 50 years, most since 2000. Without summer sea-ice, Greenland cannot escape a trajectory of ice-sheet loss leading to an eventual sea-level rise of seven metres. Regional temperatures in the Arctic autumn are already up about 5°C, and by mid-century an Arctic ice-free in summer, combined with more global warming, will be pushing Siberia close to the point where large-scale loss of carbon from melting permafrost would make further mitigation efforts futile. As Hansen told the US Congress in testimony last year, the “elements of a perfect storm, a global cataclysm, are assembled”.

In short, if you don't have a target that aims to cool the planet sufficiently to get the sea-ice back, the climate system may spiral out of control, past many “tipping points” to the final “point of no return”.

And that target is not 350 ppm, it's around 300 ppm.

Hansen says Arctic sea-ice passed its tipping point decades ago, and in his presentations has also specifically identified 300-325ppm as the target range for sea-ice restoration (slide image above right), as did the paper quoted above. This view, by probably the most eminent climate scientist in America, is reinforced by Hans Joachim Schellnhuber, head of the Potsdam Institute and climate adviser to German Chancellor and the EU, who likewise is one of Europe's leading climate scientists. On 15 September 2008, David Adam reported:

Professor John Schellnhuber, director of the Potsdam Institute for Climate Impact Research in Germany, told the Guardian that only a return to pre-industrial levels of CO2 would be enough to guarantee a safe future for the planet... He said even a small increase in temperature could trigger one of several climatic tipping points, such as methane released from melting permafrost, and bring much more severe global warming. 'It is a very sweeping argument, but nobody can say for sure that 330ppm is safe,' he said. 'Perhaps

Example: Arctic Sea Ice Criterion*

1. Restore Planetary Energy Balance

CO₂: 385 ppm → 325-355 ppm

2. Restore Sea Ice: Aim for -0.5 W/m²

CO₂: 385 ppm → 300-325 ppm

Range based on uncertainty in present planetary energy imbalance (between 0.5 and 1 W/m²)

* Assuming near-balance among non-CO₂ forcings

it will not matter whether we have 270ppm or 320ppm, but operating well outside the [historic] realm of carbon dioxide concentrations is risky as long as we have not fully understood the relevant feedback mechanisms.

So 350 ppm is the wrong target because 350 ppm CO₂ cannot restore the Arctic ice to its full extent. The people who run 350.org probably now recognise that, because their language is changing. One

of their slides used to say: “We need to be here: 350”, it now says “we need to be lower than: 350ppm”. McKibben now talks about 350 ppm as being “the upper limit”, and in a recent radio interview said pre-industrial levels might be the only safe zone (http://globalpublic-media.com/reality_report_bill_mckibben). But it's too late to advocate targets that are only a signpost towards the target we really need to get to.

Sorry, Bill and the crew at 350.org, you're wrong about 350 being our campaign target for 2009 and the lead-up to Copen-

hagen. The most important number on earth is 300. That's what Hansen is saying, that's what Schellnhuber is saying. There's no point campaigning on an inadequate target. We only get one chance at this, and advocating targets that will still fail to fully solve the problem is the most de-mobilising action we can take.

Target 300 puts the science first.

[For a more detailed analysis of the genesis of the 350 target, see http://target300.org/350_ppm.html]

Is 25–40% reduction in greenhouses gas emissions on 1990 levels by 2020 enough?

The “25-40/2020” scenario was published in the IPCC’s 2007 Fourth Assessment Report Working Group III report, in Box 13.7 on page 776, “The range of the difference between emissions in 1990 and emissions allowances in 2020/2050 for various GHG [greenhouse gas] concentrations for Annex I and non-Annex I [Kyoto] countries as a group”, where targets were given for stabilisation at 450, 550 and 650 ppm CO₂e. The scenario for 450 ppm CO₂e is:

Region	2020	2050
Annex 1	–25% to –40%	–80% to –95%
Non-Annex 1	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions

25-40/2020 subsequently became a focus of debate at the COP 13 (Conference of the Parties to the UN-FCCC) meeting in Bali in December 2007, and then the principal advocacy target in 2008 in Australia for organisations such as the Climate Institute, the World Wildlife Fund, the Australian Conservation Foundation and the Climate Action Network Australia, and for a number of climate scientists who entered the public policy debate. Garnaut talked about a 450ppm target requiring Australian emissions to be reduced to 25% below 1990 by 2020 (noticeably dropping the upper range of 40% range, a sleight of hand he was not alone in undertaking). So how might we assess such an advocacy proposal?

The temperature increase: Analysis for the 2006 Stern report (p. 195) shows that, taking uncertainty about climate sensitivity into account, a 450ppm CO₂e target has:

- A 26–78% probability of exceeding 2 degrees Celsius (°C) relative to pre-industrial
- A 4–50% probability of exceeding 3°C
- A 0–34% probability of exceeding 4°C
- A 0–21% probability of exceeding 5°C

Using a risk-management approach, it cannot be said that this is even a 2°C target. And 2°C is far, far too high, given the now clear evidence that at less than 1°C of warming we are already on the precipice of climate catastrophe, from the Arctic to the Great Barrier Reef, from the Himalayas to Siberia.

Climate sensitivity: The work of the IPCC generally assumes a climate sensitivity (CS: that is, how much temperatures would increase with a doubling of GHG levels) of 3°C. Whilst “short-term” CS is well established at 3°C ± 0.5°C, there is now a very convincing case that long-term climate sensitivity (including “slow” carbon feedbacks such as ice-sheet albedo, loss of ocean carbon-sink efficiency, loss of permafrost and other soil carbon, carbon release from tropical rainforests drying/wild-fire, and so on) is closer to 6°C. There is strong

evidence in climate history of the last million years to support this view. This is recognised in the IPCC 2007 synthesis report which notes that “emissions reductions... might be underestimated due to missing carbon cycle feedbacks” (page 67) and this may require the cumulative emissions budget for the 21st century (the total amount of GHGs than can be emitted for a stabilisation level) to be “about 27% less” than is assumed. But the 25-40/2020 target and other IPCC emission reduction scenarios do not include this consideration!

On carbon cycle feedbacks, there is already evidence that the strength of ocean, and especially some land, carbon sinks are weakening and becoming less efficient, and that this will persist into the future. Thus the predictions from climate-carbon-cycle models may be too conservative and CO₂ in the atmosphere will probably increase more rapidly than the models suggest, which has implications for the development of policies that seek to stabilise atmospheric CO₂ at a given level, including those of the IPCC (Cox & Jones, *Science* 321: 1642-1644).

The IPCC gives a CS range of 1.5–4.5°C and warns that “policymakers may want to use the highest values of climate sensitivity... to guide decisions” (and virtually admits it is higher than the 3C the IPCC chooses to assume). This precautionary warning has apparently been ignored by those who advocated the 25-40/2020 target during 2008.

