

8 Carbon markets

The development of a stable, well-informed and efficient carbon market will allow the Carbon Pollution Reduction Scheme to achieve emissions reductions in a cost-effective way. This chapter discusses the Government's approach to promoting the rapid development of an efficient carbon market.

The Carbon Pollution Reduction Scheme will establish a market for greenhouse gas emissions, commonly known as a carbon market. A well-developed carbon market, including secondary and derivatives markets, will enable the economy to reduce emissions in a cost-effective way. The market will provide a reliable price to inform business investment, enabling entities liable under the Scheme to obtain carbon pollution permits as and when required and to manage carbon risks.

- Section 8.1 discusses the development of the carbon market.
- Section 8.2 discusses the importance of transparent and secure property rights.
- Section 8.3 describes the elements of an efficient market.
- Section 8.4 examines mechanisms, such as banking and borrowing, that give market actors intertemporal flexibility (that is, flexibility over time).
- Section 8.5 describes Scheme elements that will promote competition and prevent market manipulation.
- Section 8.6 discusses price formation, price volatility and price caps.

8.1 Development of the carbon market

The rapid development of a stable, well-informed and efficient carbon market, which is appropriately monitored and regulated to guard against market manipulation, will allow the Scheme to achieve emissions reductions in a cost-effective way.

8.1.1 Importance of an efficient market

As with any market, the carbon market will involve transaction costs, or the use of resources that might have been used productively elsewhere. In a well-designed market, transaction costs would normally fall over time as financial intermediaries and other service providers develop new financial products and find ways to deliver services more efficiently.

The Australian Financial Markets Association noted the importance of market development in its supplementary submission in response to the Green Paper:

The market development process involves the implementation of practical processes and infrastructure to bring together buyers and sellers in an efficient and orderly manner; research analysis and associated systems to estimate future prices and facilitate trading and investment decisions; and risk management products and markets to facilitate the transfer of risk and management of uncertainty. (Submission 1023, p. 2)

An efficient carbon market, including secondary and derivatives markets facilitated by financial intermediaries, will enable the economy to reduce emissions cost-effectively. It will:

- *provide a reliable price signal* to enable business to make informed investment decisions
- *channel permits to highest value use* to enable entities liable under the Scheme to obtain permits at competitive prices when they are required
- *provide carbon risk management services* to enable liable entities to secure forward prices, finance market transactions and insure against adverse conditions.

8.1.2 Elements of an efficient market

Market efficiency involves two interdependent elements: allocative efficiency and efficient price discovery (or informational efficiency).

Allocative efficiency refers to the market's capacity to channel resources—in this case, carbon pollution permits—to their highest value uses across the economy and through time at low cost and with minimal risk. That is, emissions are reduced by those best placed to abate, at the best time. A market that achieves these objectives is allocatively efficient.

For permits to flow to their highest value uses, the carbon price also needs to reflect all available information. Provision of relevant market information and predictable medium-term policy will assist Scheme participants and others to identify and understand the overall supply and demand conditions for permits, facilitating efficient price discovery. This will produce a reliable price signal that businesses can use to inform their investment decisions.

A carbon market that promotes allocative efficiency and efficient price discovery will have the following elements:

- *Transparent and secure property rights.* If property rights are secure, market actors can have confidence that they will receive the benefits flowing from their investments. Investors will be less likely to take commercial risks if property rights can be easily overturned or are ill defined.
- *Well-informed market participants and a stable and transparent policy framework.* Provision of relevant market information and predictable medium-term policy will assist financial market analysts and Scheme participants to identify and understand the overall supply and demand conditions for permits, allowing efficient price discovery. Price discovery will be more efficient if the market is given significant advance notice of changes to the climate change policy framework.
- *Intertemporal flexibility.* Intertemporal flexibility is the ability of liable entities to shift the timing of their emissions and abatement activities to reduce their costs. Three elements

could increase intertemporal flexibility: banking of permits, borrowing of permits and the length of compliance periods.

- *Competition and freedom from manipulation.* A well-designed market will be difficult to manipulate through collusion or price fixing.

A carbon market with these elements will develop more rapidly and will foster the development of new financial products and services, which will allow the Scheme to achieve emissions reductions in a cost-effective way. These elements are discussed in more detail below.

8.2 Transparent and secure property rights

This section describes the characteristics of carbon pollution permits issued under the Scheme.

The permit will be the basic unit of compliance and trade in the Scheme. The Green Paper posed two basic regulatory design options:

- Option 1—a permit or unit designed to provide a high level of legal and financial certainty
- Option 2—a permit or unit designed as a limited compliance instrument or licence that could be readily extinguished by the Government without providing compensation.

Green Paper position

A carbon pollution permit (which will be referred to in legislation as an Australian emissions unit) would be an entitlement composed of various 'rights' contained in the carbon pollution reduction legislation. The main rights would be the right to surrender the permit and to transfer it.

The scheme regulator would issue only one type of domestic permit, called an Australian emissions unit (referred to in the Green Paper as a carbon pollution permit).

The carbon pollution permits would be personal property.

There would not be power to extinguish permits without compensation, unless there had been misrepresentation or fraud by the holder against the Australian Government or the scheme regulator in the creation or issue of the permits.

Each permit could be surrendered to discharge scheme obligations relating to the emission of one tonne of carbon dioxide equivalent of greenhouse gas.

Each permit could be surrendered under the scheme only once.

Permits would be transferable.

Green paper position (continued)

Permit holders would only be entitled to surrender permits that they hold on the national registry. Legal title would be transferred only by entry in the registry.

The creation of equitable interests in permits would be permitted, as would taking security over them.

Each permit would have a unique identification number and be marked with the first year in which it could validly be surrendered (its 'vintage'). It would not have an expiry date.

The permit would be uncertificated; that is, it would be represented by an electronic entry in the registry rather than by a paper certificate.

Most submissions that addressed this issue supported defining permits to provide a high level of legal and financial certainty, with the characteristics outlined in the Green Paper. However, some environmental organisations argued against providing compensation to emitters for cancelling permits. The Australian Network of Environmental Defender's Offices (ANEDO) noted:

ANEDO has public policy and equity concerns about the characterisation of emissions permits as property rights and the right to compensation ... if a right to compensation is inserted into a federal emissions trading scheme, this will engender a climate where the Commonwealth body administering the scheme will be reluctant to adjust emission levels for fear of the monetary consequences, even where the latest scientific and environmental information calls for a re-adjustment of the cap. (Submission 517, p. 15)

Under Option 1, the legislation implementing the Scheme would not provide any power to extinguish permits without compensation except in the limited circumstances outlined in the Green Paper. This would reduce the risks associated with permits and promote market confidence in and development of the carbon market.

Option 2 might make it easier for the Government to tighten the Scheme cap. However, it has a number of disadvantages. It would reduce the demand for permits with 'vintages' beyond the current year because of the risk that those permits could be cancelled without compensation. This may hamper the emergence of a forward price for permits, reducing the carbon price information available to firms making decisions about how to manage their emissions, and to investors in low-carbon technologies. It could also reduce confidence in a credible government commitment to the Scheme's long-term operation.

The Government has therefore decided to adopt the first design option on the basis that it would promote the development of an efficient and robust carbon market, while maintaining a desirable level of flexibility over cap setting. See Chapter 10 for further discussion of Scheme cap setting and adjustment arrangements.

Policy position 8.1

Carbon pollution permits will be personal property.

Each permit can be surrendered to discharge Scheme obligations relating to the emission of one tonne of carbon dioxide equivalent of greenhouse gas.

Each permit will be surrendered under the Scheme only once.

There will be no power in the legislation to involuntarily extinguish or for a court to order the relinquishment of permits without compensation, except where the permits have been obtained through misrepresentation or fraud.

Permits, other than those issued under the price cap arrangements (see Section 8.6.2), will be transferable.

Permit holders will be entitled to surrender only permits that are entered on the national registry. Legal title will be transferred only by entry in the registry.

The creation of equitable interests in permits will be permitted, as will taking security over them.

Each permit will have a unique identification number and will be marked with the first year in which it can validly be surrendered (its 'vintage'). It will not have an expiry date.

The permit will be represented by an electronic entry in the registry, rather than by a paper certificate.

8.3 A well-informed market with a stable and transparent policy framework

For permits to flow to their highest value uses, the carbon price also needs to reflect all available information. This will provide a price signal that will inform business investment.

Provision of relevant market information and predictable medium-term policy will assist financial market analysts and Scheme participants to identify and understand the overall supply and demand conditions for permits, allowing efficient price discovery.

Therefore, it is important that the Government provide an appropriate level of guidance over price-relevant features of the Scheme. This will assist in efficient price discovery and allow business to make informed investment decisions.

In a system with little or no international linkage, the interaction between the cap and the demand for permits is the primary determinant of the carbon price: the more stringent the Scheme cap, the higher the price, all other things being equal. However, as discussed in Chapter 11, the Government has decided to allow unlimited imports of certain types of international units from the start of the Scheme and to review the scope for exporting permits over time.

If the international price is below the domestic price, there will be an incentive for liable entities to import cheaper eligible international units for use in acquitting their liabilities under the Scheme. This is expected to reduce the demand for domestic permits and decrease domestic prices causing these to converge on the international price, which in turn will be determined by global abatement demand and supply conditions. In this instance, the domestic Scheme cap will no longer be a significant determinant of domestic carbon prices.

If the international price is above the domestic price there will be no incentive for liable entities to import eligible international units. In this instance, the domestic Scheme cap will remain a key determinant of domestic prices until such time as the restriction on exports is lifted or the international and domestic price is equalised.

Scheme caps will be set in accordance with the indicative national emissions trajectory (see Chapter 4) which in turn reflects Australia's international obligations. The ambition of the national targets will in turn determine the national effort. Stringent national targets might result in Australian business and the Australian Government having to purchase eligible international units from offshore to meet international obligations. This would provide access to low cost abatement while transferring wealth out of Australia. For this reason, while the effect of Scheme caps on the cost of compliance to individual businesses will diminish, the approach to cap setting will remain critical to the overall cost to the Australian economy.

