

The courage to set ambitious goals

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‘I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to Earth’ said President John Kennedy in his speech to a joint session of the US Congress in 1961.

Setting goals is part of leadership. They are used to guide, coordinate, collaborate and inspire. They can create a common purpose, help set priorities and measure progress. They are fundamental to any plan. They can be applied at any scale from the world and to the individual (e.g. ‘When you think about what you want to achieve for yourself in life and set goals towards achieving them, you will become more self-motivated and positive minded.’)

But goals can also be used to define failure. Setting ambitious goals is not for the faint-hearted.

In this chapter we explore how goals have been used to manage climate change. What is their role? What are they? Who sets them? Are they useful? Who is responsible for achieving them? Are they being achieved? We focus on Australia, but in a worldwide context.

The nature of goals

If an objective is what you hope to achieve, a goal is an indicator to determine whether you have achieved your objective. A target is an indicator to determine how successfully you are

achieving your objective. These definitions are not used consistently. We will talk about both goals and targets.

Goals for nature

Environmental goals relate to the interaction between physical systems and the human condition. They often have to take into account substantial distances between causes and their effects, substantial lags in time between the causes and effects, and considerable uncertainty. They are guided therefore by the precautionary principle that, when serious or irreversible environmental damage may occur, a lack of full scientific knowledge about the situation should not delay remedial steps. This relates to such issues as the conservation of biodiversity, protection of air and water quality, salinisation of land and water — and climate change.

Of particular relevance to the subsequent management of climate change was the Montreal Protocol. Agreed upon in 1987, only 14 years since the basic scientific research discovery in 1973, its goal was ‘to protect the ozone layer by phasing out the production of substances responsible for its depletion’. It was the first treaty in the history of the United Nations (UN) to be universally ratified. Successive revisions have taken into account advances in scientific understanding. The Kigali Amendment in 2019 dealt with chemicals that had replaced the ozone-depleting substance but had a high global warming potential.

Climate goals

Goals applying specifically to climate change began to be formulated in the 1980s. Over time they evolved with respect to

timelines, scope and scale, and in response to understanding and intent. They have had to take into account the dispersed and varied sources of greenhouse gases, those emissions for which people are responsible and can control, their impact on the climate, and the duration of their effects. Overriding all else is the global scale and associated complexity of the world's climate systems. Any climate goal at any scale in any part of the world should ultimately relate to the goal for the whole globe.

Toronto Target

Scientific concern about global warming over the past century culminated in the first World Climate Conference of scientists in Geneva in 1979. This was followed by the Meeting of Experts in Villach, Austria in 1985, then the first joint meeting of scientists and policy specialists in Toronto, Canada in 1988. That meeting recommended that developed countries should cut greenhouse gas emissions by 20% of their 1988 levels by 2005. This was intended to set the world on track to stabilise atmospheric concentrations of greenhouse gases by the year 2050 and to limit global warming to about 0.1 degree centigrade per decade.

UN Framework Convention

Later that year the World Meteorological Organisation and the United Nations Environment Program, with the endorsement of the UN General Assembly, established the Intergovernmental Panel on Climate Change (IPCC). Its role is to provide policy-makers with regular scientific assessments on the current state of knowledge about climate change. It has since delivered five assessment reports.

In 1992, at the UN Conference on Environment and Development, in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) was adopted. It entered into force in 1994. The 197 parties to the Framework included all UN members and the European Union. Its goal was:

to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

The Convention divided nations into developed and developing and emphasised their ‘common but differentiated’ responsibilities. Industrialised countries were to take the lead.

Australian scientists were among the early leaders in investigating the science of induced climate change. One output was a comprehensive CSIRO report in 1988, ‘Planning for Climate Change’.¹

The Victorian Government was the first to act. In 1990 it released its ‘Greenhouse: Statement of Action’ in which it adopted the Toronto Target. In 1992, immediately after the global agreement to the UNFCCC, the Council of Australian Governments (COAG) endorsed Australia’s first and only nationwide climate change strategy. The goal of that National Greenhouse Response Strategy was ‘to contribute towards effective global action to limit greenhouse gas emissions and

enhance greenhouse gas sinks' (Commonwealth of Australia, 1992).² Again, the Toronto Target was adopted as the interim planning target. This time there was a caveat. It was 'subject to Australia not implementing response measures that would have net adverse economic impacts nationally or on Australia's trade competitiveness, in the absence of similar action by major greenhouse gas producing countries'. COAG then included not only the Australian, state and territory governments, but also local governments, represented by the Australian Local Government Association.

