



Australian Government
Climate Change Authority

INTERNATIONAL CLIMATE ACTION— PRIORITIES FOR THE NEXT AGREEMENT RESEARCH PAPER

JUNE
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CLIMATE
CHANGE
AUTHORITY

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SUMMARY

Strong international action to reduce emissions is in every country's interest, including Australia's. This action will reduce the risks and likely impacts of climate change.

Countries' efforts to cut greenhouse gas emissions will be influenced, at least in part, by the shape of international agreements on climate change. Domestic climate action and global progress can be mutually supportive. As countries introduce effective policies, they become more willing to sign up to global agreements. At the same time, progress in global negotiations can encourage countries to introduce more policies domestically.

The international community is now negotiating a post-2020 framework for global climate action. All international negotiations are difficult: no 'quick fix' treaties or other outcomes are likely within or outside the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC is likely to remain the central focus of international cooperation for the time being, although the activities of other groups can be expected to play an important role in supporting international action.

This paper explores those elements of a post-2020 framework consistent with reducing global emissions to levels consistent with keeping global average warming below 2 degrees (relative to pre-industrial levels). It examines some of the implications the post-2020 framework will have for Australia, against the background of the Authority's recent Targets and Progress Review (Climate Change Authority 2014).

THE POST-2020 FRAMEWORK

The key parts of the post-2020 framework are planned to be agreed in Paris at the end of 2015 (the 'Paris outcome'). Even a successful 'outcome' will not mark the end of the international process—by its nature, international cooperation on climate change will be an ongoing endeavour. The best measure of the success of the Paris meeting will be the extent to which it encourages and inspires stronger national action to reduce emissions through time.

One thing the Paris meeting will *not* deliver is a universal, prescriptive, enforcement-oriented legal agreement, similar in form to the existing Kyoto Protocol. For one thing, such an outcome is not achievable in the short term. Insisting on it would likely be counterproductive, and lead to more modest global action. The value of the Paris outcome will be its effect on emissions and efforts over time, not its particular legal form.

The post-2020 framework will be constructed from several building blocks, including mitigation, adaptation, finance and equity. This paper considers only the blocks most relevant to reducing each country's emissions. The final shape of the framework will involve compromises among countries and across issues. Progress on the mitigation elements discussed in this paper is likely to depend on progress in other areas.

KEY ELEMENTS OF THE POST-2020 FRAMEWORK

The paper focuses on six elements directly related to reducing emissions:

- collective goals
- emissions reduction targets
- tracking emissions and progress
- international emissions markets
- assessing collective and individual efforts
- the legal form of the agreement and its parts.

Table 1 summarises the Authority's conclusions on each of these elements; together, they could add up to an effective framework.

The different elements interact with one another and the overall impact on emissions reductions will be influenced by the outcome on each. In the Authority's view, an effective post-2020 framework will have several interrelated themes:

- Sharing best practices and motivating countries to undertake domestic actions. Past international climate negotiations have been framed around cost- and burden-sharing. By providing a forum to promote the positive aspects of emissions reductions and their broader benefits, the post-2020 framework could help to deliver greater action.
- Facilitating greater participation by all countries, and particularly the major emitting countries, to reduce emissions.
- Providing confidence in implementing domestic policies and national targets that aim for longer term decarbonisation.
- Increasing transparency about emissions and assessing emissions reductions (both collectively and individually) to understand how the world is tracking towards its collective goals.
- Regularly assessing shared objectives against the latest science, progress (or lack thereof) that has been made and what more might be done, both individually and collectively. Such assessments can help ratchet up countries' efforts over time.

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TABLE 1: SUMMARY OF CONCLUSIONS ON POST-2020 FRAMEWORK

ELEMENT AND WHY IT MATTERS	PRIORITIES FOR PROGRESS—CORE PARIS DECISIONS	FURTHER ELABORATION IN PARIS OR LATER
Collective goal —defines the scale of required effort and allows progress to be tracked transparently.	Maintain the collective goal to keep warming below 2 degrees.	Strengthen, clarify or add to the 2 degrees goal (for example, by defining global emissions budgets, trajectories or low emission growth goals). Integrate the goal into the operative parts of the post-2020 framework such as the assessment of national targets.
Emissions reduction targets —provide clarity on emissions reductions, encouraging further efforts.	Agree that all major emitting countries put forward nationally determined targets and information that allows for clear comparison with others' efforts.	Encourage national targets in the form of emissions budgets. Encourage clarity and comparability of targets with common target formats and reporting rules. Promote both short target periods (five years) and long-term national goals, with regular reviews.
Tracking emissions and progress —allows comparisons of what countries are doing, promotes accountability and helps countries to share experiences.	Agree a common framework will be applied post-2020.	Build on current UNFCCC reporting systems such as common templates. Countries provide more detailed and frequent information on emissions, policies and projections. Establish forums to share best practices of climate action, policy experience and expertise.
International emissions markets —a potentially important way to boost effort by reducing the cost of meeting targets, generating benefits for countries selling units, and building capacity to monitor emissions.	Clarify that international trade in emissions is recognise existing principles for trade and agree that, where trade is used, it will be transparently reported.	Build on reporting arrangements and existing architecture to track of emissions units. Enhance existing market institutions and develop new market mechanisms and build capacity to use markets well.
Assessing collective and individual efforts —can encourage emissions reductions by increasing transparency and building pressure on countries to strengthen efforts over time.	Continue regular reviews of collective effort, similar to the existing UNFCCC 2013-15 Review. Encourage countries to review and ratchet up efforts over time.	Set up a collective goal assessment process. Develop transparent international expert and peer review over time.
Legal form —legally binding agreements help to elevate the agreement's status and its impact on the behaviour of governments, but are initially difficult to reach.	A package of agreements, some binding and some non-binding, might encourage countries to submit and meet targets.	Building towards internationally binding agreements to implement targets and/or emissions reductions plans domestically.

IMPLICATIONS FOR AUSTRALIA

Australia has a strong interest in a successful outcome to the current negotiations. Collective emissions reductions are the only way to reduce climate impacts that would otherwise harm Australia's economy, population and environment. Negotiating a post-2020 framework is a collective process to support emissions reductions around the world, and the approach it takes to the negotiations will determine whether Australia's influence is positive or negative at this critical time.

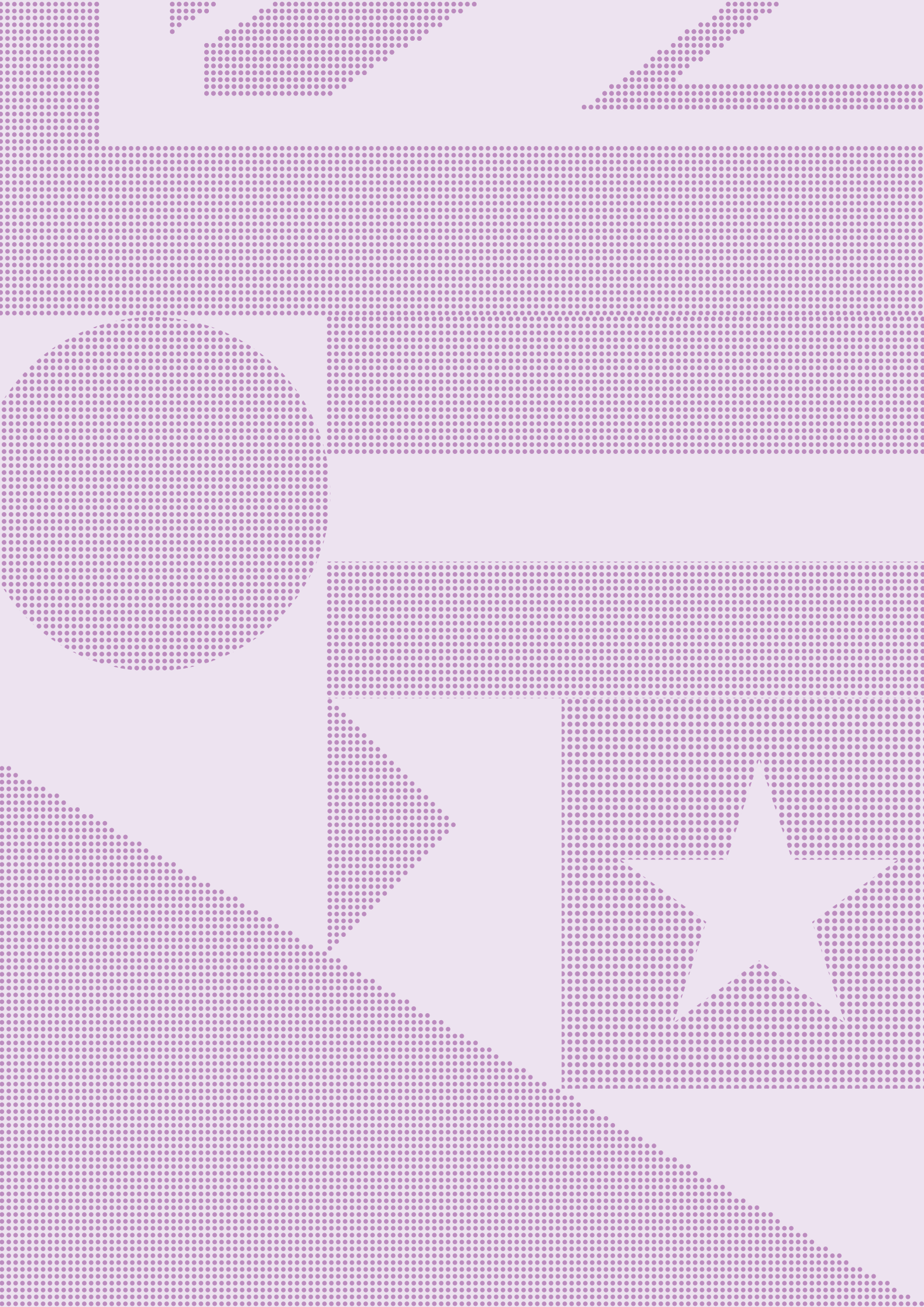
Australia will advance its post-2020 goals in 2015 (Department of the Environment 2014). A decision in Warsaw in 2013 invited all countries to communicate their post-2020 contributions before the Paris meeting, and by the first quarter of 2015 for those countries ready to do so. As a wealthy, developed country—and a high emitter in per-person terms—Australia will be expected to put forward a transparent and equitable unconditional target. The transparency and credibility of any Australian target would be improved by explaining how it contributes to the 2 degree goal.

More generally, a positive lead by Australia would not only be in line with the national interest but also enhance Australia's influence in crafting a fair and responsible post-2020 framework. Much clearly depends on the stance Australia adopts in the Paris process.

Finally, targets, on their own, will not reduce emissions. Like all countries, Australia will need to implement strong policies to back its international commitments. Visible, lasting and effective policy action from all countries will be central to building the credibility of the emerging framework and strengthen global efforts over time.

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1

INTRODUCTION

Climate change poses serious risks to Australia's community, economy and environment. Strong and effective global climate action will reduce these risks. The scale and pace of global action also has implications for Australia's own climate efforts, the cost of emission reduction technologies and the demand for emissions-intensive exports.

The international community is negotiating a framework to support greater global emissions reductions beyond 2020, with key elements planned to be agreed in Paris at the end of 2015. This is the next major step but not the end of international negotiations on climate change which will be an ongoing endeavour.

National actions and international cooperation can be mutually supportive and reinforcing. As countries more actively pursue policies domestically, they are likely to become more willing to participate in international agreements. At the same time, advances in global negotiations can provide insights for—and bring pressure to bear on—individual countries to do more domestically.

This paper discusses some of the key elements of the Paris meeting and the broader post-2020 framework and their implications for Australia.

The primary forum for discussing international cooperation on climate change is the United Nations Framework Convention on Climate Change (UNFCCC). Countries have agreed that greater international action is needed and negotiations are continuing to help develop a framework for effective global action. A key staging post in this process will be the Paris meeting in 2015, where countries will be expected to agree on a framework for action beyond 2020. The collection of agreements made in Paris ('the Paris outcome') is likely to identify broad parameters, with some details to be settled through later negotiations.

Any large-scale cooperative effort is a difficult, iterative and evolutionary process. Given the number of countries involved, and their disparate interests, international cooperation on climate change is a particularly challenging task. The measure of success of the Paris meeting and later negotiations will be their ability to build momentum for emissions reductions at both a national and global level.

This paper canvasses key elements of the post-2020 framework that will support global emissions reductions in line with the goal of keeping global average warming below 2 degrees (relative to pre-industrial levels). These elements are:

- collective goals
- emissions reduction targets
- tracking emissions and progress
- international emissions markets
- assessing collective and individual efforts
- the legal form of any agreement and its parts.

In all these areas there are tensions between the degree of prescription necessary to give meaning to any outcome, and the flexibility necessary to reflect the different circumstances (including stages of development) of participating countries.

The focus of this paper is on major emitting countries, whose policies are most critical to keeping warming below 2 degrees. The Authority views major emitting countries as those individually responsible for more than 1 per cent of the world's emissions. The 15 major emitting countries that meet this threshold account for more than three-quarters of current global emissions.¹ All countries, of course, have a real interest in avoiding the adverse impacts of climate change, and supporting and contributing to effective global action.

In 2011, countries agreed that the Paris negotiations would cover a number of topics—mitigation, adaptation, climate finance, technology development and transfer, capacity-building, and transparency of action and support. All of these elements are important, interrelated and central to the conclusion of a successful post-2020 climate agreement. Many are, however, beyond the scope of this paper. The Authority's primary focus here is on how the Paris outcome might support global emissions reductions through national actions.

The paper examines the context for the Paris meeting (Chapter 2), how the key elements of the post-2020 framework might be addressed in Paris and later negotiations (Chapter 3), and presents the Authority's conclusions (Chapter 4).

¹ The 15 countries are China, the United States, the EU bloc of 28 countries, India, Russia, Japan, Brazil, Indonesia, Iran, Canada, Mexico, Republic of Korea, Australia, South Africa and Saudi Arabia. Germany, Italy, France and the United Kingdom would count as major emitting countries in their own right if they were not included in the EU 28 total.

BOX 1.1: THE CLIMATE CHANGE AUTHORITY AND THE TARGETS AND PROGRESS REVIEW

The Climate Change Authority is an independent statutory authority, established to provide expert advice on Australian climate change policy. It has a broad remit to research climate change issues.

The Authority is chaired by Mr Bernie Fraser and comprises members with expertise in climate science, economics, business and public policy. Its work is guided by a set of principles under the *Climate Change Authority Act 2011* (Cth).

The Authority released *Reducing Australia's Greenhouse Gas Emissions—Targets and Progress Review, Final Report* in February 2014. Relevant insights from this report have been incorporated into this paper.

EMISSIONS BUDGETS

In the Targets and Progress Review, the Authority adopted an emissions budget approach to put Australia's emissions reduction goals for the short, medium and long term in a global context. An emissions budget is a cumulative emissions allowance over a period of time.