8.3.1 Release of price-relevant information

In a properly functioning market, participants have incentives to seek out and analyse relevant information. However, some information is known only to the Government. The Government can promote efficient price discovery by providing price-relevant information to the market in a timely manner and ensuring that the information is available to the whole market. If information is provided to only some market participants, those market 'insiders' would enjoy an informational advantage over other participants.

The Energy Supply Association of Australia noted:

Data and information publication will play a crucial role in allowing liable entities and other Scheme participants to form rational views on prevailing demand and supply. It is suggested that this market-relevant information be published in a frequent and timely fashion to assist Scheme participants. (Submission 715, p. 11)

The Government has taken into account the suggestions of stakeholders. Box 8.1 sets out the relevant information on Scheme operations, emissions, participants and compliance that the Government intends to make publicly available.

Box 8.1: Price-relevant information to be made publicly available

Type of information to be made publicly available	Details
Information about liable entities	The names of all liable entities, with an indication of whether a particular entity has opted into the Scheme or is required to surrender permits.
Information about auctions	The auction process (this will be included in a legislative instrument). The auction results for each vintage, including quantities sold and final settlement prices to be published as soon as feasible, and no later than seven days after the close of the auction. The benchmark average auction price.
Information about administratively allocated permits	The recipients and the number and vintages of permits allocated to each—the regulator will be required to publish this information as soon as feasible, and no later than seven days after the allocation. The total permits allocated for each category (emissions-intensive trade-exposed and strongly affected industries) and the total for each emissions-intensive trade-exposed activity—the regulator will be required to publish this information quarterly.
Information about reforestation and synthetic greenhouse gas destruction	Permits issued for reforestation and synthetic greenhouse gas destruction activities—the regulator will be required to publish this information quarterly.
Information about emissions and permits	Emissions reported by each liable entity. Total emissions reported by all liable entities. Types of estimation methodologies used. Any uncertainty estimates. The number of permits banked and borrowed. The number and types of eligible compliance units surrendered by each liable entity. Shortfalls by liable entities, including each liable entity that has a shortfall and the amount of the shortfall, the proportion of that shortfall relative to the liable entity's required permits for that year, and payment of administrative penalties. Each liable entity's compliance status. Total shortfalls for the year.
Information relating to the permit registry	For domestic carbon pollution permits, the names of account holders and their contact details. For international eligible emissions units, the information required to be published under international arrangements, which includes the account name and a summary of the various eligible international units held, transferred, cancelled or retired in the registry. A concise description of the characteristics of various units that will be acceptable for surrender under the Australian Scheme. Any enforceable undertakings obtained by the regulator. Information about how close Australia is to breaching its commitment period reserve and information about the procedures that apply in those circumstances. The regulator will establish a public register of Scheme forests, which will include information about the location of each forest, projected sequestration for each forest, and other information required by participants in the permit market to ensure accountability and transparency.
Other relevant information	Holders of permits will be required to report when they and their associates have 5 per cent or more of a particular vintage—the regulator will be required to publish this information as soon as practicable after receipt. The minister will be required to table the report of the independent advisory committee constituted to undertake the strategic review every five years. The Australian Government's response to recommendations in the report of the independent advisory committee will have to be tabled. Any direction to the regulator by the minister will be published as soon as practicable after the direction is given.

8.3.2 Predictable medium-term policy framework

Price discovery will be more efficient if the market is given significant advance notice of changes to the Scheme policy framework. This will allow the market time to factor changes into future prices and to adjust investment decisions accordingly.

Submissions in response to the Green Paper were highly supportive of the Government's proposal for medium-term policy certainty and market guidance. The Investment and Financial Services Association noted:

A well functioning, fully informed and open carbon market will allow the scheme to achieve efficient price discovery and emissions reductions in a cost-effective way. (Submission 846, p. 3)

This was echoed by BP Australia:

A well-functioning market and its resulting forward carbon price expectations is a particular need in the oil & gas sector, with its long development timelines and requirements of significant upfront capital investment. (Submission 355, p. 6)

Box 8.2 lists the information for which the Government will provide medium-term policy certainty.

Box 8.2: Guidance over medium-term policy framework

Policy influencing emissions demand and supply

Medium-term national emissions target range for 2020 and indicative national emissions trajectory

Expansion of sectoral coverage

Changes to carbon accounting rules

Caps

Gateways

Measurement methodology

International linking

Market guidance: final positions

This White Paper announces a medium-term national target range and an indicative national emissions trajectory for 2010–11 to 2012–13, to provide broad guidance on the pathway towards the medium-term target range (see Chapter 4).

The Government will make a decision in 2013 on the inclusion of agriculture in the Scheme in 2015.

Scheme participants will be given five years notice of any rule changes that would have a material impact on the supply or demand for permits, such as changes to gas coverage or to the global warming potentials of covered gases (see Chapter 7).

Scheme caps will be set and announced for a minimum period of five years at any time or may be extended to the end of any international commitment period, with Scheme caps extended by one year, each year, as required to maintain a minimum five-year certainty period (see Chapter 10).

The Government intends to provide up to 10 years of gateways beyond the minimum five years of certain Scheme caps, taking into account the progress of international negotiations (see Chapter 10).

Appropriate notice will be given before mandatory minimum standards for emissions estimation methodologies are imposed or increased (see Chapter 7).

Notice will be provided before major changes to estimation methodologies take effect. This will occur in the context of the five-yearly Scheme reviews (see Chapter 7).

Smaller revisions to methodologies will be made on an annual basis (see Chapter 7).

Should an entity elect to use a more precise emissions estimation method than required, that methodology will be the minimum methodology for that entity for a period of four years (Chapter 7).

In general, five years notice will be provided for changes in international linking arrangements (including the types of international units that are recognised for compliance and the export of permits—see Chapter 11).

8.4 Intertemporal flexibility

Intertemporal flexibility refers to the extent to which liable entities can shift the timing of their emissions and abatement activities to reduce their costs. Three elements could increase the Scheme's intertemporal flexibility:

- *Banking.* Allowing permits from the current year cap to be set aside for use in future years would reduce allowable emissions in the current year while increasing future year emissions.
- *Borrowing.* Allowing permits from future year caps to be brought forward for surrender in the current year would reduce allowable emissions in future years while increasing current year emissions.
- *Length of compliance periods.* Requiring liable entities to surrender permits for emissions only every two or more years would allow them to budget over the period.

The Scheme could allow no, some or complete intertemporal flexibility.

In a scheme with no intertemporal flexibility, permits would be issued each year up to the level of the annual cap and there would be no banking or borrowing. Annual emissions limits would be binding and inflexible in the absence of international linking. This could be described as a 'quarantined cap' system.

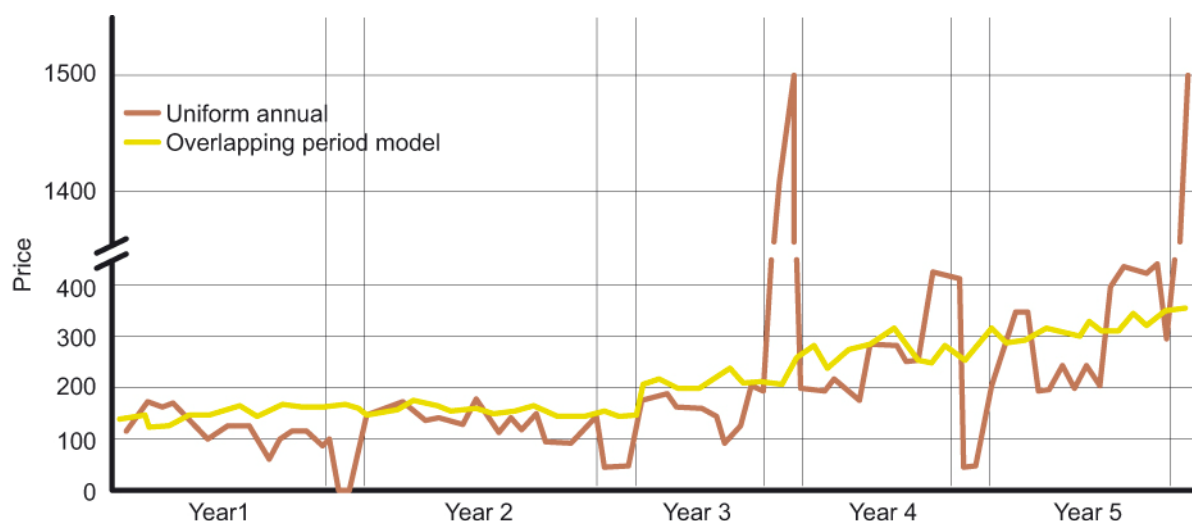
In a scheme with complete intertemporal flexibility, the sum of annual allowable permits over, for example, 20 years, would be issued to the market, and banking and borrowing would be unlimited. This is referred to as a 'carbon budget' approach. Under this approach, aggregate emissions could not exceed the total carbon budget for the defined period. However, within that overall constraint, annual emissions limits would be non-binding.

In between these extremes are systems that set annual caps but then allow some intertemporal flexibility between them. If unlimited banking and borrowing were allowed or the surrender period were extended for many years, the Scheme would resemble the carbon budget approach. If banking and borrowing were not allowed and the surrender period was only one year, the scheme would resemble a quarantined cap system.

In general, intertemporal flexibility will improve allocative efficiency by allowing abatement to occur at the time that imposes the lowest relative cost on the economy. It will also have the effect of smoothing prices over time. However, even with intertemporal flexibility, the carbon price can display some volatility.

Figure 8.1 illustrates an experimental analysis of the smoothing impact on the price of permits in a system with short-term banking and borrowing. It compares the behaviour of two different types of annual pollution permits. The brown line shows the price path of a uniform annual instrument; that is, a permit that is valid from 1 January to 31 December. The yellow line represents a pair of overlapping period instruments: one is valid from 1 January to 31 December and the other is valid from 1 July to 30 June. With the overlapping instrument, if there is a permit shortage due to unexpected events, firms can bank or borrow (from the adjacent period), which smooths the price path. In the single instrument case, the inability to bank or borrow results in large price swings and a loss of economic efficiency.