If long-term CS is 6°C, then 450ppm would produce a temperature increase of 4.1°C, enough to melt all ice sheets and produce a 70-metre sea-level rise, amongst many impacts that would end life on this planet for most people and most species.

After a careful reassessment of climate sensitivity and climate history data, James Hansen and his co-authors concluded in a 2008 research paper that the tipping point for the presence, or absence, of any substantial ice-sheets on Earth is around 450

ppm (plus or minus 100 ppm) of CO₂. This means that the CO₂ levels often associated with a 2°C rise may just be the tipping point for the total loss of all ice sheets on the planet and a huge sea-level rise (Hansen et al, *Open Atmos. Sci. J.* 2:217-231). Yet this is what the principal advocacy was by “our” side in 2008!

[For a more detailed discussion of climate sensitivity, see the discussion on pages 15-16 of the *Climate Safety* report published in late 2008 in the UK: PDF at www.climatesafety.org.]

The impacts: 450ppm CO₂e is roughly the current GHG level, and in 2008 Ramanathan and Feng (*PNAS* 105:14245-14250) found that if greenhouse gases were fixed at their 2005 levels (and assuming the IPCC CS of 3°C), the inferred warming is 2.4°C (range 1.4°C to 4.3°C) and that 2.4°C would be sufficient to result in the loss of Arctic summer sea-ice, the Himalayan–Tibetan glaciers and the Greenland ice-sheet (based on Lenton et al, *PNAS* 105: 1786-1793). The loss of Greenland ice sheet produces about a 7-metre global sea-level rise. One conclusion is that advocacy of the 20-40/2020 target, for example by the ACF in its 2008 *Special Places* campaign, will result in the destruction of many of Australia’s “special places” ACF wants to protect; Kakadu, for example, will salinate with a sea-level rise of less than a metre.

The scenario is out of date. The scenarios in IPCC 2007 WGIII Box 13.7 were prepared in 2005 or earlier.

- The 450ppm scenario relies heavily of the work of Del Elzen and Meisnhausen, presented at a 2005 UK Met conference (and then published as chapters 28 and 31 in *Avoiding dangerous climate change*, Schellnhuber (ed.), CUP). Since then, emissions from non-Annex I nations have grown beyond all expectation, which means that emission reductions scenarios need to be re-visited.
- Thus in recent powerpoints, Meinshausen has crossed out the words “Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia” and pasted over “–15% to –30% by 2020” for non-Annex 1 nations, a recognition that the 2007 propositions need re-working.
- In addition, the IPCC methodology (and emissions reduction scenarios generally) implies that climate change is a linear event, where predictable changes in emission levels will have predictable outcomes and impacts. But events such as the “big melt” in the Arctic summer of 2007 are non-linear and unpredicted events that can turn climate science knowledge on its head and demand that the whole question of what needs to be done and what are appropriate targets be urgently re-assessed in light of new data, including evidence that carbon cycle feedbacks are kicking in sooner than expected. The Arctic shows that tipping points for dangerous climate change and large sea-level rises have already been passed,

a fact that the IPCC did not recognise in failing to include any emission scenarios for less than 2–2.4°C in its 2007 report.

- It is noteworthy that IPCC author Bill Hare, in the climate chapter for the 2009 *State of the World* report, includes detailed modeling by the Potsdam Institute for Research on Global Warming Effects of a 1-degree stabilisation scenario (the first I have seen), and sketches the actions for a 300 ppm target. It will be interesting to see if Hare’s views, which in the past have been influential in groups such as CANA and Greenpeace, will be embraced.
- Potsdam Institute head Hans Joachim Schellnhuber says previous predictions about climate change and its catastrophic effects were too cautious and optimistic. “In nearly all areas, the developments are occurring more quickly than it has been assumed up until now,” Schellnhuber told the *Saarbruecker Zeitung* newspaper in an interview published on 29 December. “We are on our way to a destabilization of the world climate that has advanced much further than most people or their governments realize.”

A safe-climate target

James Hansen told scientists at an American Geophysical Union conference in December 2007 that: “We either begin to roll back not only the emissions [of CO₂] but also the absolute amount in the atmosphere, or else we’re going to get big impacts ... We should set a target of CO₂ that’s low enough to avoid the point of no return.” In order to achieve the return of the Arctic sea-ice, we have seen above that Hansen and his co-authors have identified the target as in the range 300–325ppm CO₂, well below the current level. Given the key role the Arctic plays in the global climate system, a precautionary approach would therefore suggest a long-term target of 300ppm CO₂e.

This would rule out a domino effect of sea-ice loss, albedo flip, a warmer Arctic, a disintegrating Greenland ice sheet, more melting permafrost, and further knock-on effects of massively increased greenhouse gas emissions, rising atmospheric concentrations and accelerated global warming.

Any proposal for a target higher than 300ppm would imply confidence that it is safe to leave the Arctic sea ice melted, and an assumption that this would not bring about the train of consequences just described. This is, implicitly, the view of all the major nations and organisations involved in setting climate policy. Accordingly, they must be challenged to provide a reasoned argument as to why leaving the Arctic Ocean free of ice in summer is safe. If they cannot, the only acceptable course of action is clear.

Notes by David Spratt,

with thanks to Philip Sutton and Adrian Whitehead.

keys to a safe climate

1. Our goal is a safe-climate future – we have no right to bargain away species or human lives

- No species has the right to consciously determine what proportion of all other species on earth should become extinct — as the compromise 2 and 3-degree temperature rise targets do. Lacking the collective will to act in a sustainable manner is no excuse.
- Humans have created the looming catastrophe of global warming and we have the capacity and duty to undo the damage and act in a sustainable manner, to cool the earth back to the safe-climate zone.

2. We are facing rapid warming impacts: the danger is immediate, not just in the future

- Serious climate-change impacts are already happening, both more rapidly and at lower global temperature increases than projected. Significant “climate tipping” points have already been passed. These include large ice sheet disintegration, significant sea level rises of up to 5 metres this century and devastating species loss. The Arctic will soon be free of summer sea-ice and the Greenland ice sheet is in imminent danger.
- Temperature increases of 2 degrees are effectively already in the system, unless we act dramatically to cut emissions towards zero as quickly as humanly possible. Humanity will no longer have the power to reverse the processes we have set in motion if we pass the “point of no return”.
- The IPCC reports are dangerously conservative. A temperature cap of 2–2.4°C, as proposed within the United Nations framework, would take the planet’s climate beyond the temperature range of the last million years and into catastrophe.

