3 TYPES OF UNITS AND PURCHASING PRIORITIES FOR AUSTRALIA

The Kyoto Protocol provides access to a wide range of genuine international units to use towards Australia's 2020 target. An assessment of each unit type suggests that some units could be more attractive than others.

The following types of units would be most suitable for Australia to use:

- CERs and ERUs from the first commitment period (subject to some exceptions, discussed below)
- CERs from the second commitment period from projects in countries where arrangements are in place to avoid double-counting of the emissions reductions, and from countries that require assistance to reduce their emissions such as least-developed countries
- second commitment period AAUs, if satisfied with the stringency of the country's target
- RMUs
- ERUs from the second commitment period.

For various reasons, the Authority believes the following units should be avoided:

- temporary CERs
- CERs and ERUs from industrial gas destruction projects
- CERs and ERUs from large hydro-electric generation projects that do not meet criteria established by the World Commission on Dams
- first commitment period AAUs.

The Targets and Progress Review canvassed the following potential sources of credible international emissions reductions:

- the UNFCCC and Kyoto Protocol market mechanisms, such as the CDM
- established emissions trading schemes, such as the EU ETS
- bilateral offset mechanisms, whereby countries work together to establish programs and projects that generate emissions reductions.

This chapter builds on the Review, and considers different possible international units and identifies those that it considers would be suitable for Australia to use to help meet its 2020 goals.

3.1 A FRAMEWORK FOR ASSESSING UNITS

The Authority's statutory principles provide a good basis for assessing the different units:

- **Economic efficiency**—all other things being equal, low-cost emissions reductions are preferable, regardless of how or where they occur.
- **Environmental effectiveness**—units purchased must represent genuine emissions reductions, given they are to be used to offset some of Australia's domestic emissions.
- **Development of an effective global response to climate change**—Australia's purchase strategy should be generally supportive of arrangements and institutions working towards an effective global response to climate change.
- **Consistency with Australia's foreign policy and trade objectives**—units purchased should conform with international rules agreed under the UNFCCC and Kyoto Protocol, and be considered credible internationally.

Australia has joined the second commitment period of the Kyoto Protocol, and will be expected to achieve its 2020 emission reduction goals within that framework. This means Australia can only use the units recognised under the Kyoto Protocol, namely:

- **CERs**—issued under the CDM for emissions reductions that occur in developing countries
- **AAUs**—issued by developed countries who take on a target
- **RMUs**—issued by developed countries for removals of emissions (e.g. through forest sequestration)
- **ERUs**—issued by developed countries for emission reductions that occur under the Joint Implementation Mechanism
- units issued under any market-based mechanism established under the UNFCCC.

This chapter focuses on these Kyoto Protocol-eligible units (for a more detailed assessment, see Appendix B). Australia can use as many of these units as it likes towards meeting its target, provided the international units serve to supplement its domestic action.[1]

3.2 CERTIFIED EMISSION REDUCTIONS

CERs are issued under the CDM for emissions reductions that occur in developing countries. In general, the CDM is a credible source of international emissions reductions.

As discussed in Chapter 2, the CDM has operated for many years and has robust systems of review, approval and verification to ensure units issued represent genuine emissions reductions. The CDM's broad coverage across countries, sectors and gases allows access to a range of least-cost opportunities. Thousands of approved projects are operating around the world (see Box 3.1), generating large numbers of CERs that are currently available at very low prices (see Chapter 4). These factors make CERs environmentally and economically attractive.

By reducing costs, market mechanisms such as the CDM can make it easier for countries to take on more ambitious targets, thereby helping to accelerate global action. These kinds of mechanisms could play an increasingly important role in the future and the post-2020 framework is likely to build on existing mechanisms such as the CDM (CCA 2014b).

The wide range of CERs raises some specific issues which are discussed below.

1 Articles 6, 12 and 17 of the Kyoto Protocol include a requirement that countries' use of the flexibility mechanisms be supplemental to their domestic actions. This means that Australia must take some meaningful domestic action to meet its emissions reduction target and cannot rely solely on trade.