Figure 8.1: Price volatility in a system with short-term banking and borrowing



Source: CR Plott, 'Presentation to Workshop', Canberra, March 2008.

However, intertemporal flexibility (most particularly borrowing) must be carefully balanced against the need to ensure the ongoing credibility of the Scheme. For example, as discussed below, excessive borrowing could lead to speculation that the Government will be forced to issue additional permits in subsequent years. To maintain credibility, the Government must maintain some control over the trend and time-path of emissions.

The following sections consider the three intertemporal flexibility mechanisms: banking, borrowing and the length of compliance periods.

8.4.1 Banking

Banking allows permits to be saved for use in future years. With unlimited banking, permits would not have an expiry date—once issued, they could be used for compliance at any future time. Box 8.3 outlines banking arrangements in international and other Australian schemes.

Green paper position

Unlimited banking of permits would be allowed under the scheme.

Box 8.3: International and other Australian scheme proposals for banking

The National Emissions Trading Taskforce¹ and *The Garnaut Climate Change Review: Final report*² recommended unlimited banking. The New Zealand Emissions Trading Scheme also incorporates unlimited banking.³ The Garnaut Final Report noted that, if a transitional price cap is used, permits should not be allowed to be banked between the transition period and the subsequent period. Similarly, the Task Group on Emissions Trading⁴ suggested that some limitations on banking might be needed in the early years of the scheme while a transitional price cap is in place.

The European Union Emissions Trading Scheme allows banking between years, but not between Phase I and Phase II.⁵ However, banking is allowed between Phase II and Phase III.⁶

There are three broad banking options:

- allowing unlimited banking
- not allowing banking in the early stages of the Scheme
- not allowing banking.

Most of the many submissions that commented on banking supported unlimited banking. Westpac noted:

Banking provides compliance flexibility, encourages early emission reductions and reduces compliance costs. It also allows firms to manage emissions profiles more smoothly from year to year to reflect production variations and the business cycle.

The ability to bank carbon permits for use in future years would also serve to smooth out price volatility, helping to avoid situations where an excess of permits at any given time might depress the carbon price. (Submission 695, p. 5)

The Clean Energy Council stated:

There should be unlimited banking under the scheme. Enabling participants to bank permits will provide flexibility to the market and will assist in the development of a forward market for permits, while at the same time reducing the price volatility in that market. It will allow participants to efficiently manage their risk positions and make informed decisions on investments. (Submission 829, p. 8)

However, some submissions opposed unlimited banking. Greenpeace contended:

Unlimited banking will mean that the exact amount of GHG emissions permitted in any given period is out of the control of the government. This will create a problem if the Australian Government decides that a deeper cut in emissions is required to avoid catastrophic climate change. (Submission 692, p. 13)

As with all measures that improve intertemporal flexibility, allowing banking is likely to improve the economic efficiency of the Scheme. Banking allows participants to set aside permits for later ‘high-demand’ periods. This advantage is likely to be significant—the total resource costs of meeting a long-term emissions constraint are likely to be lower with unlimited banking than without.

Banking provides greater flexibility both for market participants and, to some extent, for the Government. A more flexible market reduces the pressure on the Government to predict the economy’s demand for permits accurately from one year to the next.

Banking provisions will reduce Scheme implementation risks. First, banking in general is likely to lead to an overall price path that is smoother than the non-banking alternative, promoting efficient price discovery. Limiting banking in phases can lead to cyclical pricing behaviour, with prices falling to zero at the end of each phase, as occurred at the end of Phase I of the European Union Emissions Trading Scheme (EU ETS).⁷

Second, if banking is not allowed, permits have a ‘use it or lose it’ property. Liable entities will be less likely to take early action to explore abatement potential if previously obtained

permits that become surplus cannot be banked for future use. The absence of banking could therefore slow the pace of adjustment to the emissions constraints.

On the other hand, banking might result in higher initial prices for permits, as noted in some submissions. Setting permits aside for future use reduces current supply (increasing the current price), but increases future supply (decreasing the future price). While this smooths the price in the long term, the initial price rise makes it more difficult to engineer an ‘easy’ start to the Scheme with relatively low prices.⁸

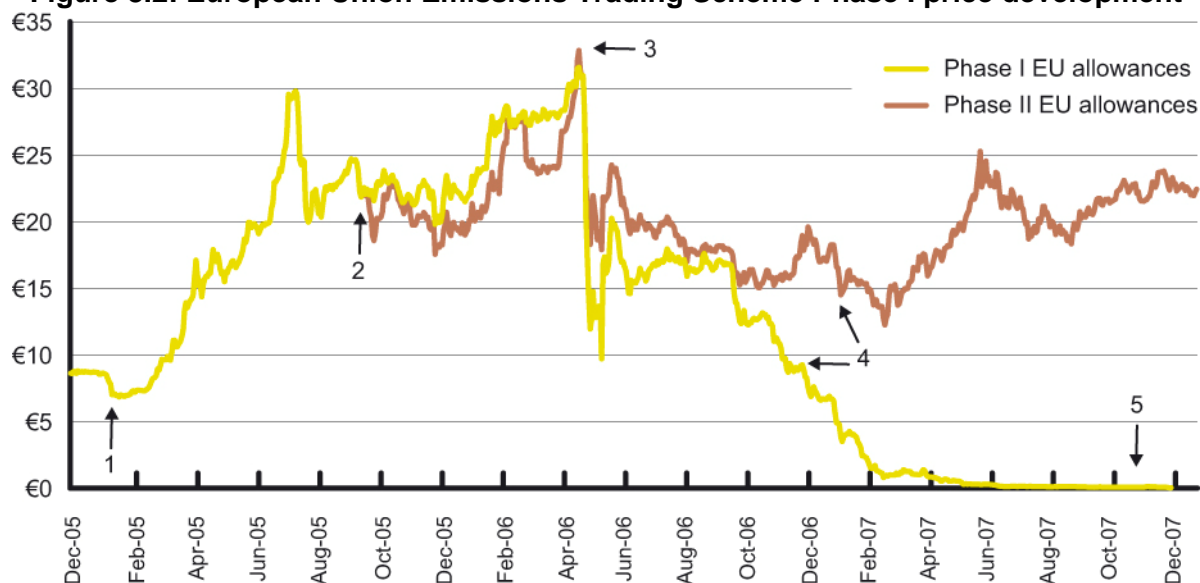
For this reason, some stakeholders have suggested that banking be disallowed initially while the economy is adjusting to the carbon constraint. However, there are a number of arguments against this:

- any step change in prices would only be deferred to the period in which banking is allowed
- prices in subsequent periods would be higher than they would have been had banking been allowed, as more expensive abatement options are pursued (which could have been avoided if less expensive shorter term abatement had been pursued)
- disallowing banking between phases could lead to the collapse of the price of permits at the end of the non-banking phase and then a large price step up in the next phase, as occurred in the EU ETS (see Box 8.4). This cyclical pricing behaviour could lead to less efficient market outcomes and reduce confidence in the system overall.

Box 8.4: Price path of European Union allowances in Phase I of the European Union Emissions Trading Scheme

Phase I of the EU ETS (2005–2007) was a trial period to allow firms and governments to gain experience in emissions trading. Figure 8.2 illustrates the price path in Phase I, based on a recent analysis by the Pew Center on Global Climate Change.⁹

Figure 8.2: European Union Emissions Trading Scheme Phase I price development



Notes¹⁰

- 1 January 2005: Commencement of Phase I of the EU ETS. Allowances to emitters were overallocated in Phase I due to a lack of accurate data in advance of the Scheme.
- 2 Phase II allowances introduced and commenced trading.
- 3 Release of 2005 verified emissions data by several member states led to a market realisation of the overallocation and a steep decline in allowance prices.
- 4 The prices of Phase I and Phase II allowances diverged because there were no provisions for banking Phase I allowances for use in Phase II.
- 5 The price of Phase I allowances trended towards zero as allowances approached their expiry date. Phase I units could not be banked for use beyond 31 December 2007 (the end of Phase I).

Source: Point Carbon website.

Current international arrangements allow for banking, that is, eligible international units can be carried over into the next (as yet unspecified) commitment period. If future international arrangements did not allow for banking, there would be a small risk that banking in the Scheme may lead to difficulties in meeting Australia's international emissions reduction targets.

Overall, the advantages of banking (reducing overall costs, encouraging early and efficient abatement activity, providing greater flexibility to participants and to governments) outweigh the disadvantages (higher early prices than otherwise, and potential inconsistency with international obligations).

Finally, the advantages of banking are greatest if banking is continuous. For these reasons, the Government will allow unlimited banking from Scheme commencement.

Policy position 8.2

Unlimited banking of permits will be allowed under the Scheme (except those accessed under the price cap arrangements).

8.4.2 Borrowing

Borrowing allows permits to be brought forward from future years. Borrowing can be short term (borrowing only from the subsequent year) or long term (borrowing two or more years in advance).

Green paper proposal

The scheme would permit a limited amount of short-term borrowing.

Box 8.5: International and other Australian scheme proposals for borrowing

No Australian proposals or international schemes have recommended unlimited long-term borrowing.

In principle, the Garnaut Final Report allowed for some limited long-term borrowing. This was to be administered by the regulator through the official ‘lending’ of permits from future years (but not exceeding five years in advance), with an obligation to repay the loan at a future date. The regulator would lend only amounts that would not destabilise the current or future market. In this way, the regulator would be an ‘independent carbon bank’ that determines how many permits can be lent, and to whom, based on an assessment of creditworthiness.

The European Union Emissions Trading Scheme has a form of unlimited short-term borrowing.¹¹ Allowances from the following year are issued early and may be used for surrender in the current year.