3. For a safe climate future, we must take action now to stop emissions and to cool the earth

- The tipping points for large ice sheet and species loss were crossed when we exceeded 300-350 ppm of carbon dioxide in the atmosphere, a point passed decades ago.
- It is no longer a case of how much more we can “safely” emit, but whether we can quickly enough stop emissions and produce a cooling before we hit tipping points and positive feedbacks — such as carbon sink failure and permafrost loss — that will take the trajectory of the earth’s climate system beyond any hope of human restoration.
- Hansen notes that we either begin to roll back not only the carbon emissions but also the absolute

amount in the atmosphere, or else we’re going to get big impacts.

4. Plan a large-scale transition to a post-carbon economy and society

- We face a multi-factor sustainability crisis and systemic breakdown.
- The obstacles to implementing climate solutions are political and social in character, not technological or economic.
- Speed is of the essence in constructing a post-carbon economy as quickly as humanly possible.
- An imaginative, large-scale programme comparable in scope to the “war economy” or the transformation of the Asian “tiger” economies is required.

5. Recognise a climate and sustainability emergency, because we need to move at a pace far beyond business and politics as usual

- These imperatives are incompatible with the “realities” of “politics as usual” and “business as usual”. Our conventional mode of politics is short-term, adversarial and incremental, fearful of deep, quick change and simply incapable of managing the transition at the necessary speed. The climate crisis will not respond to incremental modification of the business-as-usual model. Climate policy is characterised by the habituation of low expectations and a culture of failure.
- There is an urgent need to reconceive the issue we face as a sustainability emergency, that takes us beyond the politics of failure-inducing compromise.
- Even moderate goals (25-40% below 1990 by 2020) now require immoderate rates of change only achievable by shifting to an emergency footing.
- As Ian Dunlop, the former fossil fuel industry executive and CEO of the Institute of Directors writes: “The stark fact is that we face a global sustainability emergency. But it is impossible to design realistic solutions unless we first understand and accept the size of the problem. “Climate Code Red” is a sober, balanced analysis of this challenge, unadorned by political spin, proposing a realistic framework to tackle the emergency. It should be essential reading for all political and corporate leaders, but particularly for the community. If we are to have a reasonable chance of maintaining a habitable planet, placing our efforts on an emergency footing is long overdue. We only play this game once; a trial run is not an option.’

An open letter to President Obama on how to make the climate challenge real and urgent to Americans

Dear President Obama,

James and Anniek Hansen urge you to pay attention to the particulars of your administration's climate policy as a first order of business. The devil's in the details, the Hansen's argue, and the broad language with which you address the crisis does not seem to acknowledge the "profound disconnect" between climate policy and climate science.

Your approach to global warming was deftly crafted to appear strong and be vague, of course, a smart reading of what the electorate, even in Democratic primary states, would tolerate and one reason why you triumphed in a field of candidates, including several who tried to run on climate.

It is one thing to sidestep a campaign issue voters are unwilling to face, but pragmatic campaign decisions are not binding on the President of the United States of America when the world is coming to an end.

You are faced with an insoluble crisis and are weaker for the subtle campaign strategy that helped elected you. There is no functional solution to the climate catastrophe in policies now on the table and you take office with no mandate to advance one.

The US cannot muster the resources and resolve necessary to lead the world to safety if your administration does no more than plump domestic "green jobs" and "equitable stimulus" programs – progressive rhetoric for the stump and nothing more – and endorse decades-old cap & trade policy ginned up by environmentalists looking for policy acceptable to corporate "climate action" partners.

As our first organizer President, you know that the right course of action is not to tinker with the details of policy, as Hansen does, but to rewrite the terms of the debate. The problem is that there is no conflict and it is therefore difficult to bring the resources of the "bully pulpit" to bear.

The bold move is to do nothing.

It will require immense determination to forestall the political forces coiled in anticipation of quick administration action on climate, but you must stiff-arm your advisers, step outside the Congressional climate quagmire, leave environmentalists hanging, and delay international engagement.

It is crucial that the nation does not move directly from the old conflict, "is global warming real?" directly into action, without first facing the terrible questions "how bad is it?" and "what do we need to do?"

There are two aspects to our national character, and the flip side of our refusal thus far to deal with the gathering crisis will be another great awakening of American optimism, energy and willingness to

sacrifice. That national spirit is only called forth by terrible risk and resolve in leadership.

By breaking free from awkward compromises and dismal trade-offs and flexing unilateral powers of the Presidency, a dynamic, realistic, yet optimistic agenda can be set in motion that will draw our reluctant eyes to the danger, put dramatic examples of rapid change on display, and demonstrate bold and vigorous leadership. Then the time will be propitious to propose a new domestic and international agenda.

Consider how different the political climate if you were to take the following actions as your first order of business.

Gore's Challenge. Although there is some question about whether or not you actually endorsed Al Gore's call to shift US electricity generation to renewables, no matter; make Gore's challenge US policy, Mr. President, by issuing an Executive Order setting a national goal of zero carbon emissions electricity generation by 2020.

275 ppm. As Jim Hansen suggests, the National Academy of Sciences should review and comment on recent climate science findings. You should use the opportunity, Mr. President, to explain the precautionary principle to the American people and demonstrate both intellectual integrity and political courage by asking the NAS to consider whether a rapid return to pre-industrial concentrations of atmospheric carbon (265-275 ppm) is warranted.

Climate Civil Defense. FEMA should undertake a nationwide inventory of civil defense preparedness for storm surges on rising sea levels and conduct preliminary engineering studies on the feasibility and costs of erecting dikes, constructing hurricane barriers, reconstituting coastal wetlands, and other necessary measures to protect coastal homelands.

Driving Hybrids. Of 60,000 vehicles added to the US government fleet in 2008, 239 were hybrids and 2 were all electric. You should combine vehicle needs for the next four years, roughly 250,000 ve-

As our first organizer President, you know that the right course of action is not to tinker with the details of policy... but to rewrite the terms of the debate... It is crucial that the nation does not move directly from the old conflict, "is global warming real?" directly into action, without first facing the terrible questions "how bad is it?" and "what do we need to do?"

hicles and put them up for bid, Mr. President, specifying standards for a hyper-efficient, highly crash resistant, durable fleet of hybrid vehicles averaging 65 mpg.

Climate Early Warning. There are three ice shelves large enough to end the world, yet none are being monitored on a constant basis. Congress should be asked for immediate, emergency funding to place permanent research camps on the Eastern and Western Antarctic Ice Shelves and in Greenland, military satellite capacity should be reassigned to monitor ice shelves for early signs of breakup, other key factors (i.e. ocean temperature/current) should all be monitored and an international command center established to coordinate information (e.g. an NSA for climate intelligence).

Hawaii Poster Child. Go home, hang with your friends, focus the nation on our own island-in-rising-seas story and invest hugely in making Hawaii a demonstration renewables state. Already on the forefront, with a federal partnership and funding, Hawaii could aim for a realistic zero carbon (net) goal.