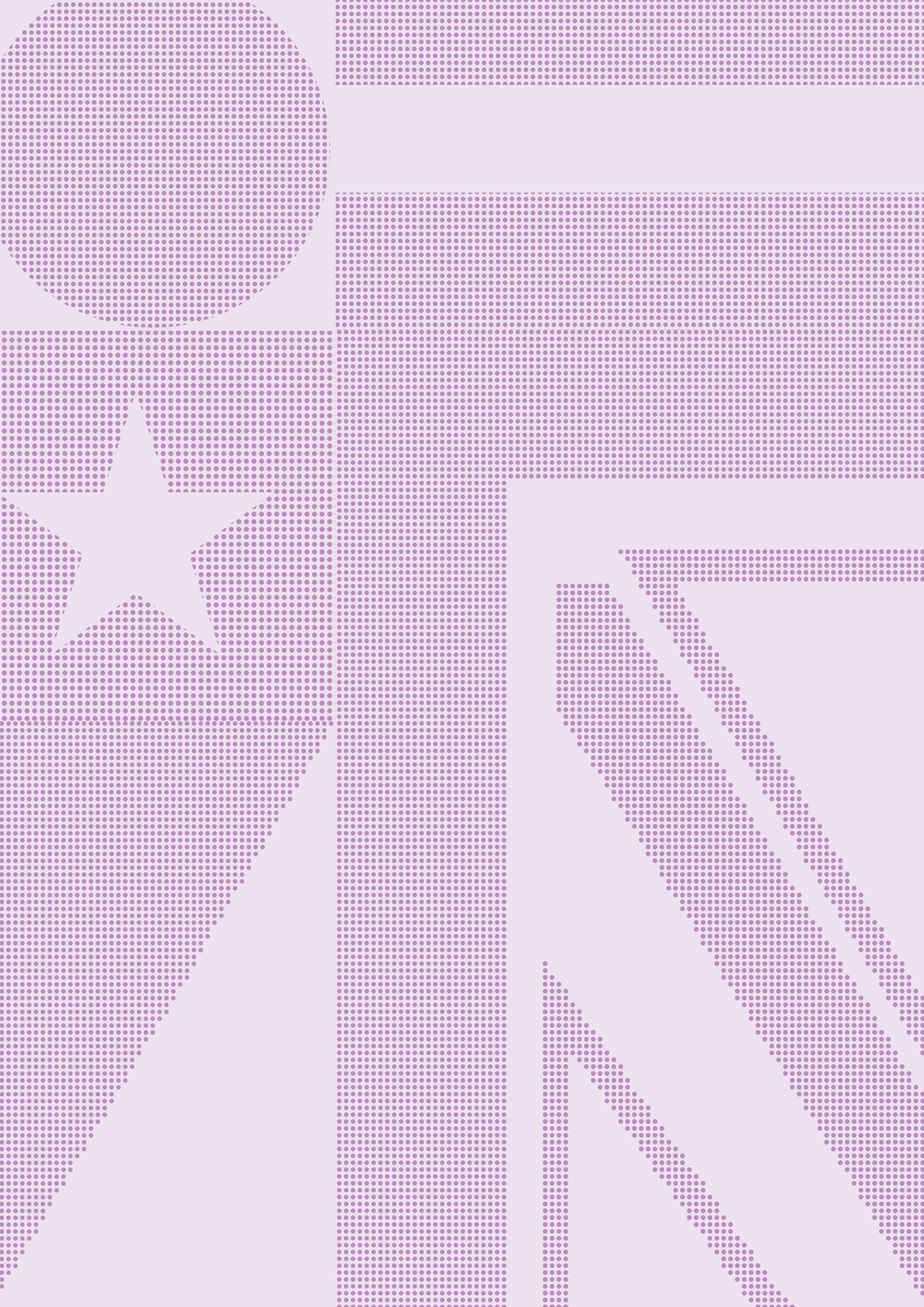
The Authority began with a global emissions budget that was estimated to provide a likely (67 per cent) chance of keeping warming below 2 degrees—a budget of 1,700 Gt CO₂-e over 2000–2050.

The Authority recommended Australia adopt a long-term national emissions budget, providing a framework for assessing the extent to which Australia was acting consistently with global goals, and highlighting the trade-offs between short- and long-term action. The Authority recommended that the long-term budget should be reviewed periodically and adjusted as appropriate.

The Authority concluded that an emissions budget of 10.1 Gt CO₂-e for the period 2013 to 2050 (or about 1 per cent of the remaining estimated global budget) would represent an equitable share for Australia.

Against this background, and having regard to developments in the science of climate change and what many other countries are doing, the Authority recommended that Australia:

- adopt a minimum 2020 target of 15 per cent below 2000 levels
- use Australia's carryover under the Kyoto Protocol to strengthen this minimum 2020 target by 4 percentage points, giving an effective target of 19 per cent reductions
- adopt, for guidance purposes, a trajectory range for emissions reductions of between 40 and 60 per cent below 2000 levels by 2030.



CONTEXT FOR THE POST-2020 FRAMEWORK

2

2.1 BACKGROUND

The Authority remains of the view that Australia and other countries should continue to pursue the internationally-agreed goal of keeping global average warming below 2 degrees. Achieving this goal is in Australia's interests, as it would avoid the worst climate impacts and could allow Australia to adapt to some of the expected changes.² This goal is still attainable but will require deep and sustained cuts in global emissions. The scale and pace of global action also has implications for Australia's own climate efforts, the cost of emission reduction technologies and the demand for emissions-intensive exports.

Global action has ebbed and flowed but momentum is now rebuilding around the world. Countries are recognising how reducing emissions advances their own national interests—for example, improving energy security and productivity, and reducing air pollution and the associated local environmental and health impacts from fossil fuel use. The International Energy Agency, which tracks policies around the world, records that over 1,200 policies are currently in force to reduce national emissions (IEA 2013).

Major emitting countries are acting and are announcing new initiatives. In China, investment in new coal-fired power stations has slowed, while investment in renewables and nuclear has accelerated. China has six pilot regional emissions trading schemes, covering more than 1,150 million tonnes of emissions—roughly double Australia's total emissions (World Bank 2014). Energy-related emissions in the United States are now about 10 per cent below their 2005 levels (US EIA 2014) and President Obama recently announced regulations which aim to cut electricity emissions to 30 per cent below 2005 levels by 2030 (US EPA 2014). This builds on the other regulatory measures the United States has introduced, such as vehicle emission standards.

It is against this background that a new international framework is being negotiated. Countries have agreed to conclude a new global climate agreement in 2015, which would come into effect from 2020. It is expected to apply to all UNFCCC Parties, including China, India, the United States and Australia. Principles of equity will remain important in determining its form and content, including the responsibility for all countries to act while recognising that countries' different capabilities allow for differentiated contributions (Winkler & Rajamani 2013).

2 These impacts were described in Chapter 2 of the Targets and Progress Review. See also Reisinger et al. 2014.

2.1.1 SUPPORTING DOMESTIC EMISSIONS REDUCTIONS

A global climate framework is important as it requires most countries, and particularly the major emitting countries, to reduce their emissions. An effective framework can encourage greater national action by providing:

- support for countries to boost their efforts—for example, providing a forum to share policy experiences, including in emissions markets and regulatory approaches
- shared goals and arrangements for measuring progress towards those goals
- evidence that other countries are acting and helping to dispel real or perceived competitiveness concerns
- improved international accountability for countries' actions within the terms and spirit of the agreed framework, including potential pressure on lagging countries to raise their efforts.

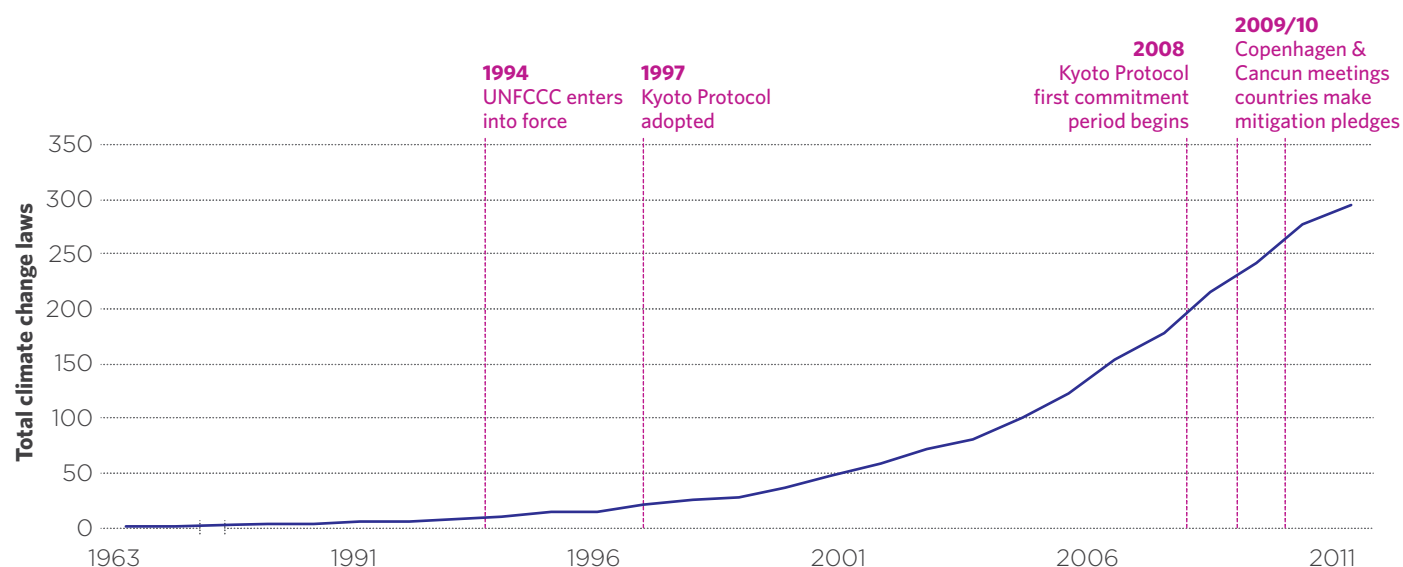
Domestic climate action and global progress can be mutually supportive. As countries introduce effective policies domestically and the benefits start to emerge, they might become more willing to support agreements that promote more action, and so on. Figure 2.1 illustrates some key international events and the steady rise of national climate legislation around these events.

2.1.2 TOP-DOWN AND BOTTOM-UP COOPERATION

Conceptually, the post-2020 framework could be built around a 'top-down' or 'bottom-up' model of international cooperation. The top-down model would involve nations agreeing to a centralised system of rules focused on achieving defined emissions targets. A bottom-up model would involve national, bilateral and regional policies with limited international oversight. Each approach has strengths and weaknesses but neither approach by itself has proved adequate in addressing climate change to date.

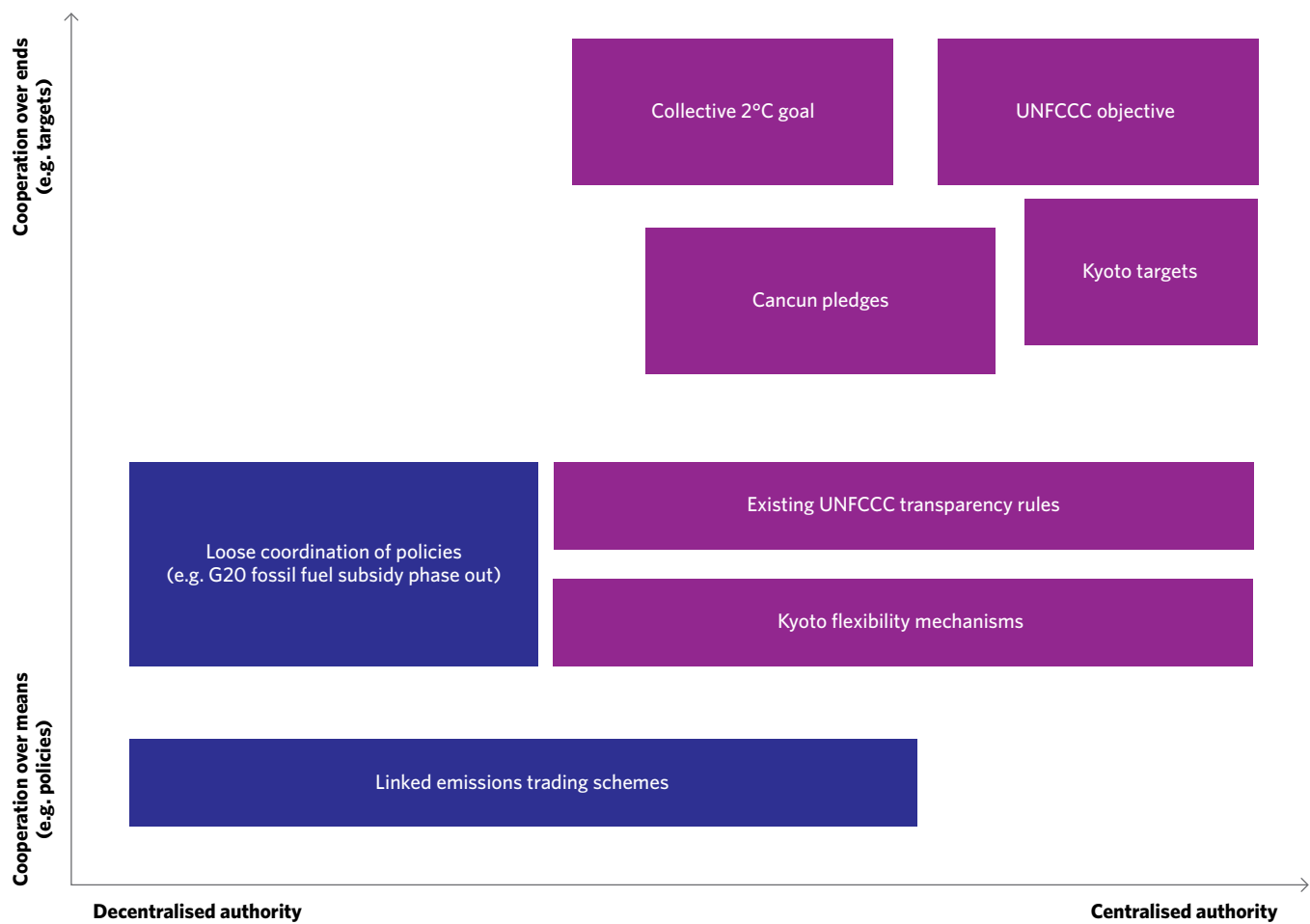
Figure 2.2 shows, for illustrative purposes, elements of the current international framework along a spectrum from centralised to decentralised authority and from cooperation on means to ends. The post-2020 framework is likely to be a hybrid of the top-down and bottom-up models. Nationally determined targets exemplify a decentralised approach to defining emission targets, but centralised elements of cooperation to monitor, report on and verify progress towards achieving targets are likely.

FIGURE 2.1: TOTAL CLIMATE CHANGE LAWS IN GLOBE COUNTRY STUDIES, 1963–2012, ALONGSIDE KEY INTERNATIONAL EVENTS



Source: Globe 2013 for country legislation, CCA analysis for international events. Given the complex causal links between domestic and international action, it illustrates a broad trend only.

FIGURE 2.2: MAPPING TOP-DOWN AND BOTTOM-UP APPROACHES TO INTERNATIONAL CLIMATE COOPERATION



Source: Based on Stavins et al. 2014.
Note: Purple shading shows initiatives within the UNFCCC, blue shading shows initiatives outside the UNFCCC.

2.2 PROCESS TO THE POST-2020 FRAMEWORK

Countries have agreed to finalise a new agreement at their meeting in Paris in December 2015; Figure 2.3 illustrates the planned timeline. Countries are invited to put forward their intended post-2020 national contributions by the first quarter of 2015.³ Ambitious national contributions, as well as increased pre-2020 efforts, would build trust and help secure a positive Paris outcome.

It remains to be seen how much progress can be made by the Paris meeting. Chapter 3 of this paper canvasses, in respect of key elements of the post-2020 framework, areas that might be agreed in Paris and others that are likely to require further elaboration and negotiation.

International negotiations are always difficult, and particularly so on a matter like climate change. Negotiations involve countries compromising some of their preferred outcomes to achieve progress in other areas. There are no ‘quick fixes’: negotiations will be complex and time consuming and probably pursued simultaneously in different fora. The UNFCCC is the main forum at this time, and remains the central focus of international cooperation on climate change. It has made progress over the years (see Box 2.1 and Chapter 3) and its work is being complemented, supported and extended by other global and regional groups.