BOX 3.1: CASE STUDIES OF CDM PROJECTS

The CDM covers a large range of emissions reduction activities, including renewable energy, energy efficiency and the destruction of waste coal mine or landfill gas. Some case studies are discussed below.

Household energy efficiency—the Kuyasa CDM project involves retrofitting over 2,300 homes in the district of Khayelitsha, Cape Town, South Africa, with solar water heaters, ceiling insulation and energy-efficient lighting.

Waste heat recovery—the India Cements WHR project involves installing waste heat recovery systems to generate electricity at a cement plant. The electricity generated is used in the manufacture of cement, avoiding more emissions-intensive gird-sourced electricity.

Biogas energy—two CDM projects are helping to deploy an additional 20,000 biogas digesters in households across Nepal. The digesters use the dung from farmers' livestock and domestic latrines to produce methane gas as the organic waste breaks down. The methane is then used as cooking fuel in biogas stoves built directly in the dwellings. This replaces more traditional cooking fuels such as firewood, agricultural residues, animal manure and kerosene.

Small-scale hydro-electricity—the e7 Bhutan Micro Hydro Power Project supplies electricity to the village of Chendebji, from a dedicated 70 kW run-of-river micro hydro-turbine on the edge of the village. Electricity from the turbine is now used in domestic and commercial properties, replacing a range of fuels including wood (cooking, heating, hot water), kerosene (lighting) and diesel (electricity generation).

Wind electricity—the Zafarana Project is a wind power generation project located in Egypt. The wind-generated electricity produced by the project displaces more emissions-intensive grid electricity.

Landfill gas capture—the landfill gas utilisation project at Seelong Sanitary Landfill in Malaysia captures the methane from the landfill that would otherwise have been emitted, and burns it to generate electricity, which displaces more emissions-intensive electricity.

Waste coal mine gas—the Zhongliangshan coal mine methane project in China captures methane that would otherwise have been vented into the atmosphere. Once captured, the methane is used to generate electricity, displacing more emissions-intensive electricity.

Source: UNFCCC 2014

3.2.1 FIRST COMMITMENT PERIOD CERs

First commitment period CERs are issued for emissions reductions that occurred before the end of 2012. About 1.5 billion CERs have been issued; roughly 0.4 billion remain available in the market (see Chapter 4).

These CERs represent genuine, verified emission reductions. They can be used to meet first commitment period targets, and/or be carried over for use in the second commitment period. Units that are not used or carried over will be cancelled at the end of the 'true-up' for the first commitment period, likely to be in 2015. First commitment period CERs therefore present an attractive—but 'use it or lose it'—purchasing opportunity for Australia.

A concern with these units is that buying them will not deliver additional emissions reductions—the reductions have already occurred and if the units are not used they will be cancelled regardless.

On the other hand, if countries such as Australia exclude first commitment period CERs from purchasing programs—in favour of allowing them to be cancelled—it could reduce investor confidence.

The Kyoto Protocol rules restrict the number of first commitment period CERs a country can carry over for use in the second commitment period; for Australia, this limit is 74 million CERs. If Australia purchased more than 74 million units, it could use some towards its first commitment period target. This would 'free up' more of Australia's AAUs (which can be carried over without restriction) for later use. Regulations would need to be made to allow carryover of units in the Australian National Registry of Emissions Units.

First commitment period CERs would be suitable for Australia to use towards its target, but would have to be purchased before the end of the true-up period.

3.2.2 SECOND COMMITMENT PERIOD CERs

Second commitment period CERs are issued for emissions reductions that occur from 1 January 2013. Currently, the number available in the market is limited; more are expected to become available over the period to 2020 (see Chapter 4). These CERs represent genuine, verified emissions reductions, are available at low prices and can be used towards Australia's 2020 target without restriction.

An issue with second commitment period CERs is who gets to count the emissions reduction toward their target. If both Australia and the country selling the CER count it towards their targets, it would be 'double-counted'.