US Military & Renewables. Iraq has taught some in the U.S. military that renewables strengthen war-fighting capabilities. The military has set the relatively ambitious goal of generating 25% of its energy from renewables by 2025 and is making good headway, but more in response to ad hoc initiatives than determined Pentagon leadership. Acting as Commander in Chief, Mr President, you should double the goal. This will strengthen centers of leadership aiming to put the US military onto a new footing of efficiency and renewables (the same folks thinking in terms of climate challenges), and use the institution to fuller advantage as an important agent of US social change.

Solar Iraq. Electricity demand in Iraq is 4000MW greater than utility supply, the difference made up by neighborhood entrepreneurs with diesel generators. The US should insist that half of the \$12 billion (World Bank) to \$35 billion (Iraq Ministry of Electricity) of US, Japanese and European funds estimated necessary to rebuild Iraq's shattered electric utilities be budgeted for solar and wind generation (GE, which just signed a \$3 billion contract with the Ministry of Electricity won't be ruffled a bit).

Measures such as these will go a long way to transform a vague and distant worry into an urgent, local, political problem and your stalwart refusal to take action until the nation is ready and the moment is ripe will be compared with the genius of another tall, thin Illinois politician.

Sincerely,
Ken Ward
21 January 2009

Ken Ward is a former Executive Director of NJPIRG and RIPIRG, Deputy Executive Director of Greenpeace USA, cofounder of organizations including Green Corps (Senior Trainer), National Environmental Law Center (President), Public Interest GRFX, Environmental Endowment for New Jersey, Fund for Public Interest Research and AmeriCorps Water Watch, and author of *Response to The Death of Environmentalism*, published by Grist in March 2005. In writing to President Obama on 21 January, he also wrote to Jim Hansen...

dear jim

January 20, 2009

Dear Jim,

I've enclosed a post (to Gristmill, reproduced at left) that was prompted in part by your recent letter to the President, and I write to offer you some additional thoughts.

I do not write because I disagree with your arguments for researching 4th generation nukes and carbon capture & storage (though I do), nor to answer your complaints about environmentalists.

In my view, US environmentalists have failed in our three most important responsibilities – our civic obligation to sound the alarm, our moral responsibility to bear witness, and our pragmatic charge to build a durable political base for fundamental change. As a result, we just flunked the acid test of the '08 election.

Several factors account for the decline in confrontational campaigning, effective direct action and organizing the environmentalist core that has left us with wide yet shallow support, but the chief inducement was the allure of policy and the misbegotten idea that US environmental foundations and organizations could craft and advance a climate solution acceptable to sections in the private sector, thereby skipping the difficult challenge of forcing the nation to a point of sharp conflict and avoiding the uncertainty of a public debate.

The fiction that there is an easy way out collapsed last year, battered by the data and your own remorseless logic, though our major organizations and foundations continue to spout the line. The limits on corporate "climate action" were laid bare and we have had nothing to fall back on. We traded our cow for beans that weren't magic after all.

Both parties headed into the primaries with serious candidates running on climate action; none fared particularly well and the tricky problem of handling global catastrophe within the necessarily upbeat framework of a presidential campaign became even more inconvenient when gas prices surged. Obama temporized and McCain was forced

to repudiate a former position of remarkable integrity.

As I write this, I've been checking posts on Grist and Facebook coming in from friends at the inauguration and I'm blown away by how giddy everyone is, considering the brisk slap in the face Obama just delivered on climate. Any number of small gestures could have been made to signal that President Obama is seriously concerned about climate – the President might have devoted a serious aside in his address, climate might have been identified as a specific danger for which the nation must needs pull together in the Proclamation of Reconciliation issued yesterday, the President might have appeared in person at LCV's event installing solar panels on a DC elementary school (instead of sending Secretary Chu), you might have been honored or showcased in some manner, and so on.

Groping for a way to put the day in context, I thought, what if the anti-abortion movement picked a candidate early in the primaries, who had less than 100% rating on the issue but good prospects; who ran and won on a moderate anti-abortion platform with the acquiescence of movement leadership? You can be sure that the inauguration would be orchestrated to showcase the leaders and comfort the worried rank and file. Nothing of the sort pertains with climate and environmentalists because we have built no base of climate partisans, properly skeptical of a new President who endorses off-shore oil drilling and irate that the world's approach to climate tipping points rates no more than a passing mention in the inaugural address.

Part of the Faustian bargain we made long ago was to downplay climate change risk. In any other area and any other issue, scientists provide data and conservative assessments. Environmentalists apply precautionary reasoning, duke it out with whichever sector has a big stake and (in recent years) either lose outright or accept a compromised bargain. On climate, however, we ignored the precautionary position because it didn't work well in fundraising, was incompatible with moderate policies, and discomfited prospective corporate partners and foundation boards.

You, with a handful of other scientists and a couple of ex-journalists, were our climate Paul Revere, and in consequence, are now leaders of US environmentalism. Your role in this terrible debate is larger than this, of course, but it would be a mistake not to appreciate your standing as an environmental leader. It does not go unnoticed that your journal articles more eloquently and clearly express environmental values than anything produced by our own organizations.

With that in mind, I found the your Obama material to be troubling for what it implies about your thinking on strategy, how to shape the national climate narrative, and how you conceive and use

your power base. None of these matters are any of my business, and I have no formal standing or position, but I expect you agree that the times and circumstances press us all to step outside ordinary bounds.

Stated in brief, I think it is a mistake to spend any of your personal capital on the particulars of US Government climate policy (at this time) and it is disadvantageous strategy to encourage President Obama to do so as well. This is the route US environmentalists went down and it's still a bad bargain. Trying to cobble together a backdoor technical solution because the leadership we require has not arrived, the conflict from which such leaders might emerge has not yet been joined, and the forces which might bring conflict to a head remain quiescent, won't work because there is an irreducible political force required to win any functional solution. We'll either get it, in which case the particulars can then be dictated, or we won't.

Your primary power and – excuse me for putting it so bluntly – your value is your moral authority. You are a symbol; part Galilean reasoning, part Franklinian common sense and concern for civic safety, and part rational ecologist. Your personality, as it projects, has a good mix of keenness, aestheticism and incorruptibility, and your principled stand against the Bush gag effort showed that you aren't just for show. Your achievement is to see the terrible risk before anyone else, to adjust your assessment as things got worse, and to state in simple terms what needs to be done. Your skill is to tell a story well.

Most of these attributes are diminished if you head off in the direction of your recent letter, I would argue, and your moral authority, power and value (to put it bluntly again) are reduced.

I don't know that I need to lay out the arguments in any great detail here, because it is clear from your writing and actions that you already wrestle with the tension between simplifying what's at stake, driving conflict and aiming for wholesale change versus incremental steps on the margins via second tier governmental action.