2.2.1 AUSTRALIA’S INFLUENCE

In its Targets and Progress Review, the Authority argued that Australia’s policies on climate change would be watched closely by other countries and, at least at the margin, had the potential to influence policy-making in other countries. Of more consequence in the present context is the impact—for good or bad—which Australia’s current policy stance is likely to have on Australia’s involvement in developing the post-2020 framework. Acceptance of emissions reduction targets along the lines recommended recently by the Authority could be expected to have a positive influence, while pulling back from some commitments and falling behind what some other developed countries are doing would make it harder for Australia to play a constructive role.

FIGURE 2.3: INTERNATIONAL PROCESS TO DEFINE THE POST-2020 FRAMEWORK



³ The decision text agreed: ‘To invite all Parties to initiate or intensify domestic preparations for their intended nationally determined contributions, without prejudice to the legal nature of the contributions, in the context of [the Paris outcome] and to communicate them well in advance of the [Paris meeting] (by the first quarter of 2015 by those Parties ready to do so) in a manner that facilitates the clarity, transparency and understanding of the intended contributions, without prejudice to the legal nature of the contributions’ (1.CP/19, 2013).

BOX 2.1: EXISTING UNFCCC ARCHITECTURE

The UNFCCC entered into force in 1994. With 195 Parties, it has one of the most universal memberships of any international treaty and is currently the only international climate change forum with broad legitimacy. The treaty includes some binding and some non-binding elements; for example, it has binding commitments to develop greenhouse gas inventories but does not have binding quantified emissions goals.

UNFCCC has two groups of countries—developed countries (Annex I) and developing countries (commonly called non-Annex I). These groupings are relatively static given the political effort required to update them, so countries that were considered developing when it was agreed are still categorised in the same way today.

The Kyoto Protocol to the UNFCCC is a legally binding Protocol that was adopted in 1997 and came into force in 2005. It includes legally binding targets for Annex I Parties, expressed as a percentage of 1990 baseline emissions over the period 2008–12 ('first commitment period'). In 2012, amendments to the Kyoto Protocol were agreed to implement a 'second commitment period' for the period 2013–20. The Kyoto Protocol establishes specific binding obligations and includes penalties for non-compliance. It does not include any specific penalties or consequences for countries that withdraw.

In addition to the Kyoto Protocol, all countries were invited to bring forward pledges to reduce or limit their emissions in 2020 under the UNFCCC's Cancun Agreements. Ninety-nine countries have done so.

Other architecture in the UNFCCC includes:

- A collective goal of holding global average warming to below 2 degrees above pre-industrial levels. A review is considering whether this goal should be strengthened to 1.5 degrees.
- Data collection, reporting and transparency of countries' emissions. All countries have agreed to report their emissions on an annual or biennial basis. Annex I countries, including Australia, have more stringent requirements and least developed countries have fewer requirements.
- Global market mechanisms ('flexibility mechanisms') for trading emissions reductions, including the Clean Development Mechanism (CDM) and Joint Implementation mechanism. Participation in the CDM has facilitated technology transfer and helped some developing countries to build their domestic capacity to pursue effective climate action.

The UNFCCC is also developing mechanisms to reduce emissions from forestry activities in developing countries (REDD+), to support adaptation and prepare for the impacts of climate change, and to deliver financial and capacity-building measures to support developing countries' climate actions.

Architecture outside the UNFCCC also supports climate action. Examples are the Montreal Protocol on Substances that Deplete the Ozone Layer, which covers some greenhouse gases; the International Civil Aviation Organization and International Maritime Organization, which cover emissions from aviation and shipping; and the G20 and the Major Economies Forum on Energy and Climate (MEF), which discuss climate action at senior levels. Developments and discussion in these forums can promote progress in the UNFCCC, as well as supporting climate action directly (Weischer et al. 2012; Spencer & Hipwell 2013).

3

KEY ELEMENTS OF THE POST-2020 FRAMEWORK

The post-2020 framework is likely to be broad, striking a balance between countries' national interests on mitigation, adaptation, finance and other elements. This chapter focuses on six elements directly related to mitigation, explaining why each element matters and how they could be framed to increase emissions reduction efforts. Overall progress may be greater or less than discussed here. The key test of the framework's value is whether it helps reduce emissions and accelerate efforts over time. If different framing achieves that result, it should be judged a success.

The chapter presents tiered conclusions for each element, assessed as follows:

EXPLANATION OF CONCLUSIONS	
Paris 'outcome'	<i>Priorities for progress, to be settled in 2015.</i>
Features that could encourage further emissions reductions	<i>Ideas that would be useful to develop after the initial framework is settled, including in the period between 2015 and 2020.</i>
Areas for longer term elaboration	<i>Ideas that link to longer term aims of an international framework, which would be ongoing and shaped in part by the outcomes achieved in Paris and beyond.</i>

3.1 COLLECTIVE GOALS

The global collective goal of keeping global average warming below 2 degrees (compared to pre-industrial levels) draws a line in the sand. It both defines the scale of effort required and sets a benchmark for measuring progress. Scope exists to further clarify this goal.

3.1.1 WHY COLLECTIVE GOALS MATTER

Collective goals represent a shared understanding of the objective and define the scale of cumulative efforts. They are an important test of the adequacy of domestic and international efforts, and a benchmark against which to track collective progress. At this point in time the cumulative effort of countries' 2020 pledges is estimated to fall well short of what is required to meet the globally agreed goal—there is an estimated 'emissions gap' of 8-12 Gt between projected global emissions in 2020 and a pathway consistent with a likely chance of limiting warming to 2 degrees.

Clear collective goals have helped encourage some countries to set more ambitious targets in the past. One example is the IPCC's Fourth Assessment Report, which indicated collective developed country emissions reductions of 25-40 per cent by 2020, and 80-95 per cent by 2050 would be consistent with an even chance of limiting warming to 2 degrees (Gupta et al. 2007). These numbers assumed significance in public debate and influenced some country targets—both Australia's 5-25 per cent target range and the EU's 2030 per cent range for 2020 included a high-end target within the collective target range. The IPCC's range also influenced some longer-term targets—of the countries that have publicly declared 2050 targets, nearly all fall into the IPCC range (EU—80-95 per cent reductions, Norway—carbon-neutral, Japan—80 per cent, US—83 per cent). For non-Annex I countries, the

IPCC discussed a ‘substantial collective deviation from baseline emissions’ in 2020. This was subsequently elaborated to mean a 15–30 per cent reduction below BAU in 2020, and 50 per cent in 2050 (den Elzen & Höhne 2008). A number of developing countries have put forward targets broadly consistent with this range (China, Brazil, Mexico, Republic of Korea and South Africa).

Clear collective goals may encourage countries to undertake greater efforts since they help make the science of climate change more prominent. This is the approach used in the Targets and Progress Review—the Authority took the 2 degree goal as its starting point and gave primacy to what climate scientists calculated was needed to achieve that goal. The Authority identified a global emissions budget and then calculated Australia’s recommended targets as a share of that global budget. The emissions budget approach has a compelling clarity and logic to it (see Box 1.1).

Clear collective goals, which are widely supported by national governments, can also assist non-government actors (including businesses) to plan their transition to a low-emissions economy.

3.1.2 COLLECTIVE GOALS IN THE UNFCCC

The UNFCCC collective goal has been refined and clarified over time. The original 1992 treaty had the objective of stabilising atmospheric greenhouse gas concentrations ‘at a level that would prevent dangerous anthropogenic interference with the climate system’. In 2010, this goal was refined to one of keeping global average warming below 2 degrees (relative to pre-industrial levels).⁴ The 2 degrees limit implies a firm constraint on global emissions but remains technically and economically feasible (Clarke et al. 2014).

While the 2 degrees limit is a more specific goal than ‘avoiding dangerous climate change’, it retains some ambiguity. It implies, for example, different greenhouse gas atmospheric concentrations depending on how likely it is to be met. To illustrate, a 10 per cent chance of keeping warming below 2 degrees corresponds to a maximum long-term concentration of about 600 ppm CO₂-e. The current effective concentration of CO₂-e is about 480 ppm (Prinn 2013), so a 10 per cent chance implies global emissions could peak after 2020, and then decline steadily. In contrast, a 90 per cent chance of staying below 2 degrees corresponds to a long-term concentration around 350 ppm CO₂-e.⁵ This would require global emissions to peak immediately, decline very rapidly to net negative emissions and stay down for a considerable time. Most countries refer to the 2 degree goal without reference to a specific probability, so it may conceal quite different ideas about the scale and pace of collective effort required.

4 ICP/16; 2 degrees was also mentioned in the Copenhagen Accord in 2009. Many countries advocate strengthening this goal to a 1.5 degrees warming limit: there is a UNFCCC review of the 2 degrees goal by 2015 that will consider this question. Box 3.1 discusses the effort required to meet a stronger 1.5 degrees limit.

5 Based on the Meinhausen budget approach. For detailed analysis, see Chapter 3 of the Targets and Progress Review Final Report.

3.1.3 COLLECTIVE GOALS IN THE POST-2020 FRAMEWORK

The Authority believes the existing collective goal of keeping warming below 2 degrees should be part of any outcome in Paris. It is widely accepted and puts pressure on countries to strengthen their efforts to close the emission gap. The 2 degree goal could be clarified; for instance, by specifying a minimum probability of achieving it, or a maximum long-term atmospheric concentration.⁶ Any goal should be reviewed over time to reflect developments in science and global emissions.

An ambitious additional goal for the new framework would be a global emissions budget. The IPCC identified global emissions budgets in its recent Fifth Assessment Report. Adopting such a budget would help in monitoring how the world is tracking and sharpen the trade-offs that have to be made between action now and later (as in the Targets and Progress Review).

Reaching an agreement on a global emissions budget, however, is likely to be highly contested. Some countries, notably small island states, would be likely to resist a budget based on an even (50 per cent) or likely (67 per cent) chance of staying below 2 degrees, preferring a more stringent budget that improved the chance of staying below 1.5 degrees. Other countries could resist a budget out of concern it could ultimately lead to centralised determination of national emissions targets or national shares of the global budget. Focusing too much on dividing a shrinking global budget could also create an unhelpful negotiating dynamic, rather than inspiring action through a collective commitment to a low-emissions future.

Approaches with an implicit budget may be more feasible—for example, senior UNFCCC officials have recently spoken about moving to a carbon-neutral world in the second half of the century (see also Haites et al. 2013).⁷ The IPCC’s latest assessment report could be used to help guide global collective goals or regional ones. For instance, for a long-term concentration target of 430 ppm CO₂-e, global emissions in 2030 should be about 40 per cent below what they were in 2010.⁸

6 As a yardstick, some countries have used 450 ppm CO₂-e long-term concentration as a proxy for the 2 degree goal; others have used 350 ppm, which loosely corresponds to a 67 per cent chance of staying below 1.5 degrees. The Authority adopted a 67 per cent probability of staying below 2 degrees, corresponding to a concentration between 400 and 450 ppm CO₂-e.

7 A further alternative to a budget is an agreed global decarbonisation trajectory. This is potentially even more restrictive than a budget, as it sets not only an overall limit on emissions but also determines *when* emissions reductions would occur. So it is an even clearer goal but with even higher obstacles to its adoption. The Targets and Progress Review did not recommend a single trajectory for Australia beyond 2020; instead, it recommended a trajectory range in 2030 of 40–60 per cent.

8 National targets within this collective effort vary widely, in light of effort-sharing assumptions. Under most effort-sharing approaches for a 430–480 ppm range, OECD countries’ collective 2030 emissions should be about half of 2010 levels. For Latin America, 2030 emissions should be well below 2010 levels. For Asia, regional emissions should be at or slightly below 2010 levels. For the Middle East and Africa, 2030 emissions can be slightly above 2010 levels.

Additional collective goals could instead focus on positive policy outcomes that extend beyond emissions reductions. This could include global decarbonisation targets, or aiming to lower the emissions intensity of global energy supply over time. A positive framing may help drive further emissions reductions.

3.1.4 IMPLICATIONS OF COLLECTIVE GOALS FOR AUSTRALIA

The Targets and Progress Review found that some impacts of climate change were already damaging for Australia and higher levels of warming could be expected to have increasingly significant economic, environmental and social costs over time. Australia has committed to the 2 degree goal, and agreed that the UNFCCC 2013–15 Review should consider strengthening this goal in line with the latest climate science. Clear goals will influence national targets and help Australia plan its transition to a low-emissions economy.

3.1.5 CONCLUSIONS ON COLLECTIVE GOALS

Paris outcome	<ul style="list-style-type: none"> Maintain the collective 2 degree goal.
Features that could encourage further emissions reductions	<ul style="list-style-type: none"> Clarify the 2 degree goal through, for example, defining a probability of meeting it. Consider additional positively framed goals such as a global decarbonisation rate. Consider strengthening the goal to 1.5 degrees should the UNFCCC 2013–15 Review recommend this. Adopt regular reviews of targets or budgets to refine the 2 degree goal (section 3.5).
Areas for longer term elaboration	<ul style="list-style-type: none"> Integrate a collective goal into the operative parts of the post-2020 framework through, for example, an ongoing assessment process for national targets (section 3.5).

BOX 3.1: THE GLOBAL EFFORT REQUIRED TO MEET A 1.5 DEGREES GOAL

The international community is currently examining the global collective goal and the possibility of strengthening it to 1.5 degrees. While limiting global warming to 1.5 degrees would reduce the risks of dangerous climate change, scenarios consistent with 1.5 degrees rely even more strongly on large-scale implementation of negative emissions technology in the second half of this century (Clarke et al. 2014). The 1.5 degrees limit may be impossible if such technologies prove infeasible.

Pathways that provide a 50 per cent or greater chance of limiting warming to 1.5 degrees share many characteristics with 2 degrees pathways in the first half of this century (Rogelj 2013). It is conceivable that a 2 degrees pathway preserves the possibility, with markedly increased efforts in future, to shift to a more ambitious 1.5 degrees pathway later.

3.2 TARGETS

Targets are potentially one of the most important ways to bring clarity to and focus on emissions reductions, and will be central to Paris and ongoing negotiations.

3.2.1 WHY TARGETS MATTER

Meeting the global collective goal requires broad and meaningful participation, which is only likely if most countries (and especially the major emitting countries) commit to targets. 'Targets' here are interpreted as any form of quantified emissions limitation or reduction effort, including but not limited to Kyoto-style targets. An agreement without targets for most, if not all, of the major emitting countries would be widely regarded as inequitable and ineffective.

Experience suggests that when countries agree to targets they often accelerate their domestic action with those targets in mind. This tendency emerged from the Authority's survey of countries in the Targets and Progress Review, which found that most countries take their targets seriously and implement policies to meet them. The experience of the Kyoto Protocol also points in the same direction—most countries with targets for the first commitment period appear to have met them (Canada and the United States are notable exceptions; however, even including these two countries, the Kyoto Protocol first commitment period is likely to achieve its collective goal of 5 per cent emissions reductions from 1990 levels) (Stavins et al. 2014).

Three procedural aspects of targets matter:

- The type of target can balance certainty with flexibility—fewer target types aids transparency and comparability, but countries may prefer a particular type of target that suits their circumstances.
- The availability of detailed information on targets is key to understanding and comparing them.
- Fitting target-setting into other processes helps to define long-term pathways and build momentum.

International targets are important, but by themselves do not provide investors with the policy predictability required to guide efficient long-term investment decisions. Domestic choices about policies and national emissions reductions over time influence business confidence and the long-term investment environment more strongly than international targets.