- This problem did not arise in the first commitment period, as only a small set of countries had emissions reduction targets: the developed country buying the CER counted the reduction towards its Kyoto target, and the developing country selling the CER did not have a target.
- In contrast, for the period to 2020 many developing countries have taken on emissions reduction targets and actions. If Australia buys second commitment period CERs, it needs to be satisfied the selling country will not count the same reductions towards its target.

Developing countries have set different types of 2020 goals—some are unilateral (to be met without assistance from other countries), while others are contingent on obtaining financial support (such as the support delivered through the CDM). The accounting rules for these commitments and how they interact with the Kyoto Protocol mechanisms are subject to ongoing negotiation. Until these rules are settled, Australia should only purchase CERs if the emissions reduction will not also be counted towards the selling country's unilateral goals. This would permit use of CERs from:

- developing countries that confirm they will not count the CERs they sell towards meeting their own commitments (this confirmation could be provided in the UNFCCC or through a bilateral agreement)
- CDM projects in developing countries who have taken on commitments that encompass only specific sectors or greenhouse gases, and the project in question reduces emissions in uncovered sectors or gases
- least-developed countries, which are not expected to take significant policy action to reduce emissions without financial assistance.

Australia could consider imposing additional restrictions if it believed some countries were not contributing their fair share of the global mitigation effort. Some high-income countries, for example, are eligible to host CDM projects but have not yet made commitments to reduce their own emissions. Australia could exclude CERs from those countries on the grounds that an effective global response requires all countries to contribute in accordance with their respective capacities.

3.2.3 RESTRICTING CERTAIN PROJECT TYPES

The CDM covers a wide range of project types, from renewable energy and agricultural waste management to industrial and residential energy efficiency. The only agreed exclusions are nuclear power plants and some land use change and forestry projects. From within this wide scope, individual countries can choose which project types to support.

The CDM's eligibility rules and review processes ensure that, from an environmental perspective, each CER represents a genuine emissions reduction. Generally, maintaining a wide scope of project types—regardless of the type of technology or source of gas—reduces costs. Domestic and foreign policy considerations, however, justify a few specific exceptions.

Forestry projects are credited with temporary CERs that have a limited life; the purchasing country (not the selling country) needs to replace the units when they expire. Australia would face extra costs and risks if it used these units. For this reason, the Authority does not favour temporary CERs.

Large-scale hydro-electric generation projects can significantly reduce emissions compared with fossil-fuel generation. They can also, however, have negative social and environmental impacts, such as displacing local communities, destroying agricultural land and reducing biodiversity. The World Commission on Dams has established a set of criteria for the development of these projects that is widely accepted as documenting good practice. Most large-scale hydro-electric CDM projects meet these criteria, and the EU only accepts CERs from projects that do so. Australia might decide to adopt similar restrictions.

Industrial gas projects destroy industrial gases (such as trifluoromethane (HFC-23), a by-product of HCFC 22 production; and nitrous oxide (N_2O) from adipic acid production) that would otherwise be released into the atmosphere. While these projects achieve genuine emissions reductions, several concerns have been raised:

- Industrial gas projects reduce emissions at very low cost, so are very profitable when carbon prices are high. These profits could create perverse incentives to increase production of HCFC 22, simply to obtain the CER revenue from destroying the HFC-23. The CDM methodology has been amended to largely address these concerns.
- Some countries suggest that funding provided under the Montreal Protocol to phase out HCFC 22 is sufficient to also reduce HFC-23 emissions, so an additional incentive from the CDM is not required.
- The EU has also raised concerns about on-going large wealth and possibly industrial activity transfers from developed to developing countries for this low-cost activity.

The EU has restricted the use of industrial gas CERs and widespread credibility concerns remain.

On balance, the Authority does not favour the use of CERs from projects that destroy HFC-23 and N_2O from adipic acid production.