I think your moral weight is far more valuable than your practical advice, though I can imagine the drive toward hands-on action must feel intense. To have a shot, we require a simple, uncluttered story where the bad guys are coal companies and utilities and environmentalists are good (if we are to be vilified, let us be vilified for not being environmentalist enough).

I urge you to stay the course, keep with the big picture, act as a Mandela and not a Lech Walesa.

With highest regard,

Sincerely,

Ken Ward

this is an emergency

by David Spratt

[Presentation to public forum and conference, Adelaide, 10–11 October 2008 at the formation of CLEAN (Climate Emergency Action Network) SA.]

A year ago I was researching what was intended to be a short submission to the Garnaut review, when events in the polar north turned the world of climate policy upside down. It was found that eight million square kilometres of sea-ice — an area the size of Australia — was melting, in the immortal words of one glaciologist, “a hundred years ahead of schedule”.

Yet the international policy debate carried on as if this had not happened. Out-of-date scenarios, research and observations were being used to propose emission reduction targets that would still lead to catastrophe even if fully implemented.

And so a short submission became a long detour into how the climate debate is being constructed, and the result, with Philip Sutton, was a book we did not intend to write, *Climate Code Red*.

We came to the conclusion that most of the public policy debate on climate is delusional, that is, a fixed, false belief resistant to reason or confrontation with actual fact. In the new *Quarterly Essay*, Tim Flannery says “There is no real debate about how serious our predicament is,” nor has there been the “understanding of just how profoundly we are influencing the very Earth processes that gives us life.”

Major political parties fail to address climate change

Neither of the major political parties at the national level have bothered to tell the electorate what they consider to be dangerous climate change. Neither party in government has ever said how hot would be too hot — one degree, or two, three, four or five? — and then committed themselves to actions consistent with that target. And both seem to have difficulty in saying unambiguously that the loss of the Great Barrier Reef (now inevitable) or the salination of Kakadu (predicted to occur with a half-metre sea-level rise this century) mean that global

warming is already dangerous.

The Rudd government’s climate vision does not extend beyond the terrain described by the reports of the IPCC, which Flannery notes are “painfully conservative” because the IPCC “works by consensus and includes government representatives from the United States, China and Saudi Arabia, all of whom must assent to every word of every finding”. Thus the IPCC’s most recent report has already been found badly wanting on such issues as the Arctic sea-ice, ice sheet loss and sea-level rises, nor did it not seriously concern itself with the possibilities of non-linear climate change and the long-term effects of carbon-cycle feedbacks (carbon emission-induced warming causing the release of more carbon into the air, for example by the melting of permafrost).

Put simply, the debate in Australia is not evidence based. Political pragmatism, window dressing and incremental solutions that will fail take precedence over the scientific imperatives. The result can only be a suicide note for most people and most species on the planet.

The conclusion we came to was that unless we adopt the strongest measures — emergency action — it will be too late. It is no longer a matter of how much more we can heat the planet, but how quickly can we cool it.

Recent climate science indicates climate change is happening much faster than predicted

Serious climate-change impacts are already happening, both more rapidly and at lower global temperature increases than projected. In 2005 the eminent climate scientist Dr James Hansen warned that: “We are on the precipice of climate system tipping points beyond which there is no redemption.” Three years later, we now know that we have already crossed some of those tipping points: for ice-sheet disintegration, significant sea-level rises and species loss. Hansen says that the “Elements of a “perfect storm,” a global cataclysm, are assembled.”

The complete loss of the Arctic sea-ice in summer is now inevitable. “The Arctic Ocean could be nearly ice-free at the end of summer by 2012”, says Dr Jay

Zwally, a glaciologist at the NASA Goddard Space Flight Center. He concludes that: "The Arctic is often cited as the canary in the coal mine for climate warming... and now as a sign of climate warming, the canary has died."

The Arctic is key to the world's climate, and Arctic changes have the potential to seriously destabilise the global climate system. Dr Neil Hamilton, Director of the WWF Arctic programme, says that Arctic climate models are breaking down and no longer work because "we are moving to a new Arctic climate system". He says the WWF is no longer trying to protect the Arctic eco-system because it is no longer possible to do so, and that carbon sinks in the Arctic are changing very, very quickly and it is not clear what any Arctic ecosystem will look like in 50 years.

The danger is that an ice-free state in the Arctic summer will kick the climate system into run-on warming and create an aberrant new climate state many, many degrees hotter. The Arctic sea-ice is the first domino and it is falling fast. Other dominos will inevitably fall unless we stop emitting greenhouse gases and cool the planet to get the Arctic sea-ice back.

Those dominoes include the Greenland ice sheet. The loss of the Arctic summer sea-ice will cause a large local warming in the Arctic region of around 5°C and a smaller but very significant global warming of around 0.3°C. This further warming of the Arctic will add to the speed of disintegration of the Greenland ice sheet. "We are close to being committed to a collapse of the Greenland ice sheet", says Tim Lenton of the University of East Anglia. If Greenland totally melts, global sea-levels will rise by 7 metres. The question, given the present trajectory of the climate system is not if, but how fast? The general view is 1–2 metres this century, but Will Steffen of the ANU says 4 metres cannot be ruled out; in past climate history 14,000 years ago, sea-levels rose as fast as 5 metres per century.

I are not aware of any well-informed climate scientist who thinks that it is possible to have a safe climate or avoid dangerous sea-level rises with the permanent loss of the Arctic summer sea-ice. This topic is not being addressed in Australia, though it must frame the whole debate. To not forcefully consider the Arctic is to ignore the biggest issue today in global warming.

The loss of sea ice is leading to the loss of permafrost

The rapid regional warming consequent to the sea-ice loss also has grave repercussions for the perma-

I are not aware of any well-informed climate scientist who thinks that it is possible to have a safe climate or avoid dangerous sea-level rises with the permanent loss of the Arctic summer sea-ice. This topic is not being addressed in Australia, though it must frame the whole debate. To not forcefully consider the Arctic is to ignore the biggest issue today in global warming.

frost. The National Centre for Atmospheric Research in Boulder predicts that half of the permafrost in the Arctic north will thaw to a depth of 3 metres by 2050. Glaciologist Ted Scambos says, "That's a serious runaway ... a catastrophe lies buried under the permafrost." Permafrost specialist Sergei Zimov says: "Permafrost areas hold 500 billion tonnes of carbon, which can fast turn into greenhouse gases ... If

you don't stop emissions of greenhouse gases into the atmosphere ... the Kyoto Protocol will seem like childish prattle." The western Siberian peat bog is amongst the fastest-warming places on the planet, and Sergei Kirpotin of Tomsk State University calls the melting of frozen bogs an "ecological landslide that is probably irreversible". In August 2008, Örjan Gustafsson, the Swedish leader of the International Siberian Shelf Study confirmed that methane was now also bubbling through seawater from permafrost on the seabed.