Australia's emissions did drop initially but from 1995 rose until they peaked in 2006, 18% above the 1988 level.

Kyoto Protocol

In 1997, quantified national targets were systematically introduced with the adoption of the Kyoto Protocol. This was the first step towards achieving atmospheric stabilisation of greenhouse gases under the UNFCCC. The 'top-down' approach was influenced by the success of the Montreal Agreement. Industrialised nations were held to legally binding targets for reducing emissions of greenhouse gases. Others, including China and India, did not have binding targets. The United States was not a party to the Protocol, and Canada withdrew in 2012.

The final targets were the result of last-minute political compromise. They were based on targets already pledged by parties, information received on last-minute negotiating positions, and the goal of achieving the strongest possible environmental outcome.³

The intent was to reduce those countries' overall emissions by at least 5% below existing 1990 levels in the period 2008 to 2012. The emission limitations varied between parties. Some reduced below the base year, some stayed at the 1990 level, others had limits above the base year. The targets ranged from -8% to +10% of the countries' individual 1990 emission levels.

By then the Australian government had changed and the 1992 Strategy was considered to be ineffective. Under the Kyoto Protocol, the new government committed to limiting Australia's emissions to 8% above 1990 levels for the first commitment period. Thus began Australia's history of modest climate goals.

Many nations exceeded their emission targets during the first phase of the protocol, including Canada, Australia and New Zealand. The United Kingdom and Germany met their goals. Many Eastern European countries outstripped theirs, mainly because of a decrease in production due to the breakup of the Eastern Bloc. Countries like Australia that exceed their targets are eligible to count their over-achievement toward the second Kyoto Protocol commitment period if required. This is referred to as 'carryover'.

Cancun Agreement

Global emissions continued to increase, and by 2010 were 35% greater than 1990 levels. In 2007 China overtook the United States as the world's biggest emitter of greenhouse gases.⁴

The Kyoto Protocol was increasingly too limited in scope and membership. Systematic reduction in the emission of greenhouse gases was needed by all countries. Attempts to encourage universal participation were now underway.

In 2007, in the Washington Declaration, a group of major developed and developing countries agreed to support a global cap-and-trade system that would apply to both industrialised nations and developing countries.

The proposal to extend targets more broadly with legally binding obligations came to a head in 2009 at the Copenhagen Conference of Parties (COP) to the UNFCCC. It failed to gain adequate support.

However, at the same time, countries had been invited to submit voluntary emission reduction targets. Such an approach appeared likely to be the way of the future, with the widespread engagement of all countries and the flexibility to take into account their individual circumstances.

In 2010, at the Sixteenth Conference of Parties (COP) in Cancun, Mexico, 76 developed and developing countries submitted voluntary pledges to control emissions. They were responsible for 85% of annual global emissions.

By 2010 the emission of greenhouse gases in Australia was almost back to the 1990 level.

Under the Cancun Agreement the Australian government agreed to reduce Australia's emissions by 5% below 2000 levels by 2020. The 2020 target was consistent with Australia's target under the second commitment period of the Kyoto Protocol. This was specified as a reduction in emissions by 0.5% from 1990 levels over the period 2013–2020. Australia is expected to over-achieve this target without making use of carryover from the first commitment period.

At the same COP, all nations agreed to limit global warming to below 2 degrees relative to the pre-industrial level. The global goal now had a target. Furthermore, the scientific understand-

ing had progressed sufficiently to enable the conditions required to meet the target to be specified. It would require stabilisation of the atmospheric concentration of greenhouse gases at 450 parts per million. Emissions from industrialised countries would have to be 80–95% below 1990 levels by 2050. For other countries, emission would have to be substantially below business as usual by 2050.

In Australia in 2011 the Clean Energy Act was passed, setting a long-term goal of reducing emissions by 80% below 2000 levels by 2050. Much of the Act, including the goal, was repealed in 2013.