3.2.2 TARGETS IN THE UNFCCC

Most existing targets in the UNFCCC only extend to 2020. Targets in the new agreement could take similar forms to these existing targets for the period after 2020. Countries have agreed that those able to do so should indicate their intended post-2020 national contributions by April 2015.

TYPES OF TARGETS

There are currently two broad categories of targets in the UNFCCC. First, there are targets under the Kyoto Protocol for many Annex I countries. All of these targets are the same type (an economy-wide budget-based cap on emissions), but there is differentiation according to national circumstances. Australia's target in the first Kyoto period (2008–12), for example, allowed its national emissions to grow to 108 per cent of 1990 levels. By contrast, the United Kingdom committed to reduce emissions to 92 per cent of 1990 levels. The Kyoto Protocol second commitment period targets are also differentiated.

Secondly, there are targets under the 2009 Copenhagen Accord and 2010 Cancun Agreements. To date, 99 countries have made pledges to reduce or limit their emissions, including most of the world's major emitting countries (the exceptions being Iran and Saudi Arabia). Not all pledges are targets—some developing countries have pledged specific actions to reduce their emissions, such as building dams for hydroelectric power stations, or solar power plants. Other pledges are economy-wide targets; Australia's 5–25 per cent reduction target range is part of its pledge.

Looking across both categories, four types of targets emerge. Expressed in descending order of precision and transparency, these are:

- absolute, budget-based targets (for example, those under the Kyoto Protocol)
- absolute targets for a point in time (such as Canada's commitment to a 17 per cent reduction relative to 2005 emission levels by 2020)
- targets expressed in emissions intensity of the economy (for example India's target of a 2025 per cent reduction in emissions per dollar of GDP)
- targets expressed as a deviation from business-as-usual (BAU) levels (such as the Republic of Korea's pledge to reduce its emissions to 30 per cent below BAU levels).

Appendix A categorises countries' existing 2020 targets according to these four types.

INFORMATION ABOUT TARGETS

There are currently two sets of international rules countries use to explain their targets.

Countries with targets under the Kyoto Protocol have a standardised set of rules, including a common base year (1990), a common type of target and length of commitment period, and a set of permitted actions that can contribute to

a target (see section 3.4). There are also clear and relatively rigid rules about counting emissions from different sectors, including mandatory and voluntary accounting for different land sector emissions. Countries are required to adhere to this standard set of rules and provide information to explain how their target complies with them.

Country pledges (including targets) under the Cancun Agreements have much more flexible arrangements. They need only communicate to the UNFCCC Secretariat either:

- their pledges to reduce or limit emissions (for Annex I countries), or
- their nationally appropriate mitigation actions (for non Annex I countries).

There are no universal rules on the information countries must give about their pledges (although the biennial reporting requirements track progress towards pledges; see section 3.3).

Some countries have indicated sectoral coverage—for instance, India's pledge states that land sector emissions will not count for the purpose of its target—but many have not. In 2012, the transparency of Annex I country targets was improved with the introduction of a common reporting template—core issues, including base years, gases covered, estimated emissions in 2020, the role of land use sector, and the use of international markets in meeting the target are now clearer. This template, however, is intended to be a one-off process and applies only to Annex I countries. The lack of consistent information from all Parties has made both understanding the level of effort implied by pledges and comparisons of effort difficult (see Climate Change Authority 2014; Aldy and Pizer 2014).

While some countries have provided useful information, core details vary. Australia, for example, defines its target against a 2000 base year, while the EU uses 1990 and the United States uses 2005. This makes comparisons difficult (Table 3.1). As reported in the Authority's Targets and Progress Review, an important issue for many stakeholders was the ability to compare Australia's level of effort on climate change with that of other countries. The variety of targets and different base years obviously creates some confusion.

The confusion is compounded for targets expressed relative to BAU. Defining BAU emissions requires a variety of contestable assumptions and estimates, including which policy effects to include and forecasts of economic and emissions growth rates. Different assumptions can lead to radically different estimates. It would be tempting for a country to select those BAU assumptions in its favour, making it easier to meet a given BAU target or presenting a given level of effort in a more favourable light. At least one study has shown that most national BAU projections by countries with BAU targets are higher than those estimated by external sources (den Elzen et al. 2012).

TARGETS AND OTHER PROCESSES

To some extent, the difficulties with understanding targets can be reduced through more accurate measurement, reporting and verification of emissions. Transparency of targets is one component of the broader project of tracking emissions and progress, both for past emissions (inventories) and future projections. Reporting issues are discussed in section 3.3.

3.2.3 TARGETS IN THE POST-2020 FRAMEWORK

The post-2020 framework should aim to improve the clarity and comparability of targets, especially for major emitting countries.

TYPES OF TARGETS

The post-2020 framework should enable meaningful comparisons of effort across as many countries as possible and, in particular, major emitting countries. To this end, the aim should be for all country targets to be expressed relative to an observable historic baseline, and ideally over a common 'commitment period'.

Budget-based targets offer the greatest transparency since they are determined by emissions over a period rather than in a single year. In addition, this type of target facilitates trade of emissions reduction units between countries, because units issued in any year of the budget can be clearly counted. Budget-based targets also enhance flexibility and environmental integrity since they are defined by cumulative emissions, not emissions in a single year.

TABLE 3.1: AUSTRALIA AND UNITED STATES' TARGETS RELATIVE TO DIFFERENT BASE YEARS

COUNTRY 2020 TARGET	REDUCTIONS AGAINST A 1990 BASE YEAR	REDUCTIONS AGAINST A 2000 BASE YEAR	REDUCTIONS AGAINST A 2005 BASE YEAR
Australia: unconditional 5 per cent	4	5	12
Australia: 19 per cent recommended Authority target (minimum 15 per cent plus 4 per cent carry over)	18	19	25
US: 17 per cent target	5	20	17

Notes: Shaded cells show the base year against which each country has chosen to express its target. All numbers include land use and land use change emissions (both sources of emissions and sinks). Australia's emissions are those used in the Targets and Progress Review: 580.3 Mt (1990), 585.9Mt (2000), 634.6Mt(2005). US emissions are those reported in its 2014 Biennial Report to the UNFCCC: 5388.7 Mt (1990), 6394.7Mt (2000), 6197.4 Mt (2005).

To the extent possible, budget-based targets post-2020 should be the norm for developed countries, and for other countries with the capacity to adopt them. Some major emitting developing countries are still building their capacity to produce accurate inventories and are unlikely to be willing or able to commit to a fixed budget. In these cases, a point target—whether for emissions or emissions intensity—might be viable as an interim measure, ahead of a budget-based target in later commitment periods.

Targets expressed against BAU levels do not sufficiently clarify a country's efforts, or enable comparisons, and should be discouraged. For countries with very low capacity, including the least developed countries, appropriate flexibility is more important than the form of targets.

UNCONDITIONAL AND CONDITIONAL TARGETS

It would be highly desirable for targets submitted to include an unconditional minimum target not tied to the actions of other countries. Unconditional targets remove ambiguity around a country's commitment to action. Conditions (of all kinds) are a barrier to transparency, comparisons, and to the ability to aggregate targets. Any conditional targets that are additional to unconditional ones should carefully specify the relevant conditions.

Some poorer major emitting developing countries might wish to advance internationally supported conditional contributions above their minimum unconditional target. Indonesia, for example, has stated it would strengthen its 2020 target from 26 per cent to up to 41 per cent reductions with international financial support (both compared to BAU levels). Some developing countries will probably require assistance in determining what parts of their target could be made unconditional.

INFORMATION ABOUT TARGETS

Countries ideally should record and detail their targets clearly. Accounting for each target should be clear enough that it could be reproduced by a third party, which would require countries to declare what sources and sinks of emissions, sectors and gases would count towards their targets, and what underlying rules they are using to calculate their emissions. These underlying rules should be made clear at the time the country takes on a target. Building sets of common accounting rules, as was done for the Kyoto Protocol, would assist comparability. Where countries deviate from these rules, they would need to supply more information to ensure transparency.

A common template could simplify reporting processes and make for greater comparability. In working towards more common reporting elements, the post-2020 framework could draw on existing UNFCCC arrangements, including the common template for information about existing Annex I targets.

TARGETS AND OTHER PROCESSES

Targets work in concert with other elements to strengthen global emissions reductions. These include the length of commitment periods, assessment of country targets (section 3.5) and collective goals (section 3.1). Setting targets and designing policies to play a fair part in meeting the agreed collective goal would enhance the goals' operational credibility.

Expressing targets over a common commitment period simplifies comparisons of effort and might, at the margin, stimulate greater effort as countries 'step forward together' with stronger targets. It would make sense in the post-2020 framework to align the commitment period with other relevant processes such as IPCC reports. The two most likely options are a ten- or five-year commitment period from 2021.

A ten-year period arguably provides more long-term signalling and investment guidance. On the other hand, target-setting is a difficult process and the longer the time period, the more difficult it is for countries to make sustainable assumptions about their emissions, policies, opportunities and trajectories. In its Targets and Progress Review, the Authority decided not to recommend a single Australian target for 2030, opting instead for a trajectory range that sought to balance longer-term guidance with flexibility to adjust for new information. All longer term targets, however well formulated, inevitably rely on a good deal of guesswork, which can raise questions about their credibility. Long-term signalling is valuable, but can be achieved in other ways, including domestic policy settings and national decarbonisation plans.

A five-year target period (followed by review) creates an additional pressure point for lifting efforts where necessary. The shorter time horizons should make for better data and assumptions, including about emissions sources, policy impacts, reduction costs and technology. Compared to a ten year period, the initial ambition of targets may be less important, since countries can review and strengthen their targets in the next period. On balance, a shorter commitment period is preferable to a longer one.

Shorter commitment periods would be most helpful when countries do not reconsider their targets from first principles each time, but set targets as milestones to longer term decarbonisation goals. Countries might be encouraged to treat their targets as a 'floor' to be raised over time as their capacity to do more rises.

BOX 3.2: CORE INFORMATION FOR UNDERSTANDING TARGETS

Several elements are critical to understanding targets. If a common template were to be developed, these elements would be good starting points to include in it. Even without a common template, however, essential elements for understanding country targets are:

- what type of target is being adopted and over what period
- the base year and period for targets, including estimated base year emissions
- the inventory methodologies used
- the scope of the target (whether it covers emissions from all sectors in the economy)
- what accounting rules the country is using, including for the land sector
- the anticipated use of international markets or mechanisms (including REDD+).

Other information which could help to make targets a driver of increasing endeavours include:

- indicative medium- and longer- term emissions pathways
- how the target shapes up as an equitable contribution to a collective goal (section 3.5)
- progress reports on how emissions are being reduced, including transformational indicators to help policy-makers and the broader community understand what those targets mean, for example, caps on coal consumption, fuel economy and other energy efficiency standards, and renewable energy targets.

Countries unable to take on budget-based targets can provide other information to promote comparability. In the case of an intensity target, information such as projected economic growth rates for example would be needed.

INDICATIVE LONGER TERM TARGETS

To help strengthen short-term efforts and provide more long-term guidance, countries should also be encouraged to record indicative medium and longer term targets. Several countries already have 2050 goals. Long-term planning to reduce emissions is necessary to meet the 2 degree goal, given the scale of the reductions and underlying structural changes. Encouraging countries to set indicative 2030 and 2050 targets in the post-2020 framework could assist long-term thinking and build confidence in collective efforts to address climate change and orchestrate structural change over time.

3.2.4 IMPLICATIONS OF TARGETS FOR AUSTRALIA

The *Emissions Reduction Fund White Paper* indicates that Australia will advance a post-2020 emissions target in 2015. Given Australia's high level of development, relative wealth and governance capacity, the community will be expecting it to advance an equitable unconditional target by April 2015.

Setting international targets is only part of creating an environment conducive to low-emissions investment in Australia—creating stable domestic policy incentives and confidence in the pursuit of consistent long-term goals are probably more important. As recommended in the Targets and Progress Review, the adoption of a long-term emissions budget in addition to short-term targets, could be helpful in

this regard. Longer term goals which enjoy broad political support can help guide investment in long-lived assets, and targeted and sustained emissions reductions policies can drive a steady transformation of the economy so that Australia stays competitive as the world moves to a low-emissions future.

In its Targets and Progress Review, the Authority recommended a range of 40–60 per cent below 2000 levels for Australia in 2030. This range related to the Authority's view of what would represent a fair international contribution by Australia to global efforts to keep warming below 2 degrees, and could be achieved while maintaining rising living standards and economic growth.

Using the preferred five-year commitment period outlined above, the Authority's recommended trajectory range in 2030 would translate to a target of 30–40 per cent in 2025.⁹

The credibility of any Australian target would likely be enhanced if it takes the form of an unconditional budget denominated in absolute tonnes of greenhouse gas emissions, with appropriate clarity about coverage and accounting. Information can be provided on how Australia's target relates to our national interest goal of avoiding a 2 degree increase in global temperature (section 3.5).

⁹ This is based on a straight-line trajectory from the Authority's recommended 2020 target (15 per cent plus 4 per cent carryover).

Australia can continue to pursue a high level of transparency around its targets, including clarity about baselines, coverage and accounting. Through active participation in the Paris process it can also support the development of common templates for this information, including through the ongoing UNFCCC process of clarifying countries' targets.

3.2.5 CONCLUSIONS ON TARGETS

Paris outcome

- Agreement, including from all major emitting countries, to set targets with accompanying information to explain those targets and facilitate comparability within the post-2020 framework.

Features that could encourage further emissions reductions

- Encouraging budget-based targets from all developed countries, and budget-based or point targets from most, if not all, major emitting countries. Discouraging BAU reduction targets.
- Short commitment periods (for example, five years) are preferable, with regular target reviews (section 3.5).
- Encouraging countries to prepare long-term targets in addition to shorter term national contributions.
- Developing a common template to improve comparability of information across countries.

Areas for longer term elaboration

- Integrating targets into a system of regularly reviewing and revising national contributions, with reference to the agreed collective goal (section 3.5).
- Supporting targets with clear information and tracking of inventories and progress (section 3.3).
- Expanding areas of commonality for targets types and rules (such as, baselines, sectors included, gases covered) and requiring clear documentation where countries deviate from these rules.

3.3 TRANSPARENCY OF EMISSIONS AND PROGRESS

Transparency about emissions and how countries act to reduce them will assist comparisons of different policies and encourage international accountability. The post-2020 framework would build on existing architecture in the UNFCCC as appropriate.

3.3.1 WHY TRANSPARENCY OF EMISSIONS AND PROGRESS MATTERS

One of the international framework's most important roles is demonstrating that global action on climate change is occurring, and enabling countries to compare how their efforts stack up against those of other countries. Measuring, reporting and verifying countries' emissions enhances transparency, and assists each country to benchmark its contributions to collective efforts, hopefully spurring greater emissions reduction efforts over time. More transparent tracking of emissions and progress keeps countries accountable and builds pressure on lagging countries. Critically, greater transparency can also be used to share best practice and fast-track more efficient and effective emissions reduction efforts.

In its Targets and Progress Review, the Authority highlighted the importance of documenting other countries' emissions and their policy actions on climate change. This was in response to the concerns of many stakeholders that other countries were not acting to reduce their emissions to the same extent as Australia. These issues were addressed in the Review but need to be reinforced at regular intervals.