So the question is no longer whether the permafrost will start to melt, but if and when the time-bomb will go off. When it does, it will sweep the climate system away from our capacity to stop further dramatic "tipping points" being passed. All the carbon in the permafrost is equivalent to twice the total amount of all carbon dioxide in the atmosphere, so losing even a significant portion of it will create a very different planet from the one we know. Scientists are warning that the temperature at which it will be triggered is closer than we think. Research published in mid-2008 by Dmitry Khvorostyanov shows the trigger is warming in the Arctic of around 9°C, and that once initiated it will maintain itself, leading to three-quarters of the carbon being released within a century. It could happen as early as mid-century.

2 degrees global temperature rise will lead to catastrophe

For these and many other reasons, I can only conclude that a temperature cap of 2–2.4°C, as proposed within the United Nations framework, would take the planet's climate beyond the temperature range of the last million years and into catastrophe. "Two degrees has the potential to lead to three or four degrees because of carbon cycle feedbacks", says the University of Adelaide's Barry Brook.

And so the conclusions we reached in November 2007 were:

- Because of the dangerous knock-on effects caused by its loss, the Arctic sea ice must be restored to its normal extent as fast as

possible.

- To get the Arctic sea ice back we need to cool the earth by about 0.3°C. If we don't, we cannot avoid very dangerous climate impacts. There is no third way. This is the new very inconvenient truth politicians seek to avoid.
- To cool the earth fast enough to get the Arctic sea-ice back quickly, we need to move to zero greenhouse gas emissions as fast as the economy can be restructured, and is environmentally safe to do so, and take about 200 billion tonnes of carbon dioxide out of the air. We also need to find environmentally-safe mechanisms to actively cool the earth while navigating this transition.
- Taken together this is a staggering task in terms of the necessary scale and speed of action, but there is simply no alternative if we are to avoid catastrophic climate change.

We were not alone. In December 2007, James Hansen spoke of his very similar conclusions. He says:

Recent greenhouse gas emissions place the Earth perilously close to dramatic climate change that could run out of our control, with great dangers for humans and other creatures. There is already enough carbon in the Earth's atmosphere for massive ice sheets such as West Antarctica to eventually melt away, and ensure that sea levels will rise metres in coming decades. Climate zones such as the tropics and temperate regions will continue to shift, and the oceans will become more acidic, endangering much marine life. We must begin to move rapidly to the post-fossil fuel clean energy system. Moreover, we must remove some carbon that has collected in the atmosphere since the Industrial Revolution.

The situation in 2008 is worse

In September 2008, Prof. Hans Joachim Schellnhuber, director of Germany's Potsdam Institute for Climate Impact Research and advisor to the German government and the European Union, told David Adam of *The Guardian* that only a return to pre-industrial levels of carbon dioxide would be enough to guarantee a safe future for the planet. He said that current political targets to slow the growth in emissions and stabilise carbon levels were insufficient, and that ways may have to be found to actively remove carbon dioxide from the air. Adam reported: "[Schellnhuber] said even a small increase in temperature could trigger one of several climatic

So we can see a sweeping change in the public perspective of scientists and most environmentalists, whom opinion polls show are the two most credible voices in the climate conversation. Unfortunately, some of the more corporate-cuddle climate groups, trapped in a conservative mode of operation, are caught a long way behind the contemporary debate and the new, evidence-based understanding of the urgent need for zero emissions and the cooling of the planet back to a safe zone.

tipping points, such as methane released from melting permafrost, and bring much more severe global warming. 'It is a very sweeping argument, but nobody can say for sure that 330 ppm [part per million carbon dioxide] is safe,' he said. (The present level is much higher at 387 ppm.) 'Perhaps it will not matter whether we have 270 ppm or 320 ppm, but operating well outside the [historic] realm of carbon dioxide concentrations is risky as long as we have not fully understood the relevant feedback mechanisms'."

Talk to most climate scientists, and they will privately agree.

Many are already concerned

that it may be too late (partially because of their very jaundiced view of the political elite up close), and they know that the politically accepted targets cannot be scientifically justified as likely to save the planet from disaster.

Recently, 49 Australian grassroots climate action and environment advocacy groups told Ross Garnaut in an open letter that "the tipping points for large ice sheet and species loss have already been crossed, as we are witnessing in the Arctic. It is no longer a case of how much more we can safely emit, but whether we can quickly stop emissions and produce a cooling before we hit tipping points and amplifying feedbacks — such as largescale release of greenhouse gases from melting permafrost — that will take the trajectory of the earth's climate system beyond any hope of human restoration."

This statement was endorsed by five state-based conservation councils, and Greenpeace is also moving to this "new realist" position. And of all the large environment-oriented organisations, it was The Greens' Christine Milne who took the lead in recognising that "that the expectation of failure has become the norm in climate policy" and engaged with the zero emissions goal.

Public perspective of scientists and most environmentalists is changing

So we can see a sweeping change in the public perspective of scientists and most environmentalists, whom opinion polls show are the two most credible voices in the climate conversation. Unfortunately, some of the more corporate-cuddle climate groups, trapped in a conservative mode of operation, are caught a long way behind the contemporary debate and the new, evidence-based understanding of the urgent need for zero emissions and the cooling of the planet back to a safe zone. Stop all greenhouse gas emissions and cool the planet: it

sounds impossible, but it is not. I am convinced that the obstacles to such a path are not principally technological or economic, but political and social. [Other speakers at this forum will be talking in detail about what those solutions can be.] Renewable energy is not rocket science, nor is electrifying our national train network, improving energy efficiency or planning to live sustainably. A McKinsey&Company report finds that many of the emission reduction opportunities are actually cost-positive (they cost less than they save in energy costs). And rebuilding a post-fossil-fuel economy will be job rich.

Al Gore's challenge to America

In July Al Gore issued his challenge to America''

Today I challenge our nation to commit to producing 100% of our electricity from renewable energy and truly clean carbon-free sources within 10 years...This goal is achievable, affordable and transformative. To those who argue that we do not yet have the technology ... I've seen what they [entrepreneurs who will drive this revolution] are doing and I have no doubt that we can meet this challenge.

Here is a key: the challenge of climate is politically transformative.

In the dense fog that passes for the national climate policy debate, the major players stumble from one lamppost to the next, unable to see the bigger picture in the murky light. Devoid of context, their climate view is so constrained that they fail to identify the core problem: that the world stands on the edge of a precipice beyond which human actions will be no longer able to control in any meaningful way the trajectory of the climate system, or the fate of human life in a rapidly degrading natural world.

Climate policy is characterised by the habituation of low expectations and a culture of failure. There is an urgent need to understand global warming and the tipping points for dangerous impacts that we have already crossed as a sustainability emergency, that takes us beyond the politics of failure-inducing compromise because we are now in a race between climate tipping points and political tipping points.