Meanwhile, the nations of the world were developing broader goals for a sustainable future. At the UN Conference on Sustainable Development in 2012 the theme was a Green Economy. It was agreed to establish UN Sustainable Development Goals for 2030. Seventeen such goals were agreed upon in 2015. Goal 13 was specifically on climate change and was relevant to most of the other goals. It focused on the need for urgent action and the implementation of the UNFCCC.

Paris Agreement

In 2015, almost every nation in the world committed itself, under the UN Paris Climate Agreement to the long-term goal ‘to limit the increase in global average temperature to well below 2 degrees centigrade above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees centigrade’. The global temperature had already increased by about 1 degree centigrade. As the likely damage from a further increase of one degree became better understood, the impor-

tance of containing any further increase to 0.5 degrees gained acceptance.

The long-term goal is supported by the aspiration in the Paris Agreement to ‘reach global peaking of greenhouse gas emissions as soon as possible and to reach net zero emissions in the second half of this century’. All nations thereby agreed that global emissions must not exceed the global uptake of greenhouse gases by well within the next 70 years. The future trajectory of emissions was starting to be defined. The intention to phase out almost all human-induced sources of emissions worldwide was signalled.

Under the Paris Agreement, nations set out their post-2020 climate action plans, including emissions reduction targets, through their Nationally Determined Contributions (NDCs). Of the 161 NDCs, covering about 99% of global emissions, 32% contained an absolute emissions reduction target, 45% pledged a reduction from business-as-usual levels, 4% promised a reduction in emissions intensity, and 2% promised a target year or time frame to peak emissions. Other forms of commitments were made in 21% of NDCs, including pledges to implement policies and actions.⁵

Australia’s emissions of greenhouse gases, having dropped in 2013 below the 1990 level, were starting to climb again.

The Australian government submitted to the UN its NDC target of reducing greenhouse gas emissions throughout the economy by 26–28% below 2005 levels by 2030. In 2016, the government ratified the UN Paris Agreement on Climate Change.

Where are we now?

Greenhouse gas concentrations are at record levels: 2019 was the second warmest year on record and the end of the warmest decade ever recorded.

Global greenhouse gas emissions are now more than 50% higher than in 1990. The rate of increase is slowing and total emissions are now decreasing marginally as a result of the effect of the pandemic on economic activity.

With respect to the Kyoto Protocol, by 2012 the aggregate emissions of the 37 industrialised countries that had reduction targets declined by more than 22% compared to 1990, well exceeding the target of 5%. By 2018 reductions had declined by 25%. The goals of the Protocol appear to have played an important part in the early steps towards a stable climate.⁶

However, many countries are not yet on track to meet their NDC pledges and will need to reduce their emission levels over the next decade. Australia is one of these.⁷

The two biggest emitters, China and the United States, together produce over 35% of global emissions. Emissions are decreasing in the United States but continuing to rise in China. Australia is the world's second largest emitter per capita and fourteenth largest emitter overall. We account for around 1% of global emissions. There are 176 countries individually responsible for producing less emissions than Australia. Together they account for about 33% of global emissions. The share of emissions from this group of countries is greater than any individual country, highlighting the importance of countries with relatively small emissions taking action in support of the Paris Agreement.⁸

In Australia, 2019 was the warmest and driest year on record.⁹

Actions to tackle climate change are underway throughout Australia in all levels of government and all sectors of the economy.¹⁰ They have not yet put Australia's emissions on a clear downward trajectory. Over the last four years there has been an increase in emissions in most sectors, particularly transport, direct combustion and gas developments. A decrease in emissions from electricity, achieved through increased uptake of renewable energy and reduced coal-fired generation, and the short-term effects of the drought on agriculture have offset some of this. Emissions reductions realised since have mostly been due to lower emissions from the land sector.¹¹

The Australian government's 2019 emissions projections show Australia's emissions falling by only 16% below 2005 levels by 2030, based on existing emission reduction policies and measures.¹² Emissions are expected to decrease in the electricity, industrial processes and waste categories and increase in other categories

Future goals — aiming for net zero

Under the Paris Agreement, the NDCs are to be reviewed and updated every five years, with the ambition of targets expected to increase over time to a level consistent with the Agreement's goals.