Another core part of transparency is accessibility—the value of information can be enhanced by forms of presentation that allow for easy comparisons and aggregations. Non-UNFCCC sources of information are already becoming more comprehensive, useful and authoritative. Databases such as the World Resources Institute's CAIT tool and the International Energy Agency's estimates of global energy sector emissions help all stakeholders to understand and compare countries' emissions profiles. Countries' emissions reduction actions are also being recorded outside the UNFCCC—REN21, for instance, publishes a comprehensive annual report on renewable energy; GLOBE International records climate laws; and UNEP benchmarks global emissions reductions against collective goals in its authoritative global emissions gap reports. After 2020, it will become more important—and challenging—than ever to compare countries' actions as participation widens. Any progress on transparency in the new agreement would improve the quality of this analysis by drawing on all available sources, whether undertaken within or outside the UNFCCC.

3.3.2 TRANSPARENCY OF EMISSIONS AND PROGRESS IN THE UNFCCC

The UNFCCC has an increasingly robust framework for measuring, reporting and verifying countries' emissions and emissions reduction actions. Table 3.2 outlines this framework.

Annex I countries are required to report on inventories every year, with additional inventory and biennial policy reports every two years, plus 'national communications' every four years. Together, these reports provide a reasonably comprehensive view of each country's emissions and actions. All Annex I countries except Turkey are up to date with their reporting obligations.

Non-Annex I countries have agreed recently to more frequent and comprehensive reporting requirements. They will now submit both national communications every four years and biennial update reports, beginning in December 2014. Non-Annex I countries with less capacity (small island developing states and least developed countries) will report less frequently and comprehensively.

The UNFCCC already uses some common formats for managing information: inventories, for example, are highly standardised and the Annex I biennial reports use a standardised template for many areas. This has improved comparability of information across countries.

Information in reports to the UNFCCC is also verified by international processes, including collaborative review by independent technical experts. Verification builds global trust in the integrity of the information provided by countries. Engagement with technical experts 'represents an important opportunity, not only a reporting requirement, but also for strengthening institutional arrangements and awareness to support an efficient reporting system' (Winkler 2014).

3.3.3 TRANSPARENCY OF EMISSIONS AND PROGRESS IN THE POST-2020 FRAMEWORK

The post-2020 framework should build on the current UNFCCC system by introducing more frequent and standardised requirements. Ultimately, inventories and reporting on how countries are tracking towards targets should be as comprehensive, frequent and standardised as practically possible. Adopting common templates and centralised reporting guidelines facilitate comparative analysis of countries' actions and emissions by comparing like with like. With this data it should be possible to aggregate country emissions into an accurate global total—this cannot be done currently because of the different requirements (for instance, reporting years, gases, sectors) for Annex I and non-Annex I countries. Non-Annex I countries will need time and assistance to deliver the kinds of information needed.

The post-2020 framework should also consider creating a forum for countries to share experiences about how policies to reduce emissions have worked.¹⁰ As different approaches to decarbonisation (including carbon pricing and regulatory approaches across sectors) are tried and tested, more countries may become more willing to adopt them. In this way, international transparency can build national and global action. Transparency can also help show how effective policy design can reduce costs and perceived competitiveness impacts, and spur innovation and lower-emissions growth.

Transparency after 2020 should both track past progress and indicate the scale of future efforts necessary to achieve particular goals. The current UNFCCC rules for biennial reports, for instance, require reporting of inventories (past progress) and explanation of the likely impact of emissions reduction policies (future-focused). Any transparency rules in the post-2020 framework should retain this dual focus.

¹⁰ This could be similar to the information-sharing workshops and other meetings to discuss 'pre-2020 ambition' established after the Durban meeting in 2012.

TABLE 3.2: CURRENT REPORTING REQUIREMENTS IN THE UNFCCC

HOW OFTEN COUNTRIES MUST REPORT	NAME OF REPORT	PURPOSE AND CONTENTS
Every four years All countries (less stringent rules for least developed countries and small island developing states)	National communications	Comprehensive report on countries' national circumstances, climate policies and measures, and their impact, including an emissions inventory. Annex I countries have stricter reporting guidelines and provide more information than non-Annex I countries.
+ Every two years All countries (less stringent rules for least developed countries and small island developing states)	Biennial (update) reports*	Updates inventories and country actions (including both current and projected impacts of climate policies), and documents financial and other climate support received by the country or provided to other countries. Annex I countries have stricter reporting guidelines and provide more information than non-Annex I countries, including emissions projections.
+ Every year Annex I Parties	Inventories	Clear annual snapshot of emissions. Inventories cover a standardised set of gases and sectors, using rules and a common data format. Inventories also describe methodologies, data sources, institutional structures, and quality assurance and control procedures. Parties with commitments under the Kyoto Protocol must supply additional information.

*Annex I reports are called biennial reports; non-Annex I reports are called biennial update reports.

3.3.4 IMPLICATIONS OF TRANSPARENCY OF EMISSIONS AND PROGRESS FOR AUSTRALIA

Australia is up to date with its reporting obligations in the UNFCCC and has built strong capacity and experience with tracking its emissions and reporting on its emissions reduction policies. It is in a position to share its experiences and practices with other interested countries.

In the past, Australia has helped other countries with their climate reporting through both bilateral and multilateral efforts, and continued assistance of this kind would play a positive role.

3.3.5 CONCLUSIONS ON TRANSPARENCY OF EMISSIONS AND PROGRESS

Paris outcome	<ul style="list-style-type: none"> • Agree a common framework will be applied post-2020. • Bed down current UNFCCC systems for reporting on emissions inventories, policies and policy impacts, to improve transparency.
Features that could encourage further emissions reductions	<ul style="list-style-type: none"> • Agree to provide more standardised, detailed and frequent information (including projected impacts of policies), noting that many developing countries may need more time and support to adjust to any strengthened reporting requirements. • Clearly link reporting to reviews of collective and individual target objectives (section 3.5).
Areas for longer term elaboration	<ul style="list-style-type: none"> • Expand common templates for information to facilitate better comparisons of country efforts. • Provide a forum that encourages countries to adopt new policies to reduce emissions by encouraging cooperation to share best practices, policy experiences and expertise. • Promote accessibility of information, within or outside the UNFCCC.

3.4 INTERNATIONAL MARKETS

International markets are an important way to boost a country's emissions reductions. The post-2020 framework should support the use of efficient markets, by building on and expanding current mechanisms. It should build on existing architecture to increase transparency and minimise uncertainty and reduce volatility through agreed rules about standards and tracking procedures.

3.4.1 WHY INTERNATIONAL MARKETS MATTER

Access to markets can promote and facilitate increased global action on climate change. With robust markets in place, individual countries can take on more ambitious national targets knowing they can be achieved in the most cost-effective manner.

Trade of international emissions reductions can also provide benefits for sellers of units and market participants generally. The Kyoto Protocol's Clean Development Mechanism (CDM), for example, has facilitated the development of domestic emissions reduction policies in developing countries, capacity-building for reporting and measuring emissions, and technology transfer (Stavins et al. 2014). Well-designed new market mechanisms and regional emissions trading groups can provide an incentive for countries to implement broad-based emissions reduction policies.

Many countries are implementing market-based approaches because they are cost-effective, harness private sector investment and drive innovation through competitive pressure. International markets expand potential benefits by allowing for the lowest cost emissions reductions to be sourced, regardless of where in the world they occur.

The Targets and Progress Review argued that Australia could best (indeed, only) meet stronger targets to 2020 through domestic action complemented by purchasing international emissions reductions. Many countries are likely to be in a similar position to Australia in the short- and medium-term. The Authority highlighted that the use of international emissions reductions could reduce costs, help to address competitiveness concerns and support broader Australian trade and foreign policy objectives.

3.4.2 INTERNATIONAL MARKETS IN THE UNFCCC

As well as supervising existing market mechanisms, the UNFCCC is working to develop new opportunities. Market mechanisms outside the UNFCCC are also growing in size and importance (World Bank 2014).

EXISTING MECHANISMS

The UNFCCC allows developed countries to implement policies and measures to control emissions jointly with other developed countries, and commits countries to formulate national and, where appropriate, regional programs to control emissions. The Kyoto Protocol allows countries to meet their targets by reducing their own emissions and also through three 'flexibility mechanisms' for producing tradeable units:

- The Clean Development Mechanism (CDM) allows emissions reduction projects in developing countries to earn certified emissions reduction credits, which can be used by developed countries to help meet their Kyoto Protocol targets—for example, Australian firms could purchase CDM units from projects in China. The CDM is a tried and proven mechanism and operates with a high level of environmental integrity. It is also seen as a way to support technology transfer, and channel finance and investment towards meeting sustainable development needs of developing countries.
- Joint Implementation (JI) is similar to the CDM but the units are generated from countries with Kyoto Protocol targets.
- International emissions trading allows countries that do better than their national Kyoto Protocol targets to sell surplus compliance units (known as Assigned Amount Units (AAU)) to other countries to use towards their national targets.

Units from flexibility mechanisms are only used towards meeting legally binding developed country emissions targets. This works in concert with other Kyoto Protocol elements, including robust measurement, reporting and verification processes, and direct UNFCCC oversight. The Protocol has established a range of useful rules and procedures (together with the necessary infrastructure) to help ensure the environmental integrity of traded units and enhance investor confidence. An example of this is the International Transaction Log. This tracks units and ensures there is no 'double-counting'—for instance ensuring that units used for compliance in one jurisdiction are not used again in another jurisdiction for the purpose of meeting an emissions reduction target.

Countries have agreed to continue, with some restrictions, the three flexibility mechanisms in the Kyoto Protocol second commitment period (2013–20).

NEW MECHANISMS

At the Doha meeting of the UNFCCC in 2011, Parties agreed to develop modalities and procedures for new market mechanisms. It was agreed that these:

- would respect the sovereignty of national governments to develop market-based and non-market-based approaches to increase emissions reductions efforts cost-effectively
- 'must' meet standards that deliver 'real, permanent, additional and verified mitigation outcomes, avoid double counting of effort and achieve a net decrease and/or avoidance of greenhouse gas emissions'

- the Parties would 'consider' that these new approaches would be developed under the authority of the UNFCCC.

A challenge for international markets negotiations relates to the current oversupply of CDM credits. Some countries are concerned that any new market approaches will undermine existing systems by further reducing demand for their units. At the Warsaw UNFCCC meeting in 2013, countries were invited to strengthen 2020 targets by purchasing additional CDM credits, which happens to be in line with the Authority's Targets and Progress Review recommendation that Australia establish a fund to purchase CDM units to complement domestic emissions reductions to help meet the Authority's recommended 2020 goals.

INTERNATIONAL MARKETS OUTSIDE THE UNFCCC

In recent years, market developments outside the UNFCCC have proceeded more quickly than market negotiations within it (World Bank 2014). There are now other international emissions reductions available to help countries meet their goals, including from:

- established emissions trading schemes, such as the European Union Emissions Trading System
- bilateral offset mechanisms, where countries work together to create programs that generate emissions reductions, including Japan's Bilateral Offset Crediting Mechanism
- sub-national measures, notably the cross-border linked emissions trading schemes of California and Quebec.

The number and type of market-based schemes is likely to expand in future, as more countries opt for trading emissions reduction units as part of their domestic policy responses to climate change (including, for example, China, Mexico, South Africa and Republic of Korea). The emergence of these schemes suggests that international trade in emissions reductions will be more prominent in the post-2020 framework. Their development is being supported through initiatives like the World Bank's Partnership for Market Readiness, which provides funding and technical assistance for innovation and piloting of market-based instruments.

3.4.3 INTERNATIONAL MARKETS IN THE POST-2020 FRAMEWORK

After 2020, markets can still be a valuable tool to help countries raise their ambition through delivering access to cost-effective emissions reduction opportunities. Markets will need to evolve in step with other parts of the post-2020 framework. The ambition of targets, for instance, is a key driver of demand for tradable emissions reductions units.

Unlike the standardised targets and centrally regulated mechanisms of the Kyoto Protocol, the post-2020 markets framework is likely to be more complex.¹¹ After 2020,

¹¹ The discussion in this section focuses primarily on the international trade of units between countries that both have national emissions targets. Countries without these targets, including least developed countries, can still benefit from markets; while they may not buy international units to meet their goals, they can sell credible international emissions reductions to countries with national targets and use the resulting gains to support their domestic efforts.

countries' targets may or may not be internationally binding (see section 3.6) and many other factors remain to be assessed. The extent to which such trade of emissions reductions is overseen by the UNFCCC, how it counts towards targets, and how much flexibility nations will have in measuring, reporting and verifying the international trade of units are among key points in current negotiations. These issues are related to transparency (section 3.3) and international assessment of progress towards meeting national targets (section 3.5). Appendix C explores a spectrum of different possible combinations of centralised and decentralised approaches for markets in the post-2020 framework.

ENHANCING MARKETS BEYOND MINIMUM REQUIREMENTS

To help more ambitious policies through use of market mechanisms, the post-2020 framework should:

- encourage ambitious budget-based targets, to drive demand and maximise the transparency and credibility of international trade (see section 3.2)
- promote best practice, facilitating capacity-building for new market development and provide guidance for countries on developing credible domestic markets
- be flexible enough to support existing credible markets while at the same time facilitating new international market mechanisms
- support links between credible domestic markets, encouraging the trend towards bilateral and regional markets
- promote transparency and minimise uncertainty and volatility by building on existing systems to track emissions reductions units
- promote fungibility of units to improve liquidity and reward over-achievement of targets by allowing the bankability of units for use against future targets.

3.4.4 IMPLICATIONS OF INTERNATIONAL MARKETS FOR AUSTRALIA

Australia believes in open markets in many areas which deliver benefits to the economy and community. International trading of emissions reductions would allow Australia more flexibility about how it pursues its targets. As already noted, the Targets and Progress Review recommended the use of international emissions reduction units to help meet Australia's recommended 2020 goals; markets are likely to be important for Australia to access in the post-2020 framework also if it is to take on its fair share of reducing global emissions.

The Authority is preparing a separate paper on the use of international units, which will outline the types of units available, priorities for different types of units, lessons learned from other countries' experiences in accessing units, and the prices Australia might currently expect to pay (CCA 2014a, forthcoming).

3.4.5 CONCLUSIONS ON INTERNATIONAL MARKETS

Paris outcome	<ul style="list-style-type: none"> • Recognise existing agreement that international trade may be used to help meet national targets. • Recognise the agreed common principles relating to the international trade of units will be implemented in UNFCCC and non-UNFCCC transactions.
Features that could encourage further emissions reductions	<ul style="list-style-type: none"> • Countries stating that they will purchase or cancel additional credits from the CDM to help increase the current ambition.
Areas for longer term elaboration	<ul style="list-style-type: none"> • Elaborate transparent accounting procedures for international trade (section 3.3) and include independent verification of the role of international trade in meeting targets (section 3.5). • Development of new market mechanisms that promote broader (not project-based) emissions reductions. • Existing institutions develop voluntary standardised best-practice approaches, for instance, for tracking international trade in units. • Implement processes to develop standardised reporting requirements, baseline and emission benchmarks, measurement, reporting and verification protocols, and possible international compliance units to back domestic actions that countries could opt into.

3.5 ASSESSING COLLECTIVE AND INDIVIDUAL EFFORT

Assessing emissions reductions can encourage action at a collective and individual level through increasing transparency and helping countries to strengthen efforts over time. The post-2020 framework should provide for a collective assessment mechanism similar to the existing UNFCCC Review. It should also promote a framework to assess countries' individual efforts.

3.5.1 WHY ASSESSING EFFORT MATTERS

Collective assessment helps to keep the negotiations focused on the latest scientific understanding of climate change, and the further emissions reductions needed to meet collective goals. It complements collective goal-setting discussed in section 3.1.

Individual assessment also matters—encouraging countries to share information about their targets and policies can complement the target-setting process by placing countries' contributions in a broader context. In the new post-2020 framework, Parties will bring forward offers of national contributions, many in the form of targets. An international process to evaluate national contributions could enhance comparability of targets and encourage different Parties to raise their efforts.