The Regional Clean Air Incentives Market (RECLAIM) scheme in the United States has a form of limited short-term borrowing: half of the following year’s units are issued for use in surrender in the current year.¹²

The National Emissions Trading Taskforce recommended a more limited form of short-term borrowing: up to 1 per cent of an entity’s obligation could be met by using the following year’s vintage permits.¹³

The Renewable Energy Target¹⁴, the NSW Greenhouse Gas Reduction Scheme¹⁵ and the Australian Capital Territory Greenhouse Gas Abatement Scheme¹⁶ also have a form of short-term borrowing. Liable entities are allowed a limited shortfall without penalty, as long as the shortfall is made up in the following year.

The Task Group on Emissions Trading recommended that there be no provision for borrowing.¹⁷

There are five broad borrowing options:

- unlimited short-term and long-term borrowing
- unlimited short-term borrowing only
- limited short-term borrowing only
- the regulator to administer limited short-term borrowing only
- no short-term or long-term borrowing.

Most of the substantial number of submissions that commented on borrowing supported short-term limited borrowing. However, some submissions argued that unlimited borrowing should be allowed, while others argued that no borrowing should be allowed.

The Clean Energy Council noted that there should be a limit placed on borrowing:

There are risks associated with unlimited borrowing from future obligations. The credibility of the market would be severely harmed should a business collapse owning a large number of borrowed certificates. To limit this risk borrowing should be limited to a very small percentage of the annual liability to cover administrative oversights in balancing annual liability. (Submission 829, p. 8)

However, Professor Grafton and Dr Ward from the Crawford School of Economics and Government at the Australian National University were in favour of unlimited long-term borrowing for efficiency reasons:

A failure to allow long-term borrowing reduces the economic efficiency of a carbon pollution permit scheme and, thus, increases the costs of achieving a given emissions reduction. Since achieving emissions reductions will cost the Australian economy multiple billions of dollars, any unnecessary constraint on efficiency such as the proposed restriction on borrowing is inadvisable. (Submission 152, p. 1)

Other stakeholders were opposed to any form of borrowing on environmental grounds. Climate Action Network Australia stated:

to prevent erosion of environmental effectiveness, borrowing must not be allowed. This ensures that urgent emission reductions occur now, rather than being postponed to become the burden of future generations. (Submission 272, p. 5)

Likewise, ANEDO stated:

ANEDO also has significant reservations with the Green Paper's recommendation that the borrowing of permits should be permitted ... Our primary reasoning is that the risk of emitters defaulting on these loans in future periods has the potential to severely undermine the environmental integrity of the scheme, which is an unacceptable risk. Large defaults on 'loans' would inevitably lead to a failure to meet emissions targets. (Submission 517, p. 17)

Long-term borrowing

The combination of unlimited banking and unlimited long-term borrowing (borrowing two or more years in advance) would result in a 'carbon budget' approach. That system would allow a larger proportion of permits to be used in the short term, with corresponding reductions in emissions in later years, if that were the most cost-effective means of remaining within the overall carbon constraint over time. If the integrity of the carbon budget could be maintained, this would be the most economically efficient option, as noted by Professor Grafton and Dr Ward and the Minerals Council of Australia (Submission 884, p. 17).

There are three important disadvantages of unlimited long-term borrowing. First, in the domestic context, it might lead to pressure being applied to the Government to subsequently change the rules. In particular, if too many permits are used in the short term because firms

borrow from the future, the Government might be pressured into issuing more permits in the future to avoid problems associated with a subsequent shortage of permits. Industry would have a large incentive to overuse permits (that is, to do less abatement than otherwise) in the short term in the knowledge that the Government may have little option but to accede in the longer term, or risk damage to the economy. Second, long-term borrowing arrangements are not accepted in other schemes and may pose difficulties for linking. Third, if long-term borrowing is allowed under the international climate change framework, this could lead to significant and potentially detrimental delays in the global abatement effort.

Given these risks, the option of unlimited borrowing could undermine the environmental integrity of the Scheme. That risk would exist even if borrowing were administered by the Scheme regulator in the manner proposed in the Garnaut Final Report. Furthermore, banking in the early stages of the Scheme, in anticipation of tighter future caps, would create a store of banked permits that could be used in future years of high demand. That buffer would allow an economically efficient outcome without the need for long-term borrowing. This is why unlimited long-term borrowing is not allowed in any existing scheme and why the Government does not intend to allow it.

Short-term borrowing

Short-term borrowing (borrowing one year in advance) would promote economic efficiency without the same risks as long-term borrowing. The primary purpose of allowing borrowing between adjacent periods is to prevent price spikes and resultant economic disruption around the final surrender date. Although the frequency and timing of auctions will take into consideration the variation in demand for permits over the course of the year, the risk of price spikes around the surrender date remains, by which time actual emissions for the year and issued permits are fixed. Price spikes can arise either from ‘output surges’, arising from natural variation in the economy, or from speculators ‘squeezing’ a thin pre-surrender date market. By increasing the supply of permits, borrowing from adjacent periods reduces the likelihood of squeezing and gives the market more capacity to cope with output surges.

Under current international arrangements borrowing is not allowed between commitment periods. Short-term borrowing in the Scheme will allow for a limited number of future vintage permits to be used in the current commitment period. Where it is expected that there will be net borrowing, the Government will need to manage the difference between Scheme design and the international architecture. This could be achieved by purchasing eligible international units that can be surrendered in the first commitment period to account for the additional emissions associated with borrowed permits. In the second commitment period, the Government would be able to sell surplus eligible international units because emissions in that period will be lower than they otherwise would have been in the absence of borrowing. This is primarily a concern in the last year of the commitment period. However, it is not likely to be a problem, as net banking in the Scheme is expected over time and borrowing is limited to 5 per cent of the next year’s vintage (see ‘Quantum of borrowing allowance’ below).

Policy position 8.3

The Scheme will permit short-term borrowing.

Form of borrowing

There are several options for limiting the amount of short-term borrowing in the Scheme. Few submissions commented on this issue.

Green paper position

Borrowing would take the form of allowing liable entities to discharge up to a certain percentage (less than 5 per cent) of their obligations by surrendering carbon pollution permits dated from the following year.

Option 1 is to limit borrowing by allowing liable entities to have a shortfall in permits. The shortfall would attract no penalty as long as it is made up in the following year. Allowing delayed compliance in this way may increase the probability of noncompliance in the subsequent period and therefore compromise the environmental integrity of the Scheme. There is also a risk that such a provision could be seen as disadvantaging firms that meet Scheme obligations without borrowing. Although this form of borrowing has not proved problematic so far in either the Renewable Energy Target¹⁸ or the Australian Capital Territory Greenhouse Gas Abatement Scheme¹⁹, other methods of limiting borrowing can achieve the same outcome without the associated fairness or environmental integrity problems.

Further options are to limit borrowing by:

- allowing only a certain percentage of an entity's obligation to be met using the following year's vintage of permits (Option 2)
- marking a subset of a year's vintage as available for use in the previous year's compliance period (Option 3)
- having the regulator administer borrowing arrangements (Option 4).

Option 2 and Option 3 deliver an equivalent level of borrowing, as may be required for output surges. However, Option 2 is superior to Option 3 in alleviating squeezes (squeezes rely on a shortage of usable units). Because any of the next year's vintage could be used (in limited quantities) under this option, it would be difficult to create a squeeze in supply, as that would require the acquisition of the entire year's allocation. Option 2 is also simpler to implement, as it does not subdivide vintages into different categories.

Option 4 is to have the regulator administer the level of borrowing in accordance with the needs of the market, as proposed in the Garnaut Final Report. The regulator would assess the creditworthiness of the borrower, who would be obliged to repay the debt by providing permits to the regulator at a later date. While the Government would be responsible for setting overall banking and borrowing policy, it would be up to the regulator to decide on the exact amount, timing and terms of the arrangement.

This arrangement is more administratively complex than the other options, which require no assessment of creditworthiness and, as long as the allowance for banking is limited, does not pose a risk to the credibility of the longer term cap. A discretionary approach would also be less transparent and would provide the market with less certainty than one in which rules were legislated. A discretionary approach also requires a high degree of confidence in institutional arrangements, which generally takes time to develop through a track record of sound performance.

For these reasons, the Government will allow a certain percentage of an entity's obligation to be met using the following year's vintage (Option 2).

Policy position 8.4

Borrowing will take the form of allowing liable entities to discharge up to a certain percentage of their obligations by surrendering carbon pollution permits dated from the following year.

Quantum of borrowing allowance

Unlimited short-term borrowing, like unlimited long-term borrowing, may result in credibility risks for the Scheme. For this reason, some limit on short-term borrowing is warranted.

The Green Paper preferred position was to limit the amount of short-term borrowing to 5 per cent of an entity's obligations. In relation to determining the limit on borrowing, the Green Paper noted that there would need to be careful analysis of the natural fluctuation of the covered sources of emissions and the allowance of international units into the domestic Scheme.

Green paper proposal

The exact percentage should be subject to further investigation and should be considered in conjunction with decisions about the level of the initial scheme caps.

Many stakeholders in favour of short-term borrowing were in favour of the 5 per cent proposed in the Green Paper:

ANZ notes that the Green Paper is proposing that borrowing would be limited to no more than 5 per cent subject to further decisions pending the level of the scheme caps. We would support this proposal as the borrowing of higher amounts would limit the ability of the market to establish a clear price for carbon as well as hindering the development of secondary markets. (Submission 504, p. 4)

Some submissions suggested alternative amounts. The International Emissions Trading Association noted:

Allowing firms to borrow up to 7% of their obligation requirement from future periods will help industry manage capital investments appropriately. (Submission 658, p. 7)

As noted above, the limit on short-term borrowing should be enough to provide a buffer against potential price spikes arising from output surges (arising from natural variation in the economy) or from market participants squeezing a thin pre-surrender date market.