New coal-fired electricity generation projects are eligible if it can be demonstrated that the project is less emissions-intensive than the plant that would otherwise have been built. These projects raise important competing considerations:

- The primary concern is that, by locking in new emissions-intensive infrastructure, these projects reduce the chance of keeping global average warming below 2 degrees. Many countries, and international financial institutions such as the World Bank, have recently announced they will avoid funding new coal power plants in developing countries for this reason.
- On the other hand, if a more emissions-intensive plant is the only alternative, the project could be used to deliver genuine emissions reductions. The CDM methodology is regularly scrutinised and revised to ensure only genuine reductions are credited. Even so, few projects have been approved and fewer than a million units issued.

Australia could allow certified units of this kind, but these units would not be a priority for any government purchase program.

3.2.4 INVESTING IN EXISTING OR ONLY NEW PROJECTS

A large potential supply of CERs is likely to be available in the period to 2020 from projects that are already registered (approved). The potential supply is much larger than expected demand over the same period. This poses a question as to whether it may be more environmentally effective to purchase CERs only from new projects, and from existing projects that would not continue without an ongoing incentive. Norway's government purchase program, for example, focuses on vulnerable existing projects (those that would not continue without the ongoing incentive) and new projects.

Two main arguments can be made against restricting purchases to only new or vulnerable projects:

- Project developers undertook projects with a reasonable expectation demand would continue for their genuine and verified emissions reductions. If these projects were to be excluded from the market, the developers would require a higher rate of return to compensate for the increased uncertainty, and may be less likely to invest in future projects.
- Restricting the purchase of CERs from existing projects would significantly reduce the potential supply and put upward pressure on prices. While developers are likely to respond to significant new demand, new projects are likely to require a higher price to come to market (see Chapter 4).

On balance, the Authority believes that CERs from both existing and new projects should be allowed to be used to meet Australia's target. This is similar to the government's decision to allow existing Carbon Farming Initiative projects to participate in the ERF.

3.3 ASSIGNED AMOUNT UNITS

Assigned Amount Units (AAUs) are the primary compliance unit under the Kyoto Protocol. Each country with a target issues AAUs equal to its target (essentially its cumulative emission allowance, or budget, for the commitment period). The Kyoto Protocol also allows countries to trade these units.

AAUs are only created by countries—like Australia—who take on binding economy-wide targets under the Kyoto Protocol. Trading units allows countries to meet their collective emissions reduction targets at lower cost than otherwise. The Kyoto rules prevent double-counting—if a country sells an AAU, it cannot use that unit to help meet its own target.

A concern with AAUs is that a country with a weak target can accumulate a large surplus of AAUs it will never use (colloquially called 'hot air'). In the first commitment period, a number of countries had targets far above their actual emissions, creating a large surplus of units. Purchasing these units is unlikely to contribute to global emissions reductions.

Australia, along with a number of other countries, has agreed not to use other countries' surplus first commitment period AAUs toward its second commitment period target, so these units should not be allowed.

Australia could also address these concerns by only allowing second commitment period AAUs from countries with targets it considers sufficiently ambitious—for example, targets comparable to Australia's, taking account of each country's responsibility and capacity. Another option is to tie trade in AAUs to Green Investment Schemes, which require a specific action to reduce greenhouse gases.

3.4 REMOVAL UNITS

Removal Units (RMUs) are issued by countries with a Kyoto Protocol target for each tonne of CO_2 that is removed from the atmosphere (for example, through forest sequestration).

RMUs are generally a robust and attractive option for purchase. They are created only by countries with binding economy-wide targets, and the Kyoto rules prevent double-counting. RMUs are not temporary credits—if the sequestration is reversed in the future, the selling country (that is, the country with the forest) is responsible for the emissions[2]. As a result, RMUs do not create the same risks and costs as temporary CERs from forestry projects in developing countries.

2 The rules for the treatment of land sector emissions in the post-2020 period are subject to ongoing negotiation.

First commitment period RMUs cannot be carried over. If Australia were to purchase these units, it could use them to help meet its first commitment period target and carry over additional AAUs instead. RMUs could be used towards its target, if they are available.

3.5 EMISSION REDUCTION UNITS

Emission Reduction Units (ERUs) are issued under the Joint Implementation (JI) mechanism of the Kyoto Protocol. JI is similar to the CDM; it credits emissions reductions at the project level. Because the project occurs in a country with a Kyoto Protocol target, the host country converts an existing AAU or RMU into an ERU to ensure the reduction is only counted once.