Our political leaders are not taking the actions that the science demands, because the conventional mode of politics is short-term and pragmatic. It seems to be about solving 10% of the problem, or blaming the other side for problems, or putting it off till after the next election, or pretending it doesn't

In the dense fog that passes for the national climate policy debate, the major players stumble from one lamppost to the next, unable to see the bigger picture in the murky light. Devoid of context, their climate view is so constrained that they fail to identify the core problem: that the world stands on the edge of a precipice beyond which human actions will be no longer able to control in any meaningful way the trajectory of the climate system, or the fate of human life in a rapidly degrading natural world.

exist at all. Politics is more and more spin and less and less substance.

Kevin Rudd and Penny Wong have adopted a traditional Labor approach to the climate problem: something for the environment lobby and something for business. But the problem is that solving the climate crisis cannot be treated like a wage deal, with the demands of each side balanced somewhere in the middle. It is not possible to negotiate with the laws of physics and chemistry. The planet cannot be bought off. There are absolute limits that should not be crossed, and doing some-

thing, but not enough, will still lead to disaster.

They seem wedded to market-based solutions rather than having the imaginative capacity to construct a future nation in which we will actually be able to survive. We face systemic breakdown. Speed is of the essence in making the transition to a post-carbon economy as quickly as humanly possible. We cannot wait for the market to build a sustainable society. We all have to be part of it. Even the President of France has declared that "laissez-faire is over"; Sarkozy says: "the idea that the market is always right is a crazy idea." Stern says global warming is the greatest market failure of all time, so in climate policy what do the major parties turn to: a carbon market!

The climate crisis will not respond to incremental modification of the business-as-usual model.

Adopting climate emergency mode

Fortunately we have another model we can turn to when we really want to fully solve a problem: emergency mode, whether it be flood or fire or tsunami or earthquake. In these circumstances we don't wait for market mechanism or price signals or policies that will be implemented in 2 or 3 years time to solve it. No, government authorities go and directly apply the people and resources to fully solve the problem. The same is true in wartime, where the government controls the economy to produce what is needed quickly and efficiently in order to solve the problem. In war if you only half solve the problem, you lose. The same is true of the fight against global warming.

What we need to do is recognise, as people such as the UN Secretary General, the head of the UN-FCCC, the Victorian Governor in launching *Climate Code Red*, and many others have said, that we face an emergency that requires emergency action.

We need leadership and courage

The climate emergency requires leadership and courage, and an imaginative capacity almost completely lacking in Australian politics today. We need to inspire people with the idea of transformative action, the willingness to promote a new vision of the future and make it the number one goal of our society and economy. It requires governments to put much of the enormous wealth generated by our economy into solving the climate crisis.

So how much economic capacity should be devoted to making the necessary rapid transition to a post-carbon society? The only realistic answer is that we must devote as many resources as are necessary, and as quickly as possible, to the climate emergency. During the last global mobilisation, World War II, more than 30 per cent, and in some cases more than half, of the economy was devoted to military expenditure. Yet today we have a delusionary public discussion about how spending half or one per cent on the problem is too much!

We need to be prepared to make that level of commitment again if it is necessary to save most humans and species from a global warming apocalypse. Shifting to a war-type economy will require us to live better by consuming less as we rebuild a sustainable society. We can't drill and burn our way out of the current crisis. But, working together, we can invest and invent our way out.

We can only play this game once

If politicians cannot lead, then we all must, in building a movement across society that uses the brutal reality of our position to advocate and inspire the nation to take transformative action. We can only play this game once. If we don't do enough, or at sufficient pace, in building a post-carbon economy, the climate system will get away from our capacity to correct it. Trial and error climate policy is not an option. Waiting for the market is not an option. The Arctic is our Pearl Harbour.

And the impacts will be global and overwhelming. For example, the scientifically-conservative 2007 Intergovernmental Panel on Climate Change (IPCC) report said that the Himalayan glaciers might be gone by mid-century. One-sixth of the Earth's population relies on the melting of glaciers and seasonal snow packs for water, yet Labor's unofficial target of three degrees is consistent with their destruction.

A billion people will lose their water supplies if Himalayan glaciers are lost

Taken together with those on the neighbouring Tibetan plateau, the Himalayan-Hindu Kush glaciers represent the largest body of ice on the planet outside the polar regions, feeding Asia's great river systems, including the Indus, Ganges, Brahmaputra, Salween, Mekong, Yangtze and Huang He.

The basins of these rivers are home to over a billion people from Pakistan to China. The Himalayas supply as much as 70 per cent of the summer flow in the Ganges and 50–60 per cent of the dry-season flow in other major rivers. In China, 23 per cent of the population lives in the western regions, where glacial melt provides the principal dry season water source.

The implications of the loss of the Himalayan ice sheet are global and mind-numbing, but such a calamity rarely rates a mention in Australia.