But time is running out. Collectively, the initial pledged responses, even if they were all to achieve their goals, would not meet the level of ambition required. They are expected to limit global warming only to 3.2 degrees centigrade by 2100.¹³

The task is becoming much more urgent. In 2018 the IPCC confirmed that net zero would need to be achieved by around 2070 to have a chance of meeting the 2 degrees centigrade goal. To limit warming to 1.5 degrees centigrade, net zero should be achieved by 2050.¹⁴

Major increases in the ambition of NDC pledges will therefore be required. The UN Secretary General sought the submission of revised targets and plans in anticipation of the 2020 deadline for their formal submission defined in the Paris Agreement. He pleaded for a 45% reduction by 2030 and net zero by 2050.

By mid-2020, as part of the UN's Climate Ambition Alliance, 120 countries had made the commitment to achieve net zero emissions by 2050 at the latest. In some cases, such as the United Kingdom, France, Germany, New Zealand and the European Union, this goal is underpinned by legislation. The top emitter, China, is now aiming to reach net zero by 2060. The other countries with the biggest emissions, the United States, India and the Russian Federation, have not yet made the commitment. The pandemic has delayed until 2021 the next COP at which the results are to be considered.

Unlike the preceding Kyoto Protocol, the Paris Agreement makes provision for and encourages actions of entities that are not national governments, including subnational or local governments and private entities. These are proving to be an important part of the global response to the Paris Agreement, particularly where national commitment is wavering. In the United States, 25 state governors have joined the United States Climate Alliance to reduce greenhouse gas emissions consis-

tent with the goals of the Paris Agreement.¹⁵ California, the fifth largest economy in the world, has set 2045 as the date to achieve net zero. The Global Covenant of Mayors for Climate and Energy is a network of 7,500 local governments that have committed to taking action on climate change. By mid-2020, 449 cities and 21 regions had agreed to the goal of net zero by 2050.¹⁶

In the private sector, global firms are increasingly taking into account the impacts that climate change will have on their operations, suppliers and customers, and many are responding directly to the Paris Agreement. Under the Science Based Targets Initiative, organisations commit to reducing emissions to net zero at a rate consistent with the goals of the Paris Agreement. By mid 2020, 992 businesses and 38 of the 'biggest investors' had joined the Climate Ambition Alliance. The Alliance then covered about half the global Gross Domestic Product and a quarter of global emissions of greenhouse gases.¹⁷

In Australia, in 2008, the Garnaut Climate Change Review recommended a 25% reduction in emissions from the 2000 level by 2020, and 80–90% reduction by 2050.¹⁸ In 2014 the Climate Change Authority recommended that Australia should be responsible for 0.97% of the total available global budget for the emission of greenhouse gases. This could be achieved by reaching 45% of the 2005 level by 2030 and net zero by 2050.¹⁹ These correspond to the targets which, six years later, the UN Secretary General urged all developed countries to adopt.

The current Australian government has not yet set a date by which the nation is to reach net zero emissions. Neither does it intend to enhance the current, 10-year target of a reduction of

26–28% of the 2005 level by 2030. If this target were to be met and the reduction in emissions were to continue at the same rate, Australia’s emissions would reach zero just before the end of the century.

However, a substantial proportion of state and local governments, statutory authorities and private companies are much more ambitious. All states and territories have set net zero by 2050 as a target, as have the cities of Melbourne, Adelaide, Sydney and Canberra. An increasing number of local governments have declared a ‘climate emergency’. Of the wide range of public and private organisations surveyed by ClimateWorks’ Net Zero Momentum Tracker, 17% are committed to net zero by 2050 and 43% are reducing emissions but not yet in line with net zero by 2050.

Associated goals

Goals for a variety of initiatives have been established that support, intentionally or incidentally, the goals relating to the reduction in greenhouse gas emissions. Many countries have policies and goals for the development of renewable energy, some have set timelines for the replacement of vehicles using fossil fuels by those using electricity, and many have targets and associated standards for improving energy efficiency. There are goals for minimising waste, for reducing deforestation, and for achieving reforestation.