Collective and individual processes will have the most impact over time if they are linked, as countries are encouraged to raise their individual efforts as part of global action to meet the 2 degree goal.

3.5.2 ASSESSING EFFORT IN THE UNFCCC

In 2010, Parties agreed to review the collective goal of limiting warming to below 2 degrees (including whether it should be strengthened to 1.5 degrees), and overall progress towards that goal. The UNFCCC-conducted review is scheduled to be completed in 2015. In 2011, it was also agreed that subsequent reviews should occur after each IPCC assessment report, or at least every seven years.

The collective review process now underway complements efforts to review progress outside the UNFCCC. The IPCC reports and the UNEP gap reports, for example, have brought a useful political tension in the negotiations by arguing that more action to reduce emissions is required.

No direct assessment of national 2020 targets is currently undertaken within the UNFCCC, although many discussion sessions and workshops devoted to clarifying and explaining targets are conducted. Other bodies, including non-

government organisations,¹² evaluate targets according to different sets of criteria. The IPCC's discussion of emissions pathways consistent with staying below 2 degrees has been an influential touchstone for evaluating developed and developing countries' actions. Countries are understandably sensitive about subjecting their national decisions on targets to external evaluation, either by other Parties or through an official process, but such arrangements have evolved in other sensitive policy areas.

A target assessment process could build on or copy some existing UNFCCC procedures. One of these is the expert consultation process for emissions reporting—called International Consultation and Analysis (for developing countries) and International Assessment and Review (for developed countries). This process was designed as a collaborative technical evaluation of countries' emissions. Another relevant procedure is the existing process for clarifying Annex I pledges. This includes workshops, technical briefings and submissions from Parties and observer organisations. The common template for Annex I pledges discussed in section 3.2 has been part of this process. Both these existing procedures improve the transparency of countries' actions and would be valuable models to begin assessing individual countries' targets in the post-2020 framework.

3.5.3 ASSESSING EFFORT IN THE POST-2020 FRAMEWORK ASSESSING COLLECTIVE EFFORT

Periodic review of collective goals maintains a focus on climate science. In the post-2020 framework, reviews could be conducted either within or outside the UNFCCC, with the most authoritative and timely (for example, when new targets are being put forward) reports likely to be the most influential. The review would assess the adequacy of the collective goal and how cumulative effort was tracking towards this goal, drawing on work outside the UNFCCC (including the UNEP's gap reports).

INTERNATIONAL ASSESSMENT OF NATIONAL TARGETS

A successful post-2020 framework should provide for a process for regular international assessment of national targets, with a view to encouraging emissions reduction efforts. Any such assessment process would need to work harmoniously with other processes for reviewing effort, including by national and any regional bodies involved in similar reviews. Potential benefits include:

- encouraging countries to provide the information necessary to understand their target, promoting comparability and transparency
- encouraging countries to explain how their efforts are a fair and ambitious contribution towards the 2 degree goal

¹² See, for example, the Climate Action Tracker developed by Climate Analytics, Ecofys and Potsdam Institute for Climate Impacts Research (PIK) (www.climateactiontracker.org), and the Open Climate Network (OCN), a collaboration by independent research institutes and civil society groups from key countries to track and report on their countries' progress in addressing climate change (www.wri.org/our-work/project/open-climate-network).

- creating an expectation of ongoing upward revision of effort, thus encouraging stronger global action over time
- creating a forum for countries to share their experiences of lowering emissions with others, promoting best practices and collaborative policy-making.

International assessment of national targets should also encourage parties to clarify how their efforts are a credible contribution towards the collective 2 degree goal (in a more or less standardised way, see Morgan et al. 2013).

Well designed assessments have the potential to both strengthen emissions efforts over time, and discourage backsliding. They can also help countries share experiences and build their domestic capacity to introduce climate policies.

Any effective process takes time to build, and the level of detail considered as part of the assessment is a matter to be determined by participants, perhaps building up from modest beginnings over time. An assessment process could draw on successful elements of other international review mechanisms: encouraging broad participation, including from civil society; meeting regularly (every few years) and having specific principles or criteria for review (Hale & Harris 2014). Box 3.3 describes core features of the Human Rights Council’s Universal Periodic Review, which has been successful at sharing country best-practices on human rights and encouraging countries to reflect on their domestic human rights outcomes. Other possible models also exist in several economic policy areas.

3.5.4 IMPLICATIONS OF ASSESSING EFFORT FOR AUSTRALIA

Australia’s post-2020 contribution is expected to be well explained and accompanied by relevant information to enable comparisons across countries: this will promote transparency, but the most critical issue will be the extent to which Australia’s target is judged to be a fair contribution to support the collective 2 degree goal.

3.5.5 CONCLUSIONS ON ASSESSING EFFORT

Paris outcome	<ul style="list-style-type: none">• Agreement on the ongoing review of collective goals.• Creating processes to assess individual targets, including the provision of relevant information.
Features that could encourage further emissions reductions	<ul style="list-style-type: none">• Linking assessment of targets to collective goals and strengthening this link over time.
Areas for longer term elaboration	<ul style="list-style-type: none">• Building on existing processes to assess more information; for instance, countries’ conclusions on how their own efforts are a credible and ambitious contribution to collective goals.

BOX 3.3: EXAMPLE OF INTERNATIONAL PEER REVIEW—THE UNIVERSAL PERIODIC REVIEW

The United Nations Human Rights Council has a peer review mechanism to encourage countries to improve their domestic human rights actions. The Universal Periodic Review applies equally to all United Nations Parties, including Australia:

- Countries are reviewed once in a four-year cycle, and must write a national report on human rights in their country when selected for review.
- A ‘troika’ of three randomly chosen reviewing countries considers the country’s national report alongside submissions from independent experts and groups, including non-government organisations.
- There is a review hearing, open to observers, where countries can ask questions, provide comments and make recommendations. This promotes openness and best-practices sharing on human rights.
- The troika compiles an independent report, including a summary of the discussion, questions, comments and recommendations.
- The reviewed country then responds to the troika’s report, accepting or noting recommendations. In the next review, countries must provide information on how they are implementing recommendations and monitoring progress over time.

The Universal Periodic Review mechanism has been in place only since mid-2008, so measures of its success are still preliminary. It has, however, significantly improved information about all countries’ human rights practices and successfully attracted high-level participation from countries. Countries also appear willing to accept feedback from the review process—more than two-thirds of the approximately 10,000 recommendations made in the first seven sessions were accepted (Redondo 2012).

3.6 LEGAL FORM

The legal form of the Paris outcome is relevant to the extent it encourages or discourages national actions. The post-2020 framework could comprise a package of agreements, including a short overall instrument with legal force, supported by non-binding implementing decisions and nationally determined targets.

3.6.1 WHY LEGAL FORM MATTERS

The issue of the legal character of the post-2020 framework has been very contentious in climate change negotiations to date (Rajanani 2012). The exact legal form, and force, of the new agreement is yet to be determined—countries have agreed to work on a ‘protocol, other legal instrument or agreed outcome with legal force under the Convention’.

The legal form of the Paris outcome and associated national targets is important because it can influence how international action is perceived. During the Authority’s consultations for its Targets and Progress Review, some stakeholders expressed the view that international climate negotiations had failed because they lacked a legally binding treaty with legally binding targets for all major emitting countries. The Authority was more of the view that what really matters was action—the targets countries set, and the policies and measures put in place to meet them. The Authority therefore focused on countries’ actions, regardless of whether and where they might be inscribed legally. Legal form is, however, relevant to the extent it may encourage or discourage action.

A legally binding treaty could elevate the agreement’s status and indicate to the world that climate change action was serious and the world was responding appropriately. Enshrining commitments in international law, rather than just political statements, can, over time, build strong norms and conventions of behaviour by national governments.

An international agreement represents the consensus of individual countries to comply with a particular position. This compares with national laws, whereby compliance is achieved through the threat of enforcement. International agreements are difficult to dismantle and usually require broad support in individual countries before they are finalised at the international level; this means they are often aligned with a country’s longer term foreign and trade policy objectives, rather than short-term objectives of the government of the day. Whether an agreement carries force is also determined by other, non-legal, consequences, such as reputational damage, unilateral trade responses and the impacts on cooperation with other countries (Stavins et al. 2014).

For these reasons, legal form is an important factor for many countries in the UNFCCC. These countries see a legally binding agreement with punitive compliance mechanisms as

something that is more likely to deliver their desired outcome of greater emissions reductions.

Aspects of this argument are debateable, and the very reasons some countries might insist on a legally binding agreement are the precise reasons others will resist. A legally binding agreement may in practice be a barrier to participation, and therefore reduce effectiveness, by discouraging countries from participating fully. For example, it is unlikely that the United States, China and many other major emitting countries would have put forward 2020 emissions pledges in Copenhagen and Cancun if these were captured as ‘legally binding’ commitments.

A legally binding agreement may also deter innovation and risk-taking in climate action, especially if there are penalties for non-compliance. In reality, some countries (including many of the major emitting countries), are likely to be more willing to *take* greater action on climate change domestically than they are willing to *commit* to internationally. This could reflect a variety of factors, including domestic political pressures, and possible parliamentary or other procedures required to make a treaty into domestic law.

3.6.2 LEGAL FORM IN THE UNFCCC

The current legal architecture for global climate action has three main elements:

- The UNFCCC is an international treaty that includes some binding and some non-binding elements. It was signed in 1992 and is the central forum for international climate change cooperation.
- The Kyoto Protocol to the UNFCCC is an international agreement that includes quantifiable and binding emission limits for some developed countries. It was signed in 1997 and entered into force in 2005. The first commitment period covered the period from 2008–12 and the second commitment period covers the period 2013–20. The Kyoto Protocol has a compliance mechanism designed to strengthen the Protocol’s environmental integrity, support the carbon market’s credibility and ensure transparency of accounting by Parties. The Compliance Committee is made up of two branches—a facilitative branch and an enforcement branch.
- Both agreements are supplemented by a range of decisions and resolutions that define detailed rules for implementation. The Marrakesh Accords in 2001, for example, define the rules and procedures for accounting for land use change, land use and forestry emissions under the Kyoto Protocol. Equally, the Durban Platform for Enhanced Action is intended to guide and facilitate the current round of negotiations towards the Paris outcome.

The Durban Platform for Enhanced Action is intended to end in countries adopting a ‘protocol, other legal instrument or agreed outcome with legal force under the Convention’. The terms ‘protocol’ or ‘other legal instrument’ are reminiscent of the Berlin Mandate, which led to the signing of the Kyoto Protocol, a legally binding instrument. An outcome ‘with legal

force’ under the UNFCCC is more ambiguous and could be interpreted as facilitating legally binding approaches at a domestic, not just an international, level.

3.6.3 LEGAL FORM IN THE POST-2020 FRAMEWORK

A highly prescriptive, enforcement-oriented legal agreement is not a realistic outcome of the Paris process. It is not being pursued by major emitting countries and should not be considered an appropriate yardstick for success in Paris. A focus on achieving this kind of agreement would be counterproductive and would likely limit global climate effort.

This does not rule out an outcome in the form of a treaty or an instrument with legal force. The critical issues will be which elements of such an outcome apply to all countries, and the nature of countries’ targets; whether, for example, those targets would be binding at the international level. One option would be to agree that targets are not internationally binding but that they ought to be enacted in domestic law and/or through enabling national policies. Another option would be for national targets to be attached to a legally binding agreement—but not themselves be legally binding. Appendix B provides an overview of how targets may be captured in the post-2020 framework.

LEGAL SYMMETRY AND LEGAL DIFFERENTIATION

Relevant to this discussion is an ongoing tension between some countries wanting all nations to be bound to the same standard (‘legal symmetry’) and the insistence by others that developed countries be held to a higher standard (‘legal differentiation’). Werksman (2010) outlines the concept of the legal character of international agreements and associated national targets, and suggests where legal symmetry and differentiation could be applied:

- Legal form of the overall agreement—regardless of the form of the instrument it would clearly express the degree to which countries intend to be bound internationally. Legal symmetry would be applied.
- Legal effect of the commitments under the agreement—whether the commitments are expressed in obligatory language (for example, ‘shall’ or ‘must,’ versus ‘should’ or ‘aim’). Legal symmetry would be applied.
- The specific and prescriptive nature of commitments—whether they are expressed in enough detail to assess compliance. Legal differentiation could be applied. This is implicit in the target discussion in section 3.2, where certain countries should advance budget-based targets while others with less capacity are encouraged to put forward other types of targets.
- The institutions, procedures and mechanisms designed to make countries accountable for these commitments—for example, measurement, reporting and verification of national emissions procedures. Legal differentiation could be applied. Section 3.2 outlines that countries will progress to more common forms of reporting over time, with least developed countries and small island developing states having less strict reporting requirements.

Table 3.3 presents the elements of the post-2020 agreement discussed in this paper and illustrates how they might relate to the concepts of certainty, flexibility, symmetry and differentiation. Both certainty and flexibility characteristics could be captured in a variety of different outcomes (for example, a treaty, protocol or decision). ‘Certainty’ here is defined as being ‘expressed in obligatory language’ and having legal force as agreed under the Durban Platform for Enhanced Action. The ‘flexibility’ components should be left more open to encourage participation and ambition with minimum delay. These could be implemented through international decisions or left to be nationally determined, with international accountability and review. Clearly, these are likely to be matters of lively debate in Paris.

3.6.4 IMPLICATIONS OF LEGAL FORM FOR AUSTRALIA

Australia has taken on targets in the first and second commitment periods of the Kyoto Protocol, and has also pledged a target under the Cancun Agreements. Australia’s interests are more likely to be centred on encouraging strong targets from other countries, rather than having a strong preference for a particular legal form.

Implementing domestic laws to meet post-2020 targets will be central to building the credibility of the emerging framework and helping facilitate global ambition regardless of its legal form.

3.6.5 CONCLUSIONS ON LEGAL FORM

Paris outcome	<ul style="list-style-type: none">• A package including an agreement with legal force supported by implementing decisions and nationally determined targets (see Table 3.3)
Features that could encourage further emissions reductions	<ul style="list-style-type: none">• Outcome includes an internationally binding agreement to enact targets and emission reductions plans in domestic legislation.
Areas for longer term elaboration	<ul style="list-style-type: none">• Targets become an integral part of a legally binding agreement (negotiation post-2020).• Enforcement mechanisms for national targets could develop through time (negotiation post-2020).¹³

13 The Compliance Committee of the Kyoto Protocol aims to provide advice and assistance to countries in order to promote compliance. The facilitative branch may provide ‘early warning’ of potential non-compliance with emissions targets, methodological and reporting commitments relating to greenhouse gas inventories, and commitments on reporting supplementary information in a Party’s annual inventory. There is scope for the functions of the Compliance Committee (in particular, the facilitative branch) to act as an oversight function for reporting obligations under the post-2020 framework. Discussions under Article 13 of the Convention, stalled since 1998, may also be a forum to consider a consultative approach within the UNFCCC framework.