Box 8.6: Borrowing and the variability in emissions covered under the Scheme

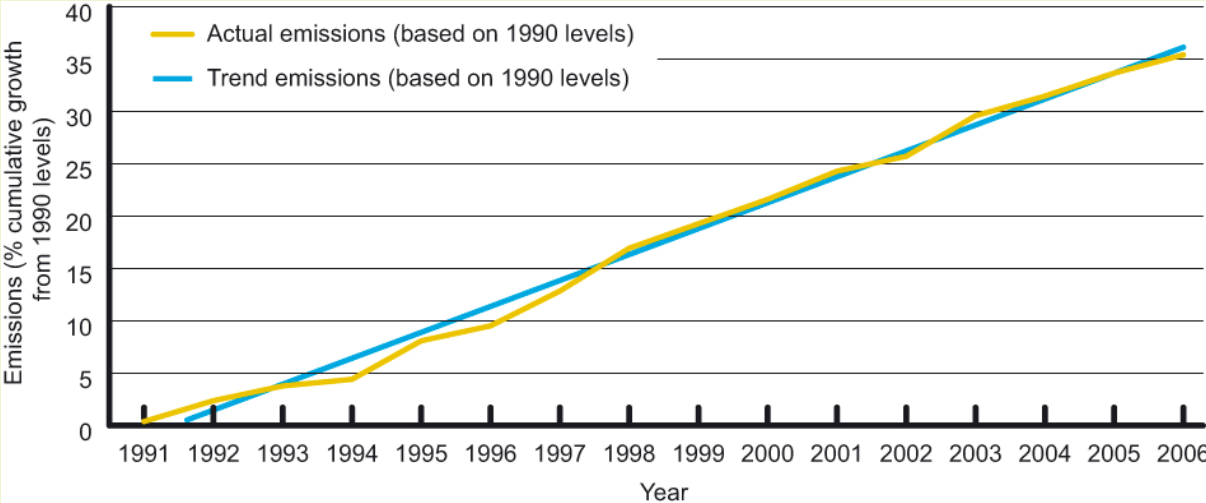
The limit on short-term borrowing should be sufficient to take account of output surges in the economy. One way to measure output surges is to examine the historic variations in national emissions from sources covered under the Scheme.

The blue line in Figure 8.3 represents the trend in cumulative emissions growth from covered sources (from 1990 levels). This can be viewed as the ‘expected’ growth of emissions covered under the Scheme. The yellow line represents the actual cumulative emissions growth from covered sources (from 1990 levels).

Since 1990, emissions from sources covered under the Scheme, have not fluctuated from trend by more than around 2 per cent annually. For borrowing purposes, the relevant years are those in which actual emissions are higher than the trend growth in emissions. This indicates that there has been a surge in the level of emissions (above the level entities may have been expecting), which may leave liable entities with a potential shortfall in permits and require them to borrow from the adjacent period.

That said, the introduction of a comprehensive carbon price for the first time may increase the level of uncertainty surrounding these estimates.

Figure 8.3: Variability in emissions covered under the Scheme



Source: National Greenhouse Gas Inventory, Department of Climate Change.

The information in Box 8.6 suggests that a borrowing limit of 5 per cent would provide a more than adequate buffer against output surges. This limit would also provide some protection against cornering of the market by providing another source of permits beyond the current year. Because any of the next year's permits can be used, all of these would need to be bought up in order to corner the market.

The cap on borrowing would be in place at the entity level. This would translate through to the Scheme as a whole and represent an upper bound for the aggregate borrowing allowed under the Scheme.

Allowing borrowing up to 5 per cent strikes the appropriate balance between providing a buffer against output surges and squeezes while maintaining the environmental integrity of the Scheme. This limit achieves market flexibility and smooths price shocks, while avoiding damage to the credibility of the medium-term national target.

Policy position 8.5

The Scheme will allow liable entities to discharge up to 5 per cent of their obligations by surrendering carbon pollution permits dated from the following year.

8.4.3 Length of compliance period

Flexibility through time could also be offered through the length of the compliance period (the period of time over which emissions must be recorded to determine entities' obligations). At the end of the compliance period, entities that have Scheme obligations will be required to surrender permits equivalent to their emissions over the compliance period.

Green paper proposal

The scheme would have a compliance period of one year.

Box 8.7 discusses compliance periods in other emissions trading schemes and government compliance regimes.

Box 8.7: Compliance periods in other emissions trading schemes and government compliance regimes

Some forms of Australian Government taxation use compliance periods of less than one year for certain entities; for example, instalments of income tax and other tax under the pay-as-you-go and the goods and services tax systems.

The National Emissions Trading Taskforce recommended a one-year scheme compliance period.²⁰ Phase I and Phase II of the European Union Emissions Trading Scheme²¹ and the New Zealand Emissions Trading Scheme²² also have one-year compliance periods.

The United States Regional Greenhouse Gas Initiative has a compliance period of three years. The period can be extended in response to a 'safety valve' trigger event (that is, if the permit price exceeds a set amount for a certain period).²³

At the national level, the current Kyoto Protocol commitment period is five years from 2008 to 2012.

There are three broad options for the length of the compliance period:

- less than one year (for example, three or six months)
- one year
- more than one year.

Most of the relatively few submissions that commented on this issue were in favour of a one-year compliance period. Transfield Services noted that:

a one-year (annual) compliance period is most logical for a range of reasons, including ... consistency with other similar schemes overseas and also for consistency with normal company accounting cycles. (Submission 478, p. 4)

However, a small number of submissions supported a longer compliance period. The International Emissions Trading Agency stated:

IETA believes an important means of keeping costs down is to provide for sufficiently long compliance periods. Multiyear compliance periods, in which allowances are fungible across years within the same compliance period, provides a level of flexibility that will assist companies not only in long-term planning, but also in adjusting to unanticipated events. (Submission 658, p. 7)

While intertemporal flexibility is important, it must be carefully assessed because of the risk it poses to the credibility of the Scheme. Compliance periods that are longer than one year would give greater flexibility in emissions between the years in a compliance period, but would not address flexibility between compliance periods. By the end of a long compliance period, a significant mismatch between the supply of, and demand for, permits in the Scheme may develop.

Allowances were overallocated in Phase I of the EU ETS. Because there was no banking facility for those permits, their price fell to almost zero by the end of Phase I.²⁴ However, in theory, the opposite is also possible—liable entities might use up permits in the early years, leading to a shortage and an ensuing price spike at the end of the period. Furthermore, longer compliance periods might exacerbate intertemporal problems, as pressure has longer to build up between surrender dates. The larger build-up of obligations over this longer period may also increase the risk of noncompliance and undermine the Scheme.

Annual compliance periods are consistent with other schemes and proposals. They are also consistent with financial-year reporting arrangements. While shorter compliance periods (less than one year) could be considered at a later time, the gains in market efficiency must be weighed carefully against the larger compliance burden on both government and liable entities. Furthermore, entities will be allowed to surrender permits at any time to create shorter effective compliance periods if they choose (see Chapter 7).

For reasons of international consistency and risk management, the Government prefers annual compliance periods over longer or shorter compliance periods.

The arrangements for reforestation are considered separately in Chapter 6.

Policy position 8.6

The Scheme will have a compliance period of one financial year.

8.5 Competitive market free of manipulation

Financial intermediaries have an important role in providing risk management services to liable entities and facilitating the development of an efficient carbon market. However, many stakeholders raised concerns that financial market participants will engage in market manipulation, anti-competitive behaviour, or both, to profit at the expense of liable entities. The Construction, Forestry, Mining and Energy Union stated:

There is also concern about the extent of participation by financial intermediaries. While the participation of financial markets players is important in giving flexibility and liquidity to the market, extreme caution must be taken to ensure that the degree of intermediation (to be more specific, speculation) does not actually result in unnecessary volatility and higher overall system costs. (Submission 774, p. 17)

The Australian Food and Grocery Council noted:

Allowing financial markets to participate in the auctioning process invites the possibility of manipulation over the carbon trading system, leaving genuine purchasers of permits at a disadvantage. While there is a potential need for financial services in an established carbon market the Government should ensure that an appropriate level of control is maintained to prevent distortion. (Submission 831, p. 14)

EnergyAustralia raised similar concerns:

EnergyAustralia has concerns however; that there may be a shortage of permits for liable parties if manipulative speculators purchase permits and distort the market in the

short term. By creating an artificial scarcity within the market, the costs of the scheme may escalate from costs that would ordinarily be the case. (Submission 339, p. 6)

There is no particular reason to believe that financial intermediaries will be more likely to manipulate the market than other participants. While financial intermediaries often have large financial resources so too do many of the liable entities under the Scheme. Indeed, the best protection against manipulative behaviour will come from broad participation in the Scheme, which will result in many buyers and sellers in the market. In this context the Government's decision to allow unlimited imports of certain international units is important. Access to this alternative carbon market will further limit the capacity of entities to manipulate the market. Nevertheless, it will be important that the carbon market and auction, like other financial markets, are appropriately monitored and regulated, that market operations are sufficiently transparent, and that liable entities have a wide and flexible range of options for sourcing permits. The following section outlines the elements of the Scheme designed to achieve this objective.

8.5.1 Appropriate monitoring and regulation of the carbon market

The Australian Securities and Investments Commission (ASIC) will be given the necessary legal power to investigate and prosecute market manipulation in the carbon market. To that end, the preferred position expressed in the Green Paper was that permits be financial products for the purposes of the *Corporations Act 2001*, but some adjustment to that regime may be required to fit the characteristics of carbon pollution permits.

Policies aimed at curbing undesirable behaviour should not unduly disrupt the development of a deep and liquid market. By offering liable entities a wide range of sellers and sources of permits at competitive prices, such a market will be a defence against that type of behaviour.

Green paper proposal

The permit would be a financial product for the purposes of the *Corporations Act 2001*, but some adjustment to that regime may be required to fit the characteristics of permits.

Services provided in relation to permits will be similar to those for financial products, such as shares and debentures. Those services are expected to include the provision of trading advice, brokerage services, trading platforms and support services. It is expected that derivatives over permits will be financial products for the purposes of the *Corporations Act* as it currently stands, and there is no proposal to change this.

Permits, like other financial products, could also be the subject of market misconduct, including market manipulation and insider trading. Market manipulation includes manipulation of the auction process (for example, through collusion) and of prices in the secondary market. There is also the possibility of cornering the market for permits close to the time for surrender.