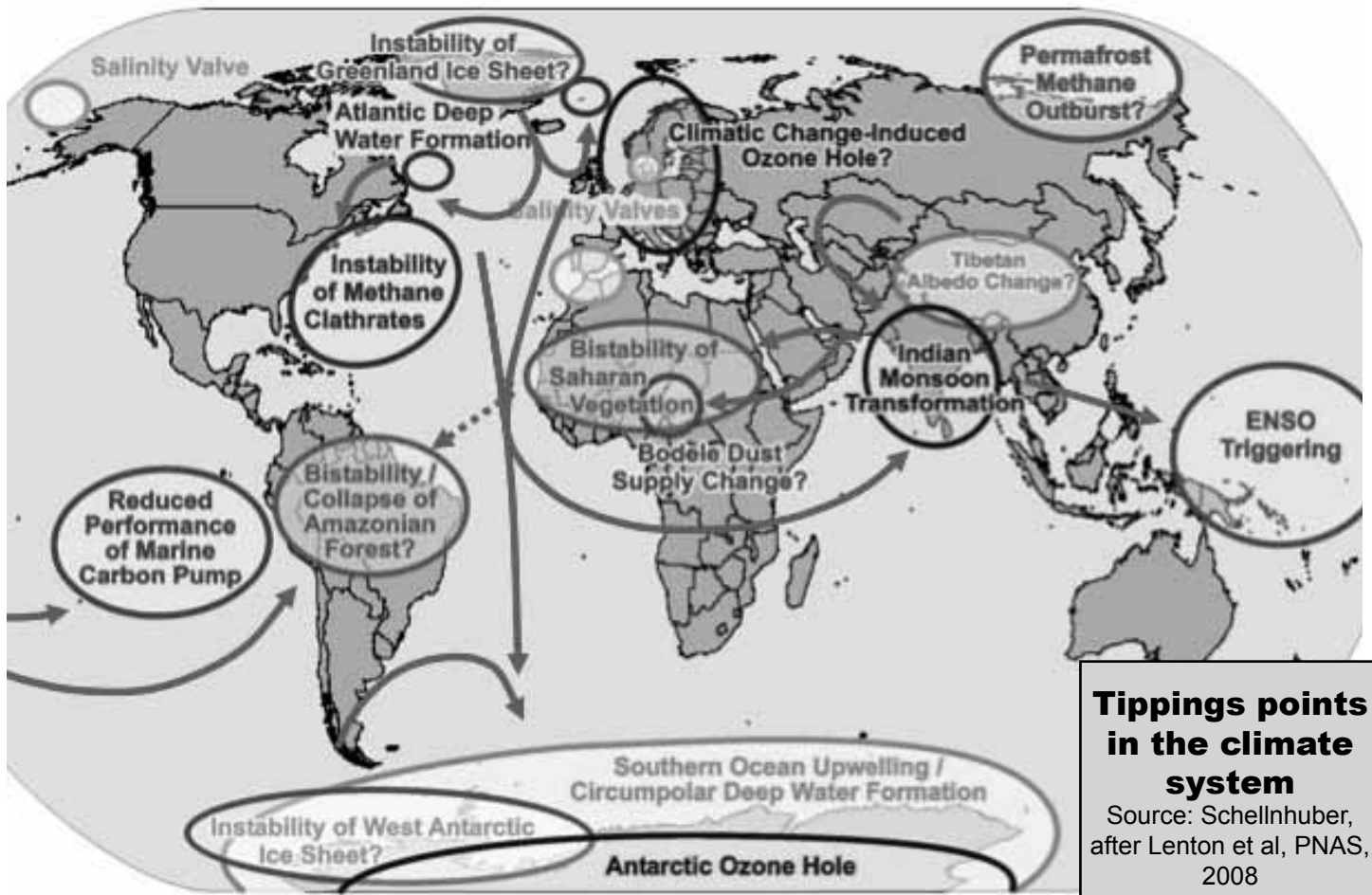
Do our politicians understand how global warming impacts in the Himalayas will unravel the lives of a billion people? In their letter to Garnaut, the grassroots climate groups asked: "What are our values here? Should we 'wait and see' if the whole world will act, before we do? Or should we take the only possible moral course and do what we need to do now, without waiting, because if other nations were to act similarly it may be possible to stop those billion people facing a catastrophe beyond words?"

We simply cannot wait and see

"We cannot wait, as one of the world's highest per capita emitters, we have a greater responsibility to lead, in proportion to our responsibility for the problem... Playing a game of 'blink' with the international community when the stakes are the survival of most people and species is clearly indefensible. If all nations know that we all have to take drastic action, then the first and best choice is for all nations is to act unilaterally, because we can and must. We do not have to wait for an international agreement. To decide not to act with urgency now is to choose failure. In so doing, bold leadership would replace the pervasive failure on climate in Australian politics."

Sir Nicholas Stern said that climate impacts were likely to be greater than the two world wars and the Depression put together, and that's on the light side. When profligacy wrecked the global finance markets in 2008, governments and central banks readily stumped up more than a trillion dollars to "bail out" the economy. But when profligate human carbon emissions threaten the planet, such a rescue plan is not even the subject of serious conversation.

Perhaps we may take solace in the thought that when global capital, at whose behest most government rule, understand the new climate realism and conclude that they can't build an economy on a dying planet, then those who have sat on their hands at the global negotiating tables will miraculously find the political will to plan and build a zero-emissions economy at great speed. Our role is to lead people across this nation to understand that the transformation to a sustainable society, and rebuilding our economy, is now an emergency.



Tipping points in the climate system
 Source: Schellnhuber, after Lenton et al, PNAS, 2008

net resources

CLIMATE SCIENCE

- Nature Reports Climate Change www.nature.com/climate
- New Scientist www.newscientist.com/topic/climate-change
- Real Climate realclimate.org
- NSIDC nsidc.org/arcticseaicenews
- James Hansen www.columbia.edu/~jeh1
- History of climate science www.aip.org/history/climate

CLIMATE NEWS

- The Daily Climate www.dailyclimate.org
- Eco Earth www.ecoearth.info
- Environment News Network www.enn.com
- Guardian www.guardian.co.uk/environment/climatechange

COMMENTARY

- Barry Brook bravenewclimate.com
- George Monbiot www.monbiot.com/archives/category/climate-change
- Gristmill www.grist.org/topic/climate
- Climate Progress climateprogress.org
- Coal Swarm coalswarm.typepad.com/coalswarm/

SAFE CLIMATE

- Climate Safety report www.climatesafety.org

AUSTRALIA

- Climate Movement www.climatemovement.org.au
- Climate Emergency Network www.climateemergencynetwork.org
- Carbon Equity www.carbonequity.info
- Friends of the Earth www.foe.org.au/climate-justice
- Greenpeace www.greenpeace.org/australia/issues/climate-change
- Australian Youth Climate Coalition www.aycc.org.au

what they said

To achieve this [a 2C target] would require cuts of 6% per year starting in 2010.

Professor Martin Parry, Imperial College London and IPCC lead author: [yes, 2C is too high a target, but even this requires very high year-on-year emission cuts!!]
www.independent.co.uk/environment/climate-change/what-can-we-do-to-save-our-planet-1221097.html

"We've reached a point where we have a crisis, an emergency, but people don't know that. ...There's a big gap between what's understood about global warming by the scientific community and what is known by the public and policymakers."

NASA climate science chief, James Hansen, 22 November 2008

"I am one of those who believes that any reasonably comprehensive and up-to-date look at the evidence makes clear that civilization has already generated dangerous anthropogenic interference in the climate system,"

John P. Holdren, an energy and environment expert at Harvard and president of the American Association for the Advancement of Science, science advisor to US President

Professor John Schellnhuber, director of the Potsdam Institute for Climate Impact Research in Germany, told the Guardian that only a return to pre-industrial levels of CO2 would be enough to guarantee a safe future for the planet.....He said even a small increase in temperature could trigger one of several climatic tipping points, such as methane released from melting permafrost, and bring much more severe global warming. "It is a very sweeping argument, but nobody can say for sure that 330ppm is safe," he said. "Perhaps it will not matter whether we have 270ppm or 320ppm, but operating well outside the [historic] realm of carbon dioxide concentrations is risky as long as we have not fully understood the relevant feedback mechanisms.

<http://www.guardian.co.uk/environment/2008/sep/15/climatechange.carbonemissions>

"We are on our way to a destabilization of the world climate that has advanced much further than most people or their governments realize."

Professor John Schellnhuber

<http://www.dw-world.de/dw/article/0,,3907790,00.html>