TABLE 3.3: BALANCING CERTAINTY AND FLEXIBILITY IN LEGAL FORM OF AGREEMENT

ELEMENT	COMPONENTS WHERE CERTAINTY AND LEGAL SYMMETRY/FORCE SHOULD BE PRIORITISED	COMPONENTS WHERE FLEXIBILITY SHOULD BE PRIORITISED AND LEGAL DIFFERENTIATION MAY ALSO BE APPROPRIATE
Collective goal	Statement of overall goal, either in existing form (below 2 degrees), or with more specific elements as discussed in section 3.1.	The goal should be reviewed and, if appropriate, adjusted in line with new scientific knowledge.
Emissions reductions targets	Countries submit national contributions, in different forms depending on their capacity as discussed in section 3.2.	The level of countries' targets would be nationally determined.
Tracking emissions and progress	Reporting obligations on emissions and the impact of measures be in line with their capacity as discussed in section 3.3.	Some rules should be voluntary or able to be derogated from with appropriate documentation (in the same way that the Kyoto Protocol contains both mandatory and voluntary land use accounting).
International emissions markets	All countries should be permitted to access markets to help meet national targets. Countries report transparently on the use of traded units.	Agreed standards of using markets (including tracking, reporting on and appropriate accounting for units). Appropriate market mechanisms outside the UNFCCC available to meet targets.
Assessing collective and individual effort	Timing of assessments, who should undertake them and what they should look at (possibly general principles, possibly more specific criteria).	The level of countries' targets would be nationally determined and any recommendations from the assessment for the target would not be binding.

4

CONCLUSIONS

Since the UNFCCC was signed in 1992, the relationship between international and domestic climate change action has changed significantly. The UNFCCC developed in advance of most domestic actions to reduce emissions. Today, domestic actions are advancing in parallel with or, in many cases, ahead of the international negotiations. The measure of the success of the post-2020 framework is therefore whether it encourages, inspires and supports stronger national action to reduce emissions.

All the elements discussed in Chapter 3 interact to help drive emissions reductions efforts, and the Authority considers that an effective post-2020 framework will embrace several themes:

- Sharing best practices and inspiring domestic actions among countries. Past international climate negotiations have been framed negatively around cost- and burden-sharing issues. Those issues will persist, but by providing a forum to promote the positive aspects of emission reductions and their broader benefits, the post-2020 framework could help to generate greater emissions reductions.
- Facilitating participation by all countries and, in particular, the major emitting countries to reduce emissions.
- Providing greater certainty and confidence to implement domestic policies and national targets towards longer term decarbonisation.
- Increasing transparency about emissions reductions (both collectively and individually) to help assess how the world is tracking towards its collective goals.
- Regular assessments of shared objectives against the latest science and the implications for further collective and individual action.

These themes can be expected to recur in Paris and ongoing discussions about the post-2020 framework. Table 4.1 summarises possible outcomes of the Paris meeting and other areas that could be developed over time.

TABLE 4.1: SUMMARY OF CONCLUSIONS

PARIS OUTCOME		FEATURES THAT COULD ENCOURAGE FURTHER EMISSIONS REDUCTIONS	AREAS FOR LONGER TERM ELABORATION
Collective goals	<ul style="list-style-type: none"> Maintain the collective 2 degree goal. 	<ul style="list-style-type: none"> Clarify the 2 degree goal, through, for example, defining a probability of meeting it. Consider additional positively framed goals such as a global decarbonisation rate. Consider strengthening the goal to 1.5 degrees should the UNFCCC 2013-15 Review recommend this. Adopt regular reviews of targets or budgets to refine the 2 degree goal (section 3.5). 	<ul style="list-style-type: none"> Integrate a collective goal into the operative parts of the post-2020 framework through, for example, an ongoing assessment process for national targets (section 3.5).
Targets	<ul style="list-style-type: none"> Agreement, including from all major emitting countries, to set targets with accompanying information to explain those targets and facilitate comparability within the post-2020 framework. 	<ul style="list-style-type: none"> Encouraging budget-based targets from all developed countries, and budget-based or point targets from most, if not all, major emitting countries. Discouraging BAU reduction targets. Short commitment periods (for example, five years) are preferable, with regular target reviews (section 3.5). Encouraging countries to prepare long-term targets in addition to shorter term national contributions. Developing a common template to improve comparability of information across countries. 	<ul style="list-style-type: none"> Integrating targets into a system of regularly reviewing and revising national contributions, with reference to the agreed collective goal (section 3.5). Supporting targets with clear information and tracking of inventories and progress (section 3.3). Expanding areas of commonality for targets types and rules (for instance, baselines, sectors included, gases covered) and requiring clear documentation where countries deviate from these rules.
Transparency	<ul style="list-style-type: none"> Agree a common framework will be applied post-2020. Bed down current UNFCCC systems for reporting on emissions inventories, policies and policy impacts, to improve transparency. 	<ul style="list-style-type: none"> Agree to provide more standardised, detailed and frequent information (including projected impacts of policies), noting that many developing countries may need more time and support to adjust to any strengthened reporting requirements. Clearly link reporting to reviews of collective and individual target objectives (section 3.5). 	<ul style="list-style-type: none"> Expand common templates for information to facilitate better comparisons of country efforts. Provide a forum that encourages countries to adopt new policies to reduce emissions by encouraging cooperation to share best practices, policy experiences and expertise. Promote accessibility of information, within and outside the UNFCCC.
International markets	<ul style="list-style-type: none"> Recognise existing agreement that international trade may be used to help meet national targets. Recognise the agreed common principles relating to the international trade of units will be implemented in UNFCCC and non-UNFCCC transactions. 	<ul style="list-style-type: none"> Countries stating that they will purchase or cancel additional credits from the CDM to help increase the current ambition. 	<ul style="list-style-type: none"> Elaborate transparent accounting procedures for international trade and include independent verification of the role of international trade in meeting targets. Development of new market mechanisms that promote broader (not project-based) emissions reductions. Existing institutions develop voluntary standardised best-practice approaches, for instance, for tracking international trade in units. Implement processes to develop standardised reporting requirements, baseline and emission benchmarks, measurement, reporting and verification protocols, and possible international compliance units to back domestic actions that countries can opt into.
Assessment	<ul style="list-style-type: none"> Agreement on the ongoing review of collective goals. Creating processes to assess individual targets, including the provision of relevant information. 	<ul style="list-style-type: none"> Linking assessment of targets to collective goals and strengthening this link over time. 	<ul style="list-style-type: none"> Building on existing processes to assess more information; for instance, countries' conclusions on how their own efforts are a credible and ambitious contribution to collective goals.
Legal form	<ul style="list-style-type: none"> A package including an agreement with legal force supported by implementing decisions and nationally determined targets (see Table 3.3). 	<ul style="list-style-type: none"> Outcome includes an internationally binding agreement to enact targets and emissions reductions plans in domestic legislation. 	<ul style="list-style-type: none"> Targets become an integral part of a legally binding agreement (negotiation post-2020). Enforcement mechanisms for national targets could develop through time (negotiation post-2020).





TYPES OF 2020 TARGETS

Section 3.2 described different types of targets, covering both targets under the Kyoto Protocol and pledges under the Copenhagen Accord and Cancun Agreements. Table A.1 breaks down existing 2020 targets by type. It does not include all the non-target pledges countries have made (for instance, pledges to take specified actions in the forest sector)

TABLE A.1: COUNTRIES' 2020 TARGETS

ABSOLUTE BUDGET-BASED	ABSOLUTE POINT	EMISSIONS INTENSITY	BUSINESS-AS-USUAL
Australia	All countries in first column plus	China	Algeria
Belarus	Antigua and Barbuda	India	Brazil
EU 28	Canada		Chile
Iceland	Japan		Costa Rica
Kazakhstan	Maldives		Indonesia
Liechtenstein	Marshall Islands		Israel
Norway	Monaco		Kyrgyzstan
Switzerland	Moldova		Mexico
Ukraine	Russia		Republic of Korea
New Zealand	United States		Singapore
			South Africa
Total: 39 countries	47 countries	2 countries	11 countries
<i>Share of world emissions: 14 per cent</i>	<i>Share of world emissions: 39 per cent</i>	<i>Share of world emissions: 30 per cent</i>	<i>Share of world emissions: 10 per cent</i>
Source for emissions figures: WRI CAIT database, 2011 data, not including land use change and forestry emissions			

The table illustrates the types of targets different countries have adopted. Thirty-eight other countries have made pledges but do not have quantified targets, and 96 countries have not made pledges. The former group generally have both low capacity and low emissions, including some least developed countries, and collectively account for less than 4 per cent of global emissions. On the other hand, countries without pledges of any kind make up 20 per cent of global emissions and would therefore seem to be deserving of more attention.

Currently, most countries using market mechanisms to meet their targets have budget-based targets (New Zealand is an exception; Japan may be too if it decides to count units from its bilateral offsets crediting mechanism towards its target). It is clear how markets contribute to a budget-based target—the units a country purchases effectively increase its budget (and to avoid double-counting, are not counted towards another country's target). It is less clear how markets contribute to a point target (for instance, whether emissions units from years other than the end point year count) and not clear how units could be used towards the other target types. This is one reason to encourage countries to take on budget-based targets, and may also be an area that requires elaboration in the post-2020 framework.

B

POST-2020 TARGETS

Sections 3.2 and 3.6 discuss targets and their legal form. This Appendix examines different ways targets could be included in the post-2020 framework, considering both how they are captured and how they could be presented and supported by different countries.

APPENDIX B.1 CAPTURING POST-2020 TARGETS

Table B.1 summarises the range of options currently being considered internationally on how national targets could be captured in the post-2020 framework. It defines whether the target would be binding (at an international or domestic level), the impact the option would have on a country's flexibility to increase ambition and its overall effectiveness. The effectiveness of the international framework is a function of three related elements—stringency of action, whether it promotes broad participation by major emitting countries, and compliance measures (including political and reputational risks) (Bodansky 2012). For simplicity, the term 'treaty' in this table refers to an internationally binding legal instrument that the Conference of the Parties to the UNFCCC is empowered to adopt; for example, a new Protocol. An implementing agreement may or may not be legally binding. Decisions made as part of the Paris process are 'soft' international law and, while operationally significant, are not legally binding in the absence of explicit treaty authorisation.

TABLE B.1: OPTIONS FOR CAPTURING TARGETS IN THE POST-2020 FRAMEWORK

HOW NATIONAL TARGET IS CAPTURED	LEGAL STATUS	IMPACT ON FLEXIBILITY	IMPACT ON EFFECTIVENESS
Target set in the body of international agreement or set out as an integral part of a treaty (for example, Annex B to the Kyoto Protocol).	Internationally binding.	Generally requires consensus of Parties to agree that target is included, which can create delays in bedding down details. Can be difficult to amend as change generally requires a consensus of the Parties; similar process to making the treaty. However, the Kyoto Protocol second commitment period targets can be voluntarily strengthened.	Stringency—nationally determined. International binding may reduce ambition in short term. Participation—would likely lead to very limited participation by major emitting countries. Compliance—may or may not have strong compliance measures. Reputational risks higher for non-compliance.
Target included in a 'schedule' to a treaty or implementing national agreement.	Internationally binding if an integral part of a binding international agreement (similar to World Trade Organisation tariff measures). If schedule is not integral to agreement, it may not be internationally binding.	If internationally binding, may be subject to international amendment procedures (see row above). Non-binding schedules would be subject to domestic processes.	Stringency—nationally determined. International binding may reduce ambition in the short term. Participation—internationally binding would likely lead to very limited participation by major emitting countries. Non-binding schedules may promote greater participation. Compliance—may or may not have strong compliance measures. Reputational risks higher for non-compliance under binding schedules.

TABLE B.1: OPTIONS FOR CAPTURING TARGETS IN THE POST-2020 FRAMEWORK (CONTINUED)

HOW NATIONAL TARGET IS CAPTURED	LEGAL STATUS	IMPACT ON FLEXIBILITY	IMPACT ON EFFECTIVENESS
Commitment in a treaty or implementing national agreement to include targets in domestic law and/or requires maintenance of national plans to meet target.	Internationally binding to enact domestic legislation or plans (for example, the Convention on the Prohibition of the Development, Stockpiling and Use of Chemical Weapons).	Determined by flexibility of domestic processes.	Stringency—nationally determined. Participation—may promote greater participation. Compliance—nationally determined.
Target attached to and set out in UNFCCC decisions.	Not binding at domestic or international level (for example, Cancun Agreements) unless UNFCCC gives decision legally binding status.	Very flexible.	Stringency—nationally determined. Participation—may promote greater participation. Compliance—nationally determined.

TYPES OF TARGETS AND INFORMATION ABOUT THEM

Table B.2 depicts how targets for different countries might show up in a hypothetical post-2020 arrangement, although is not intended to prescribe categories of differentiation or redraw the current Annex arrangements.

TABLE B.2: TARGET TYPES AND SUPPORTING INFORMATION IN A POST-2020 FRAMEWORK

TYPE OF COUNTRY → RULE ↓	DEVELOPED COUNTRIES (INCLUDING ALL CURRENT ANNEX I COUNTRIES)	MAJOR EMITTING COUNTRIES, DEVELOPED AND DEVELOPING	NON-MAJOR EMITTING COUNTRIES	LEAST DEVELOPED COUNTRIES
Agreement to take on targets and emissions reduction actions	✓	✓	✓	Contribute to the extent possible.
Type of targets	Budget-based targets strongly encouraged.	Budget-based or point targets strongly encouraged, intensity targets encouraged.	Any target encouraged.	Any action encouraged and supported.
BAU targets	Strongly discouraged.	Discouraged.	✓	Any action encouraged and supported.
Underlying information on targets including base year, included sectors	✓ Must include information using common rules, deviations from rules permitted if adequately documented.	✓ Must include information, encouraged to conform to common rules where possible, deviations from rules permitted if adequately documented.	Encouraged to include as much information as possible and draw on common rules where convenient.	Provision of information to be supported.

SPECTRUM OF APPROACHES TO INTERNATIONAL MARKETS



Section 3.4 discussed the role of markets in the post-2020 framework. Table C.1 sets out a spectrum of approaches for international emissions trading, from centralised to decentralised. Any of these would work in concert with other elements of the post-2020 framework, including transparency (section 3.3) and international assessment of countries' targets (section 3.5).

TABLE C.1: POSSIBLE APPROACHES FOR INTERNATIONAL EMISSIONS TRADING IN THE POST-2020 FRAMEWORK

SPECTRUM OF OPTIONS (FROM MOST CENTRALISED TO LEAST CENTRALISED)	APPROACHES TO ENSURE ENVIRONMENTAL INTEGRITY	UNFCCC OVERSIGHT OF INTERNATIONAL MARKETS ^A	INSTITUTIONAL ARRANGEMENTS
Common rules	Full set of criteria and processes agreed. All accounting rules agreed under UNFCCC.	UNFCCC sets rules and monitors compliance to agreed principles, standards and accounting rules.	UNFCCC as primary regulator (for example, tracking of units and approval processes centrally controlled).
Minimum criteria and review	General principles agreed, and minimum standards and common accounting developed. Flexibility for national circumstances. Non-UNFCCC markets seeking recognition assessed internationally.	Set of minimum criteria to guide design and implementation. UNFCCC reviews the conformity of non-UNFCCC approaches to criteria.	Standard-setting and oversight functions. Capacity-building and information-sharing.
Information-sharing, reporting and assessment	Possible common reporting guidelines and review of approaches through international assessments (section 3.5). This review may not be against internationally agreed criteria.	Individual countries design and implement own approaches. UNFCCC facilitates information-sharing and some support services such as central registries.	Platform for information-sharing, reporting and assessment. Facilitating capacity-building and information-sharing.