To ensure the ongoing credibility of the Scheme, the Government must consider the regulation of services and other conduct relating to permits. Two options for achieving this were discussed in the Green Paper:

- creating a new regulatory regime
- using the existing regulatory infrastructure provided in Chapter 7 of the Corporations Act, which addresses, among other things, the regulation of formal financial markets, market misconduct and financial advice.

A new regulatory regime could be more easily tailored to the distinctive features of the Scheme and permits, while adapting the existing regulatory system would be more likely to achieve consistency with the regulation of similar financial services and avoid unfair competition.

In addition to any specific role for ASIC, the Australian Competition and Consumer Commission would exercise its economy-wide oversight of anti-competitive conduct.

A number of submissions referred to the monitoring and regulation of the carbon market. Several stakeholders, including the Law Institute of Victoria and the Investment and Financial Services Association, supported the inclusion of permits as financial products for the purpose of the Corporations Act, with appropriate adjustments to fit permits' characteristics.

Other stakeholders, including the Australian Bankers Association, Westpac and the Australian Financial Markets Association, opposed treating permits as financial products for the purpose of the Corporations Act. They proposed that permits should be treated as commodities. The reasons put forward included that traders are relatively uninterested in permits (compared to derivatives), that relevant conduct and information are within the Government's control, that other environmental instruments are not financial products, that comparable instruments in the United Kingdom are treated as commodities, that compliance costs would be high, and that retail clients would be unlikely to trade permits. Those who opposed treating permits as financial products generally understood that the Government may nevertheless want the market misconduct provisions to apply.

There were also comments on the operation of the over-the-counter markets. The Australian Bankers Association noted:

The carbon market should be established to function and operate similar to other Over-The-Counter (OTC) markets with standardisation of contract documentation and widely accepted market conventions to facilitate emissions trading. (Submission 1036, p. 6)

The options (including those that arise from the submissions received) are:

- Option 1—make permits financial products for the purposes of the Corporations Act (with adjustments to fit the nature of the product and ensure no unnecessary compliance costs)
- Option 2—design a market integrity and investor protection regime specifically for permits

- Option 3—treat permits as commodities, rather than as financial instruments, with the economy-wide provisions in the *Trade Practices Act 1974* applying, but not the provisions in the Corporations Act that specifically address financial services and markets.

Option 1 would provide a comprehensive regulatory regime, including regulation of markets in permits and advice about their purchase, and market misconduct in relation to them. It is clear that some adjustment would need to be made to this regime—one example is in relation to product disclosure. The regulator could publish information about the permit's characteristics and provide substantial information relevant to its pricing (see Section 8.3.1). Adjustments of this nature that recognise the specific nature of permits and Kyoto units could significantly reduce the compliance burden associated with the regime, without materially diluting its effectiveness.

Option 2 would involve creating a regulatory regime from the beginning. A new regulatory regime could be tailored to the distinctive features of the Scheme and permits, but would require additional legislation and resources to implement and enforce. Compared with adapting the existing regulatory system, Option 2 would be less likely to achieve consistency with the regulation of similar financial services and avoid unfair competition, which might arise from differences in regulation. Option 2 would also involve increased administrative costs for both the Government and market participants, and would fail to capitalise on the existing expertise of ASIC.

Option 3 would involve application only of the Trade Practices Act regime (which involves economy-wide provisions relating to competition and consumer protection). This relies on the characterisation of permits as commodities, rather than as financial instruments. On this basis, detailed market misconduct provisions (for example, those in the Corporations Act) would not apply. The submissions of the Australian Bankers Association, Westpac and the Australian Financial Markets Association supported this option.

The Government considers that a strong regulatory regime is important to reduce the risk of market manipulation and misconduct. It considers that reliance on the Trade Practices Act alone would provide insufficient protection against such risks. For example, this option would exclude the appropriately more detailed regulation of carbon market exchanges, financial service providers and particular kinds of financial market misconduct. There is also a strong case for consistency in the regulation of the provision of similar services.

The Government has decided that permits and eligible international units will be regulated as financial products under Chapter 7 of the Corporations Act and the *Australian Securities and Investments Commission Act 2001* with appropriate adjustments to fit the characteristics of permits and avoid unnecessary compliance costs. Consultation will be required with stakeholders on the details of any adjustments to the general financial services regime.

Rejection of the third option does not mean that the Trade Practices Act has no application in this context. It will remain one element in the regulatory response to the possibility of market misconduct and anti-competitive behaviour.

Policy position 8.7

The permit and eligible international units will be regulated as financial products for the purposes of the *Corporations Act 2001* and the *Australian Securities and Investments Commission Act 2001*, but with some adjustments to that regime to fit the characteristics of permits and to ensure no unnecessary compliance costs. The Government will consult further on those adjustments.

8.5.2 Appropriate monitoring and regulation of auctions

To encourage participation and provide a competitive bidding field at auction, there will be no restriction on who may participate at auctions. However, to ensure that auctions are competitive and free of manipulation, the Government will take steps to:

- ensure that bidders are credible, to avoid spurious bidding strategies aimed at manipulating the auction price
- limit the maximum parcel of permits that can be purchased by any one bidder to 25 per cent of the available amount.

Chapter 9 gives further information on auction design and the auction process.

8.5.3 Information disclosure

By releasing information about Scheme operations, emissions, participants and compliance (as noted in Section 8.3.1), the Government will ensure that information is made available to the whole market, reducing the possibility of ‘market insiders’ enjoying an informational advantage over other Scheme participants.

For example, holders of permits will be required to report when they and their associates have 5 per cent or more of a particular vintage of permits. That requirement, which reduces the possibility of entities ‘cornering’ the market for permits, was raised by the Commonwealth Bank in its submission:

there could be substantial holder requirements equivalent to those for the share market where holders of permits in excess of 5 per cent or more of total issued permits must disclose their ownership positions. This will help ensure there is no unintended ‘cornering’ of the market which could distort the price. Such protections will likely be in the national interest, especially in the early stages of the market’s development which will make it inherently attractive to opportunistic traders. (Submission 338, p. 2)

The disclosure of this information is aimed at promoting efficient price discovery, but will also establish an environment in which access to price relevant information is available to all market participants.

8.5.4 Permit sources

The rapid development of the carbon market will give liable entities a wide and varied range of sources of permits for compliance purposes. A wide choice of sources will guard against

any one financial market participant (or several participants in collusion) monopolising the permit supply to profit at the expense of liable entities.

The number of permit suppliers in the market could be affected by placing restrictions on the categories of legal entities that are able to hold and trade carbon pollution permits.

One option is to restrict the right to own carbon pollution permits, or to participate in the first auction, to liable entities and those that have received free permit allocations. This option has been proposed as a means of limiting demand, and hence the price of permits.

Another option is to limit ownership of permits to Australian legal entities and persons. This would prevent foreign control of Australian permits and could limit manipulation, by foreign entities, of the carbon price in Australia's Scheme. Any restrictions would need to be consistent with Australia's international trade obligations.

Green paper position

A permit could be held and traded by any legal or natural person (subject to verification of identity and measures to prevent criminal activity).

There would be no restriction on foreign ownership of permits, apart from any that might apply under a law other than the scheme legislation.

Most stakeholders supported having no restrictions on who could hold a permit. The Australian Conservation Foundation (ACF) noted:

ACF supports there being no restrictions on the ownership of permits to ensure an open, deep and liquid market. (Submission 809, p. 31)

The risks associated with limiting who can hold permits were noted by the Law Institute of Victoria (LIV):

The LIV believes that the first option [restrict to liable entities] is likely to lead to an inefficient and potentially collusive market. The LIV submits that the third option [unrestricted access to permits] should be adopted in the interests of fostering a more efficient market. The LIV acknowledges that the potential disadvantage of the third option is that prices might reach artificial levels because non-participants may acquire permits. However any concerns in relation to artificial prices should be sufficiently addressed by existing laws ... (Submission 195, pp. 5–6)

However a number of submissions, mainly from entities that would be liable under the Scheme, raised concerns that allowing anyone to hold permits could lead to market manipulation or anti-competitive behaviour/speculation which would drive up permit prices. Some stakeholders recommended that only liable entities or Australian-owned entities be allowed to hold permits. EnergyAustralia noted:

there may be a shortage of permits for liable parties if manipulative speculators purchase permits and distort the market in the short-term ... to avoid this, Energy Australia suggests that the Government consider options such as limiting participation to liable parties or their authorised agents at some or all auctions. (Submission 339, p. 6)

This was echoed by the Australian Food and Grocery Council (AFGC):

The AFGC recommends that access to the auction process be limited to businesses that have a direct obligation under the CPRS for a fixed interim period. (Submission 831, p. 7)

As discussed in Section 8.1, financial intermediaries have an important role in the development of an efficient carbon market. The Government must be careful that policies aimed at curbing undesirable behaviour do not unduly disrupt the development of a deep and liquid market. An effective secondary market is a defence against anti-competitive or manipulative behaviour, and restrictions on who can hold a carbon pollution permit could disrupt its development. If permit holding were restricted to liable entities, larger liable entities with their own carbon trading and financing arms could take advantage of the absence of financial market competition at the expense of smaller liable entities or government revenue. Furthermore, some smaller entities and potential new entrants might prefer to have financial intermediaries purchase permits on their behalf. Restrictions on ownership would also be difficult to enforce, as liable entities could purchase permits on behalf of others.

Restricting foreign ownership would not prevent market misconduct or manipulation, and ownership restrictions would be difficult to enforce. More importantly, that approach could reduce the liquidity and hence the efficiency of the carbon market.

Therefore, with the aim of promoting the rapid development of the carbon market, the Government will not place restrictions on who may hold permits.

Policy position 8.8

Permits may be held and traded by any legal or natural person (subject to verification of identity and measures to prevent criminal activity).

There will be no restriction on foreign ownership of permits, apart from any that might apply under a law other than the Scheme legislation.