In Australia, the Renewable Energy Target was established in 2001 and has successfully helped provide incentives for the development of renewable energy throughout the nation. The National Energy Productivity Plan of 2015 aimed for a 40% improvement by 2030. All states and territories, except New

South Wales and Western Australia, have renewable energy targets. All except the Northern Territory have policies to reduce emissions from transport (Climate Change Authority, 2020).²⁰

Can we get there? Pathway to net zero

Setting a goal is the start of a journey. We need to know where we are going before working out how to get there. However, a goal without a plan of how to reach it 'is just a wish'.

Therefore, in addition to their NDCs, each signatory to the Paris Agreement is expected to develop a long-term, low greenhouse gas emissions development strategy, and to communicate it to the international community by 2020. Such strategies have already been submitted by seventeen countries and by the European Union.

A planning horizon of 30 years may seem long. However the UN's Sustainable Development Solutions Network has argued that a shorter time would be inadequate. It could lock in 'bridging' approaches, such as overreliance on natural gas, leaving insufficient prospects for reaching deep decarbonisation by 2050. Short-term policy measures need to be nested in long-term pathways.²¹

While the goal of net zero by 2050 is being widely adopted by the public and private sectors the path to it must take into account the available budget of greenhouse gas emissions. The trajectory matters. Intermediate targets must be set accordingly. There is only a limited quantity of greenhouse gases that can still be emitted if the goals of the Paris Agreement are to be met. The slower it takes to reduce the emissions the faster must be the final plunge to net zero.

The goal of net zero implies that there is an ability to offset those emissions that cannot be eliminated. Like the European Union, entities at all levels are concluding that, with existing technology, reducing emissions to zero does not yet appear feasible. Offsetting will be necessary. A challenge will be to provide enough offsetting capacity worldwide and for sufficient time to meet this expectation.

It is also likely that, ultimately, net zero will not be an adequate goal. As the concentration of greenhouse gases continues to grow there may be a need not only just to balance their input and output but also to remove artificially those gases from the atmosphere such that the rate of removal exceeds the emission rate.²²

The Australian government does not yet have a long-term plan. It recently announced a Technology Investment Roadmap. However, such plans are being developed by state and local governments and private organisations. An example is the recent analysis by ClimateWorks that showed how net zero could be reached for Australia within the available carbon budget using existing technology but also benefitting from further technological developments.²³

How will the pathways be resourced to the extent and within the time that the climate emergency now requires? Under the Paris Agreement, nations have agreed to help those most in need to build capacity and develop resilience. As strongly advocated by the UN, International Energy Agency, International Monetary Fund, central banks and many others, the recovery from the current pandemic could present a remarkable opportunity to finance the transition to a low carbon world.

Conclusion

We have run out of time to achieve the goal of the UNFCCC and prevent damaging climate change. We are running out of time to achieve the goal of the UN Paris Climate Agreement and avoid catastrophic change.

The last 30 years have seen the emergence of climate goals at all levels. Initially aimed at putting the world on the right track, they became more and more specific as emissions continued to rise and the curve failed to flatten. They now reflect a global emergency. Instead of a gentle downward slope to net zero emissions over the decades we have climbed to a point from which the necessary path down is precipitous.

Over those three decades, as all nations met and negotiated at the 25 Conferences of Parties to the UNFCCC, the world changed remarkably. The global population rose by 40%, the Cold War ended, the Eastern Bloc dissolved and the member states of the European Union almost doubled, regional wars took place, terrorism spread, the internet emerged, digital communication exploded, and China's economy grew to become the world's second largest. And now a pandemic is with us. International negotiations on climate change have been slow and success has been incremental. Yet, in this endeavour, the world has been remarkably united and persistent.

In Australia, the current commitment to goals suggests that the drive in the immediate future will come from state and local governments, and private organisations. Will they now merge into an inclusive, nationwide approach?²⁴

Within the next 30 years every nation must reach the goal of net zero emissions.

As President Kennedy went on to say in his speech to Congress: ‘We have never made the national decisions or marshalled the national resources required for such leadership. We have never specified long-range goals or an urgent time schedule or managed our resources and our time so as to ensure their fulfillment.’

This is the ongoing challenge for many parts of the world as we grapple to control a changing climate.

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