In the first commitment period, JI operated with two tracks. Track I units were issued directly by the host country; they were not subject to international review. Track II units were verified by an international body. Countries have agreed to review and streamline the operation of the JI for the second commitment period. The final arrangements are subject to negotiation; however, it is likely JI will operate under a single track.

Many countries participate in JI, creating and purchasing ERUs. A substantial volume of first commitment period ERUs are available in the market, at similar prices to CERs. Second commitment period ERUs are unlikely to be available until negotiations conclude. Carryover limits apply—Australia can only carry over 74 million first commitment period ERUs. If Australia purchases more than 74 million, it would need to use some towards its first commitment period target and carry over additional AAUs instead.

Because the JI allows countries to convert AAUs to ERUs, some Track I ERUs attract the same 'hot air' concerns discussed in Section 3.3. Track II ERUs, however, are subject to international oversight and do not raise the same concerns. Further, some countries have established domestic systems, such as Green Investment Schemes, to enhance the environmental integrity of Track I units.

JI has facilitated cooperative action between countries with mitigation commitments as well as direct investment in project-level activity. Market mechanisms of this type will remain an important element of an effective global response to climate change. Using ERUs in the period to 2020 can help to maintain existing market capacity. On balance, Australia could allow first and second commitment period ERUs to be used towards meeting its target.

As with the CDM, JI allows a very wide range of projects, and some of the issues raised earlier may be relevant here also. In particular, ERUs from some large hydro-electricity and industrial gas destruction projects could be excluded, and new coal power plant projects could be given low priority for the reasons discussed in Section 3.2.3. Similarly, there are good reasons to allow ERUs from existing projects. Forestry and other land-based JI projects would also be acceptable given the resulting ERU is permanent.

3.6 NEW MARKET-BASED MECHANISMS

In the second commitment period, countries will be able to use units generated from any new market-based mechanisms established under the UNFCCC to help meet their Kyoto Protocol target. This opens up another potential source of international units for Australia.

While no such mechanisms exist yet, negotiations are underway to establish a 'new market-based mechanism' and a 'framework for various approaches' that would govern how countries' individual or joint market-based approaches are recognised.

A large number of potential markets could be captured under these arrangements and be available for Australia to help meet its target. These include units generated under:

- the mechanism for reducing emissions from deforestation and forest degradation (REDD+)
- a mechanism that credits nationally appropriate mitigation action (NAMA crediting)
- emerging emissions trading schemes such as in China and the Republic of Korea.

These mechanisms could be established before 2020. Australia would need to know how these markets are structured and developed before firming up any views about the attractiveness of units from such new market mechanisms.

3.7 SUMMARY OF PURCHASING PRIORITIES

The Kyoto Protocol framework provides a wide range of options for accessing international units to use toward meeting emissions reduction targets.

Table 3.1 summarises the Authority's current thinking on the types of units available, and the priorities that might be attached.

TABLE 3.1: PURCHASING PRIORITIES FOR AUSTRALIA

Allow	High priority	First commitment period CERs (with the limited exceptions listed below). Second commitment period CERs from projects: • in countries that confirm CERs will not be counted towards meeting their own commitments and actions under the UNFCCC • in sectors or for gases not covered by the host country's commitment • in countries that are not expected to take on commitments without assistance such as least developed countries Second commitment period AAUs if satisfied with the stringency of the country's target. First and second commitment period RMUs. First and second commitment period ERUs (with exceptions discussed below).
	Low priority	CERs and ERUs from new coal-fired electricity generation projects.
Assess as they emerge		Second commitment period AAUs and ERUs from green investment schemes. Units from new market mechanisms, including potentially from emerging domestic markets, bilateral offset arrangements, REDD+ and NAMA crediting.
Do not allow		Temporary CERs. CERs and ERUs from: • large hydro-electricity projects that do not meet criteria established by the World Commission on Dams • industrial gas destruction projects. First commitment period AAUs.