Box 8.8: Options for sourcing permits

Along with placing no restrictions on who may hold permits, the Scheme will have other flexibility mechanisms to ensure a wide range of permit sources for liable entities:

- Open participation at auction—there will be no restrictions on who may participate at auctions (see Chapter 9)
- Unlimited imports of eligible international units—entities will be able to access the international market to obtain carbon credits (see Chapter 11)
- Limited borrowing—liable entities will be able to discharge up to 5 per cent of their obligations by surrendering permits dated from the following year (see Section 8.4.2)
- Government auction at year end—at least one auction of the year’s vintage will be held after the end of the financial year in the lead-up to the final surrender date (this will be within one month prior to the final surrender date) (see Chapter 9)
- A price cap—liable entities will have access to an unlimited store of additional permits, issued by the Government at pre-specified prices for the first five years of Scheme operation (see Section 8.6.2)
- Reforestation and synthetic greenhouse gas destruction—permits will be issued for reforestation and synthetic greenhouse gas destruction activities, which will create another source of permits (see Chapter 6).

8.6 Prices

Under the Scheme, the carbon price will vary. The Scheme is designed to constrain only the quantity of emissions, while allowing the market to set the carbon price.

8.6.1 Price volatility

The price of permits will adjust to reflect changes in market expectations of overall supply and demand for permits—that is, the carbon price will reflect the market’s best estimates of both the current and future costs of reducing emissions in accordance with the Scheme cap.

Market expectations about demand will be affected by changes in the cost of abatement technology, economic growth and opportunities for international linking. Expectations about supply will be affected by changes in the stringency of the cap and Scheme coverage. Market expectations will also be influenced by factors that affect financial asset prices more generally, such as inflation and interest rates.

Price variation promotes market efficiency, as it ensures that the price reflects the market’s most up-to-date estimates of future emissions reduction costs. Continuous price updates will, on average, lead to smaller adjustments, a smoother price path and better informed investment decisions.

8.6.2 Price cap

A price cap is a mechanism for setting the maximum cost of compliance under the Scheme. In theory, a liable entity would be prepared to pay up to the cap price for a permit. If the price of permits rose beyond that point, the entity would access the price cap rather than buy a permit.

Use of a price cap

An emissions trading scheme controls the quantity of emissions through the issue of permits and leaves the price to be determined in the carbon market. (In contrast, a carbon tax would control the price of emissions and leave the market to determine the quantity.)

The Government cannot control both the price and the quantity of emissions. The Government controls the supply of permits (emissions) and, to the extent that it targets a certain price, it must change the level of supply. In effect, if the Government targets a particular price, the total quantity of emissions is no longer set by the Scheme cap.

A price cap, then, is a commitment to loosen the Scheme cap if the Scheme cap (as currently set) leads to a market price above a certain predetermined level. This occurs because for every use of the price cap an equivalent number of permits are no longer required to be surrendered, effectively increasing the supply of units.

The purpose of the price cap is to set a maximum cost of compliance for liable entities by providing them the option of a cash payment instead of surrendering permits to discharge their liability under the Scheme. While the price cap will present a powerful economic influence on prices it is not intended to directly place a ceiling on permit price outcomes in the secondary market or at auction. Prices in the secondary market and at auction will fluctuate depending on market conditions and may even exceed the price cap level from time to time. To allow the smooth operation of the market, the Government will not intervene to stop these kinds of temporary price fluctuations. Notwithstanding these fluctuations, liable entities will have certainty over their ultimate maximum costs of compliance.

Figures 8.4 and 8.5 provide a stylised illustration of the implications of a price cap in a single period of carbon constraint without open international linking. Figure 8.4 shows a scenario in which demand for emissions is relatively low compared to the cap, so the market clearing price is below the price cap and the Government takes no action. Figure 8.5 shows a scenario in which demand for emissions is relatively high compared to the cap, so the market clearing price is higher than the price cap. In that scenario, the Government increases the supply until the price is reduced to the price cap level.

Figure 8.4: Price cap set above market clearing price

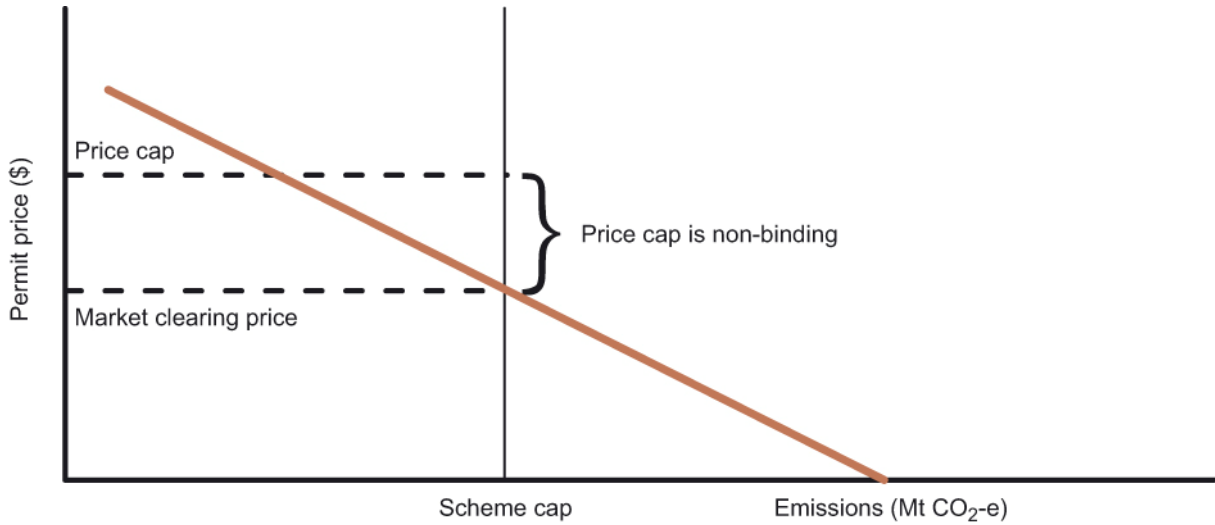
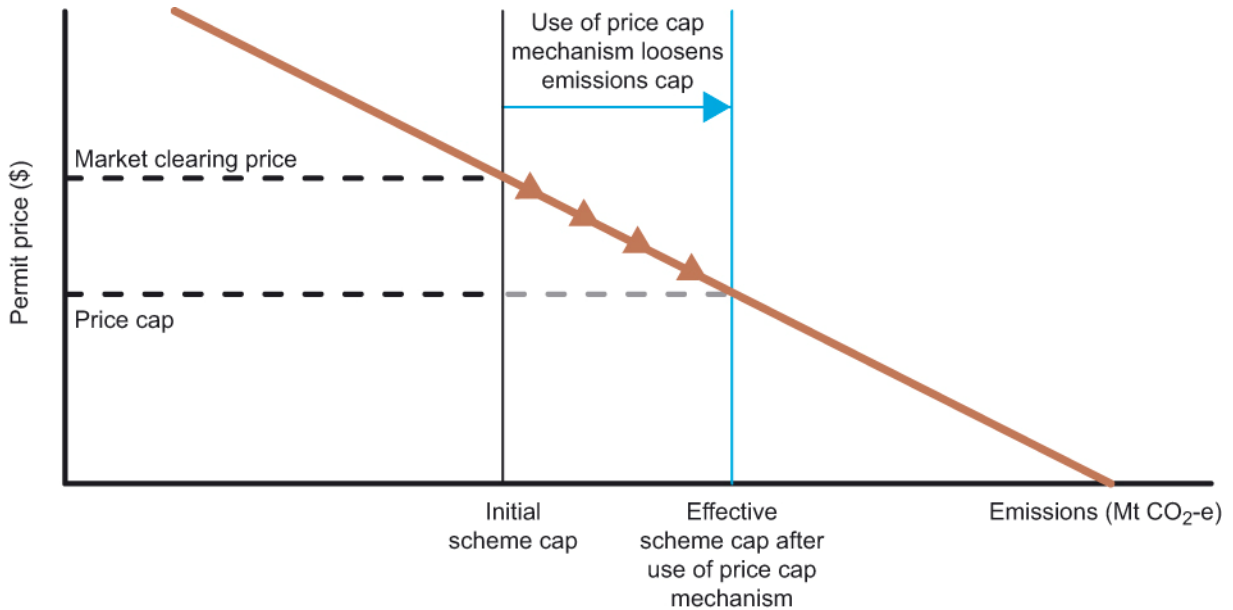


Figure 8.5: Price cap set below market clearing price



The combination of unlimited banking and a price cap also adds an intertemporal dimension. If liable entities access the price cap while banking permits for use in future periods, that will create an inventory of permits with which to increase future emissions. Because of this feature, a price cap has the potential to loosen not only the current cap but also future caps.

Green paper position

The scheme would have a price cap for the period 2010–11 to 2014–15.

Box 8.9 outlines some price cap arrangements in Australian and international schemes and in other scheme proposals.

Box 8.9: International and other Australian scheme price cap proposals

Price caps of various forms have been a feature in several emissions trading schemes and proposals.

The National Emissions Trading Taskforce²⁵ and the Task Group on Emissions Trading²⁶ recommended that an Australian scheme have a price cap, although both suggested that this arrangement be reviewed over time. The purpose of the price cap was to limit compliance costs and to make them more predictable and stable at the commencement of the scheme.

In the proposed United States emissions trading scheme, a recent revision to the Lieberman–Warner Climate Security Act included an ‘emergency off-ramp’ provision that aims to prevent excessive carbon allowance price rises.

In the McKibbin–Wilcoxon model, a price cap in the form of additional issuance is a permanent feature of the scheme design.²⁷

The current Renewable Energy Target, the New South Wales Greenhouse Gas Reduction Scheme²⁸, the Australian Capital Territory Greenhouse Gas Abatement Scheme²⁹ and the Queensland Gas Scheme³⁰ all have price caps.

The Garnaut Final Report did not support the use of a price cap because of the potential implications for environmental integrity, international linking and the potential risk and cost to taxpayers. The Garnaut Final Report recommended a transition period from 2010 to 2012, during which permits would be sold at a fixed price.

The EU ETS does not contain a price cap and uses a combination of a high compliance fee and a make-good provision to ensure that caps are met under all circumstances.³¹

The New Zealand Government does not, in principle, support the inclusion of a price cap in the New Zealand Emissions Trading Scheme.