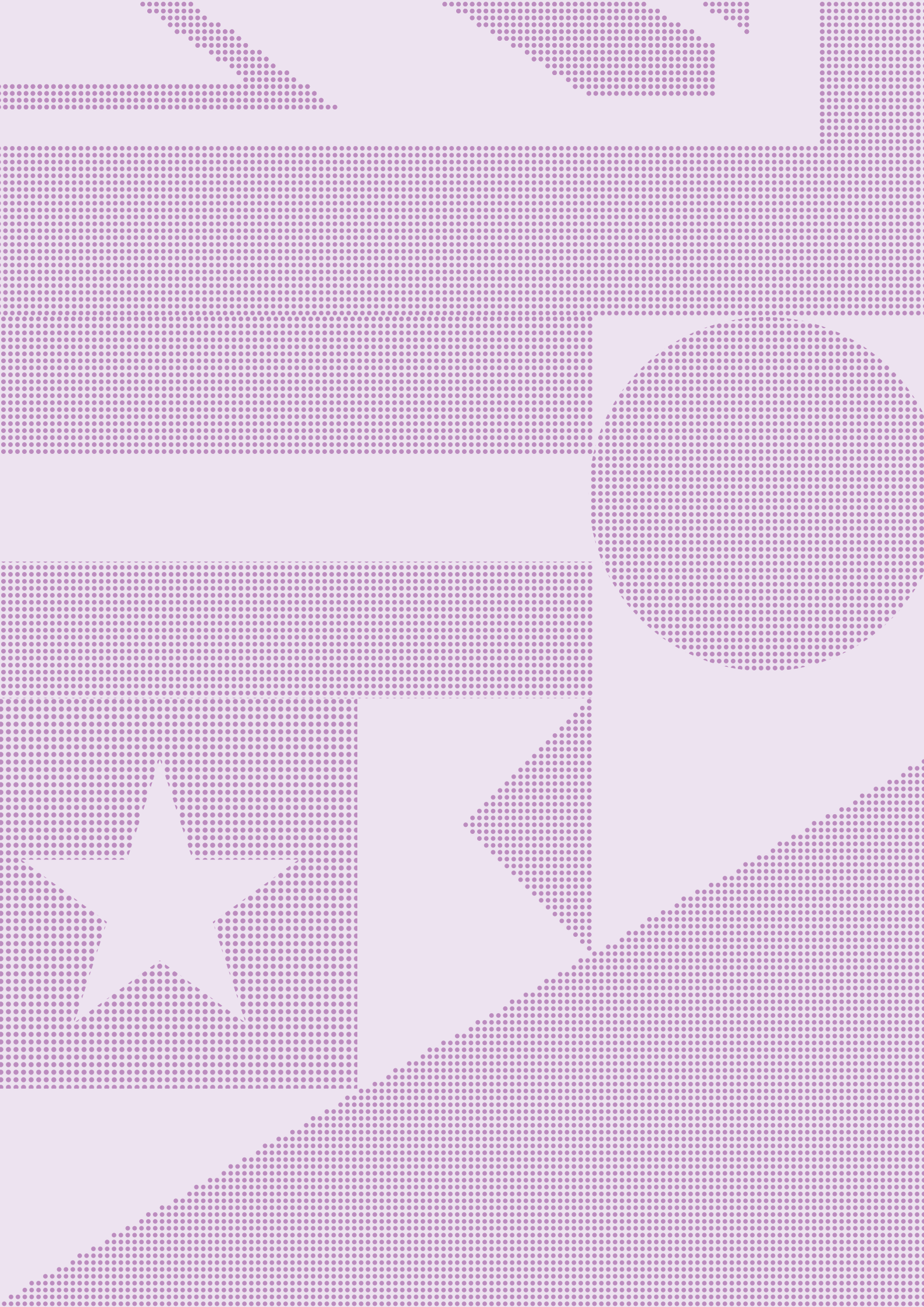
REFERENCES

- Aldy, J & Pizer, W 2014**, *Comparability of Effort in International Climate Policy Architecture*, Discussion Paper 2014-62, Harvard Project on Climate Agreements, Cambridge, Mass.
- Bodansky, D 2010**, *The International Climate Change Regime: The Road from Copenhagen*, Policy Brief, Harvard Project on Climate Agreements, Belfer Centre for Science and International Affairs, Harvard Kennedy School.
- Bodansky, D 2012**, *The Durban Platform Negotiations: Issues and Options for a 2015 agreement*, Centre for Climate and Energy Solutions, Washington D.C.
- Clarke, L, Jiang, K, Akimoto, K, et al. 2014**, 'Assessing Transformation Pathways', in *Climate Change 2014: Mitigation of Climate Change, Working Group III contribution to the IPCC 5th Assessment Report*, Intergovernmental Panel on Climate Change, Geneva.
- Climate Change Authority 2014**, *Reducing Australia's Greenhouse Gas Emissions—Targets and Progress Review, Final Report*, Climate Change Authority, Melbourne.
- Climate Change Authority 2014a**, *Using International Emissions Reductions To Help Meet Australia's 2020 Target*, (forthcoming) Climate Change Authority, Melbourne.
- The Climate Institute 2014**, *Moving Below Zero: Understanding Bio-energy with Carbon Capture and Storage*, Sydney.
- den Elzen, M & Höhne N 2008**, 'Reductions of greenhouse gas emissions in Annex I and non-Annex I countries for meeting concentration stabilisation targets, An editorial comment,' *Climatic Change*, 91:249–274 DOI 10.1007/s10584-008-9484-z.
- den Elzen, M, Roelfsema, M, Hof, A, Böttcher, H & Grassi, G 2012**, *Analysing the emission gap between pledged emission reductions under the Cancún Agreements and the 2°C climate target*, PBL Netherlands Environmental Assessment Agency, Copenhagen.
- Department of the Environment 2014**, *Emissions Reduction Fund – White Paper*, Canberra.
- Garnaut, R 2008**, *The Garnaut Climate Change Review – Final Report*, Commonwealth of Australia, Cambridge University Press, Melbourne.
- GLOBE International 2013**, *Climate legislation study—a review of climate change legislation in 33 countries*, third edition, Climate and Development Knowledge Network, Antony Rowe, Chippenham.
- Gupta, S, Tirpak, D, Burger, N, et al. 2007**, 'Policies, Instruments and Co-operative Arrangements', in *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Metz, B, Davidson, O, Bosch, O, Dave, R, Meyer, L (eds)), Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Haites, E, Yamin, F, Hohne, N 2013**, *Possible Elements of a 2015 Legal Agreement on Climate Change*, IDDRI, Working Papers, No. 16/13, Paris.
- Hale, T & Harris, M 2014**, *Country-to-Country Review under the Next Climate Treaty: Lessons from other Intergovernmental Review Processes*, Policy memo: 24 February 2014, Blavatnik School of Government, University of Oxford.
- Hood, C, Briner, G & Rocha, M 2014**, *GHG or not GHG: Accounting for Diverse Mitigation Contributions in the Post-2020 Climate Framework*. Climate Change Expert Group, Paper No. 2014(2), OECD, International Energy Agency, Paris.
- International Energy Agency 2013**, *Policies and Measures Database*, viewed 22 May, Paris, <http://www.iea.org/policiesandmeasures/>.
- Jackson, E & McGoldrick, W 2010**, *Global climate policy post-Copenhagen: Progress and prospects*, Discussion Paper, The Climate Institute, Sydney.
- Kee, HL, Ma, H & Mani, M 2010**, *The Effects of Domestic Climate Change Measures on International Competitiveness*, Policy Research Working Paper 5309, The World Bank Development Research Group Trade and Integration Team and Environment Department, World Bank, Washington D.C.
- Levin, K & Finnegan, J 2013**, *Designing National Commitments to Drive Measurable Emissions Reductions After 2020*, Working Paper, World Resources Institute, Washington D.C.
- Mazouz, S & Jackson, E 2012**, *Emissions Trading Coalitions. Leveraging Emission Trading to Achieve Greater Levels of Global Mitigation Ambition*, Discussion Paper, The Climate Institute, Sydney.
- Morgan, J, Tirpak, D, Levin, K & Dagnet, Y 2013**, *A Pathway to a Climate Change Agreement in 2015: Options for Setting and Reviewing GHG Emission Reduction Offers*, World Resources Institute, Washington D.C.
- Olsen, KH, Fenhann, J & Lutken, S 2013**, *Elements of a New Climate Agreement by 2015*, Perspective Series 2013, UNEP Risoe Centre, Roskilde.

- Prinn, R 2013**, *400 ppm CO₂? Add Other GHGs, and It's Equivalent to 478 ppm*, online interview, viewed 11 June 2014, <http://oceans.mit.edu/featured-stories/5-questions-mits-ron-prinn-400-ppm-threshold>.
- Rajamani, L 2012**, 'The Durban Platform for Enhanced Action and the future of the climate regime,' *International and Comparative Law Quarterly*, vol. 61, pp. 501–18.
- Redondo, ED 2012**, 'The Universal Periodic Review – Is There Life Beyond Naming and Shaming in Human Rights Implementation?', *New Zealand Law Review*, vol. 4.
- Reisinger, A, Kitching, R, Chiew, F, et al. 2014**, 'Australia and New Zealand', in *Climate Change 2014: Impacts, Adaptation and Vulnerability, Working Group II contribution to the IPCC 5th Assessment Report*, Intergovernmental Panel on Climate Change, Geneva.
- Renewable Energy Policy Network for the 21st Century (REN21) 2013**, *Renewables 2013 Global Status Report*, REN21 Secretariat, Paris.
- Rocha, MT 2013**, *Elaborating the 'framework for various approaches' under the UNFCCC*, Discussion Document, OECD, Paris.
- Rogelj, J, Hanaoka, T, Hare, W, et al. 2011**, 'Emissions pathways consistent with a two degree temperature limit', *Nature Climate Change*, vol. 1, pp. 413–18.
- Rogelj, J, McCollum, D, O'Neill, B, & Riahi, K 2012**, '2020 emissions levels required to limit warming to below 2°C', *Nature Climate Change*, vol. 3, pp. 405–12.
- Rogelj, J 2013**, Scenario Note—Pathways towards Returning Warming to below 1.5°C by 2100: Briefing Note to the Climate Institute, Climate Analytics, Berlin.
- Spencer, T & Hipwell, E 2013**, 'Coordinating, Mandating, Monitoring: What Can the Post 2015 Climate Regime Learn from Global Financial Governance?', *Carbon Climate Law Review*, vol. 4, pp. 293–305.
- Stavins, R, Ji, Z, Brewer, T, et al. 2014**, 'International Cooperation: Agreements & Instruments', in *Climate Change 2014: Mitigation of Climate Change, Working Group III contribution to the IPCC 5th Assessment Report*, Intergovernmental Panel on Climate Change, Geneva.
- The Treasury and DIICCS RTE 2013**, *Climate Change Mitigation Scenarios, Modelling report provided to the Climate Change Authority in support of its Caps and Targets Review*, Government of Australia, Canberra.
- United Nations Environment Programme (UNEP) 2013**, *The Emissions Gap Report*, UNEP, Nairobi.
- United Nations Framework Convention on Climate Change (UNFCCC) Secretariat 2011**, *Compilation of economy-wide emissions reduction targets to be implemented by parties included in Annex I to the Convention*, FCCC/SB/2011/INF.1/Rev.1, 7 June.
- UNFCCC Secretariat 2013**, *Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention*, FCCC/SBI/2013/inf.12/rev.2, 28 May 2013.
- United States Energy Information Administration (EIA) 2014**, *Short-term Energy Outlook*, May 2014, Washington D.C.
- United States Environment Protection Agency (EPA) 2014**, *Clean Power Plan Proposed Rule*, May 2014, Washington D.C.
- Weischer, L, Morgan, J & Patel, M 2012**, 'Climate Clubs: Can Small Groups of Countries make a Big Difference in Addressing Climate Change?', *Review of European Community & International Environmental Law*, vol. 21, pp. 177–92.
- Werksman, J 2010**, 'Legal symmetry and legal differentiation under a future deal on climate,' *Climate Policy*, vol. 10:6, 672–7, DOI: 10.3763/cpol.2010.0150.
- Winkler, H & Rajamani, L 2013**, 'Common but differentiated responsibilities and respective capabilities in a regime applicable to all,' *Climate Policy*, DOI:10.1080/14693062.2013.791184.
- Winkler, H 2014**, *International requirements for transparency of mitigation actions*, Input by ERC to the Department of Environmental Affairs, Energy Research Centre, University of Cape Town.
- World Bank 2014**, *State and Trends of Carbon Pricing 2014*, World Bank, Washington, D.C.
- World Resources Institute (WRI) 2013**, CAIT 2.0 (Climate analysis indicators tool) World Resources Institute, viewed 6 January 2014, Washington D.C., <http://cait.wri.org>.

GLOSSARY

2 degree goal	A global goal to limit global average warming to less than 2 degrees above pre-industrial levels.
accounting	The rules that specify how to estimate greenhouse gas emissions and what emissions count towards an emissions reduction target.
Annex I countries/Parties	Industrialised countries and economies in transition listed in Annex I to the United Nations Framework Convention on Climate Change.
business-as-usual (emissions trend)	Emissions that would occur without any policy intervention (or additional policy intervention).
climate finance	Public and private funding from developed countries to enable and support low-carbon development, adaptation, technology development and transfer, and capacity-building.
commitment period	The timeframe of binding national goals under the Kyoto Protocol. The first commitment period was five years from 2008–2012. The second commitment period is eight years from 2013–2020.
emissions budget	A cumulative emissions allowance over a period of time.
emissions intensity	A measure of the amount of emissions associated with a unit of output; for example, emissions per unit of gross domestic product.
emissions reduction	The act or process of limiting or restricting greenhouse gas emissions.
emissions reduction target	Any form of quantified emissions limitation or reduction effort, including but not limited to Kyoto-style targets.
emissions trading scheme	A market-based approach to reducing emissions that places a limit on emissions allowed from all sources covered by the scheme. Emissions trading allows entities to trade emissions units with other entities.
global emissions budget	The total amount of emissions projected to result in a given rise in global temperature. Budgets are expressed in terms of probabilities to reflect uncertainties about the exact temperature effect of a given amount of emissions.
global warming	Used interchangeably with climate change.
greenhouse gas	Any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere. Key greenhouse gases include carbon dioxide, water vapour, nitrous oxide, methane and ozone.
Intergovernmental Panel on Climate Change	An international scientific body operating under the auspices of the United Nations. Its role is to review, assess and synthesise the latest information on climate change.
Kyoto Protocol	An international agreement adopted under the United Nations Framework Convention on Climate Change in 1997. It includes binding national targets for some developed countries and flexible mechanisms including the Clean Development Mechanism (CDM).
Major emitting countries	Countries individually emitting more than 1 per cent of the world's emissions. The 15 countries are China, the United States, the EU bloc of 28 countries, India, Russia, Japan, Brazil, Indonesia, Iran, Canada, Mexico, Republic of Korea, Australia, South Africa and Saudi Arabia.
Non-Annex I countries/Parties	Developing countries not listed in Annex I to the United Nations Framework Convention on Climate Change.
Paris outcome	The result of the Conference of the Parties in Paris in 2015: likely to be a package of agreements including a short overall instrument with legal force that is supported by non-binding implementing decisions and nationally-determined targets.
pre-industrial	The period before 1750.
Trajectory/ trajectory range	An indicative year-by-year emissions pathway to an emissions goal/ A range within which future targets and trajectories may be set.
United Nations Framework Convention on Climate Change	An international treaty that commits signatory countries (Parties) to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human-induced interference with the climate system.



ABBREVIATIONS AND ACRONYMS

AR4	Fourth Assessment Report of the Intergovernmental Panel on Climate Change
AR5	Fifth Assessment Report of the Intergovernmental Panel on Climate Change
BAU	business-as-usual
CO₂	carbon dioxide, a greenhouse gas
CO₂-e	carbon dioxide equivalent
CDM	Clean Development Mechanism of the Kyoto Protocol
EU	European Union
GDP	gross domestic product
IPCC	Intergovernmental Panel on Climate Change
ppm	parts per million
REDD+	Reducing emissions from deforestation and forest degradation in developing countries
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute

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