Many stakeholders commented on whether a price cap should be used. They were split over the issue, with liable entities generally for and financial intermediaries and environmental organisations generally against its use. Those in favour of a cap argued that it would reduce upward price risks from introducing the Scheme and reduce implementation risk. TRUenergy recommended that:

A ‘safety valve’ carbon price cap to apply for at least five years that is designed to avoid permit price shocks caused by unforeseen volatility in the market (for example sudden changes in international policy). (Submission 813, p. 12)

Boral had similar views:

It is important that some ‘safety valve’ mechanisms are considered included [sic] capping the price of permits until certain milestones are met. Such milestones may

include the migration of a CPRS into a global scheme or at least a point in time when Australia has adjusted to the cost of emissions reduction. (Submission 595, p. 8)

Those against the use of a cap argued that it compromised the integrity of the Scheme and diminished some of the environmental benefits of the Scheme. The Australian Youth Climate Coalition noted:

Any loosening of the scheme through a price cap amounts to a loosening of the government's position and encourages non-compliance ... a price cap undermines the creation of a strong market and investor confidence as it demonstrates willingness of the government to undermine the integrity of the scheme.

A price cap increases the risk that Australia will not meet its international emission reduction obligations. This imposes a greater burden on tax payers as the Government will have to purchase international permits to fulfil Australia's emissions reduction target. (Submission 652, p. 11)

BP Australia had similar views:

BP does not support the use of a price cap. Its use as a cost containment mechanism, as proposed in the Green Paper, potentially sacrifices environmental certainty for price certainty, thereby negating a primary benefit of emissions trading. Once the price cap is hit, the Government is obligated to issue permits, the volume of which has no limit, leading to a breach of the scheme emissions cap. (Submission 355, p. 7)

The main advantage of a price cap is that it reduces upside price risk for liable entities by capping the cost of compliance under the Scheme. It also makes explicit the Government's policy response in the event of extreme pricing outcomes in the market. In this respect, it can help to promote a smoother transition for those covered by the Scheme, and thereby reduce implementation risk.

There are three main disadvantages of a price cap:

- Accessing the price cap would loosen the emissions cap, reducing the environmental integrity of the Scheme. It might even cause a loosening of future emissions caps, further undermining environmental integrity. However, environmental integrity is only seriously compromised if the price cap is set so low that its use is widespread. There is no automatic environmental damage associated with a price cap: the Renewable Energy Target³² and the New South Wales Greenhouse Gas Abatement Scheme³³ have price caps, but have extremely high levels of Scheme compliance through regular surrender of compliance units or certificates.
- Use of the price cap would increase the likelihood that Australia would have to purchase eligible international units to meet its emissions reduction target. This transfers risks from Scheme participants to taxpayers. The precise cost to taxpayers will be a function of the level of use of the price cap, the cost of international units, the impact on auction revenue of relatively reduced Scheme prices, and any timing differences between payment of the price cap and the purchase of international units. Because of the potential cost to taxpayers, it is important that the price cap be set at a level which is likely to result in the covered sources of emissions meeting their share of the national effort.

- A price cap may complicate linking decisions, and might prove to be an impediment to linking with some schemes (see Chapter 11).

A number of other scheme features also diminish the need for a price cap. As noted in Section 8.4, banking and borrowing are weaker methods of constraining the cost of compliance. The proposal to allow unlimited imported international units to be used for compliance in the Australian Scheme may also suppress prices, depending on international conditions. However, since the international unit price is uncertain, so too is its value as a precisely known cap on Scheme costs (Chapter 11).

While there are risks associated with a price cap, the alternative is essentially to commit to enforcing compliance at any cost. While the principle of allowing the market to operate freely is an important one, an emissions trading scheme is a government-operated system, and some price levels may not be credibly sustained. A price cap can be seen as a way of making explicit the Government's response should the price of permits rise to a level that imposes a significant and unacceptable cost on the economy.

The Government considers it prudent to have some form of price cap in order to avoid extreme prices, at least initially while uncertainty is highest in the Scheme.

Policy position 8.9

The Scheme will have a price cap for the period from 2010–11 to 2014–15.

Form of price cap

A price cap can take a variety of forms, but the essential element is that, ultimately, a cash payment in lieu of the surrender of permits could discharge an obligation accrued under the Scheme.

A price cap could take two main forms:

- access to an unlimited store of additional permits, issued by the Government at a fixed price
- an administrative penalty for noncompliance.

All emissions trading schemes require some form of penalty for noncompliance (see Chapter 7). If the penalty is in the form of a fixed cash payment in lieu of surrendering permits, it will form an effective price cap in the Scheme. Other forms of compliance penalty might not be effective price caps. Box 8.10 discusses the conditions under which a compliance penalty regime can constitute an effective price cap.

Box 8.10: Penalties and make-good provisions

All emissions trading schemes require some form of penalty for noncompliance. However, not all compliance penalty regimes constitute effective price caps.

Penalties with make-good provisions—not an effective price cap

Compliance penalties usually take the form of a monetary penalty. If a make-good provision is part of the compliance regime, the penalty does not form a price cap mechanism. A make-good provision requires that, in addition to the monetary penalty, the noncompliant liable entity must surrender permits equal to its emissions in order to dispense its obligation.

For example, if a liable entity failed to comply because of the cost of permits, where a make-good provision applied, the entity would be required to pay the compliance penalty and provide permits for surrender in a subsequent period. This would be required regardless of permit cost.

A variation of this arrangement would be for the Government to make good on behalf of noncompliant entities; for example, by buying back an equivalent number of permits in the market to make up the shortfall.

In each case, the integrity of the cap would be maintained, since a unit would have been retired for every emission that occurred within the Scheme. In this way, the cap would not be loosened in the event of payment of the compliance penalty and the price of units would not be affected.

The penalties in the European Union³⁴ and New Zealand³⁵ schemes contain make-good provisions and do not perform a price cap function.

Penalties without make-good provisions—an effective price cap

A compliance regime without a make-good provision forms an effective price cap. Entities would simply pay a monetary penalty without having to surrender any additional permits. The level of the monetary penalty would then become the level of the price cap in the Scheme.

The current Renewable Energy Target³⁶, the New South Wales Greenhouse Gas Reduction Scheme³⁷, the Australian Capital Territory Greenhouse Gas Abatement Scheme³⁸ and the Queensland Gas Scheme³⁹ all have penalties without make-good provisions, providing effective price caps.

The two forms of price cap have the same basic effect of limiting Scheme compliance costs, although there are some subtle differences.

- Payment of an administrative penalty would not be tax deductible under Australian income tax law. Additional issuance, depending on its legal form, could have different tax implications at the point of surrender.

- An administrative penalty for noncompliance may encourage liable entities to pay higher prices for permits and generate higher levels of compliance within the Scheme caps. Many firms place a high value on their reputation as good corporate citizens, and will want to be seen to be in compliance. Purchase of additional units at a set price would not have those reputational implications.

Some stakeholders in favour of a price cap supported the Government issuing more permits in unlimited quantities at a fixed price. Many stakeholders wanted a combination of the two price caps in the form of a tax-deductible fee. APPEA noted:

APPEA further recommends that the price cap be in the form of a ‘fee’, not an administrative penalty. (Submission 834, p. 28)

Few stakeholders favoured the administrative penalty for noncompliance.

A tax-deductible fee and the issuing of additional permits at surrender date for a fixed price are identical in economic substance. Both would be identical for tax purposes, represent the same effective loosening of the Scheme cap (as user entities would emit more than otherwise) and be administratively simple to operate. However, issuing additional permits is legislatively simpler to implement and also aligns with the purpose of the price cap mechanism—to explicitly and transparently cap prices at an appropriate level determined by the Government. Furthermore, for reporting purposes, the issuance of permits makes the loosening of the Scheme cap transparent.

Liable entities will have the option of purchasing permits from the Government at a fixed price from the time of the final reporting date for the Scheme (31 October) up until the final surrender date for the Scheme (15 December) to use for the purpose of meeting their obligations under the Scheme. These permits will not be able to be traded or banked for future use.

Policy position 8.10

The Scheme will have a price cap in the form of access to an unlimited store of additional permits, issued by the Government at a fixed price. Liable entities will have the option of purchasing these permits from the time of the final reporting date for the Scheme up until the final surrender date for the Scheme to use for the purpose of meeting their obligations under the Scheme. These permits would not be able to be traded or banked for future use.

Level of price cap

Given that the Scheme will contain a price cap, it is important that the cap is set high enough so that its probability of use is low, while still providing protection against major price shocks.

Figure 8.4 illustrates a price cap set above the market clearing price and designed to be used in rare situations, whereas Figure 8.5 illustrates a price cap set below the market clearing price (which effectively constitutes a carbon tax).

Green paper position

The price cap would be set high enough above the expected permit price to ensure a very low probability of use. The precise level would be set taking into account all information about scheme design and the expected abatement costs in the economy.

Submissions in response to the Green Paper were divided about the level of the price cap. Many liable entities were in favour of a low price cap, to ensure a ‘soft’ transition period at the start of the Scheme.

Xstrata conceptually supports a *price cap* during the initial years of the ETS as an effective way to manage carbon price volatility and any unexpected negative consequences. Any price cap should be credible to constrain costs and ensure a modest carbon price in the initial years as part of a measured start to the scheme. (Submission 593, p. 9)

Many stakeholders stated that, if the Scheme were to have a price cap, it should be set at a level that would minimise its use. The Australian Securities Exchange noted:

Setting the price cap at a level unlikely to be reached is important. Any breach of the price cap ... will not only undermine the environmental integrity of the scheme and the potential for linkages with other schemes but also diminish the effectiveness and value of forward markets. (Submission 811, p. 2)

The Government considers it prudent to have some form of price cap in order to avoid extreme prices, at least initially while uncertainty is highest in the Scheme. To mitigate the risk of compromising the Scheme’s environmental integrity, the price cap should be set high enough to deter widespread use. The level of the price cap should also be set to avoid extreme events, such as power stations transferring ownership or shutting down. Given an estimated carbon price of \$23 to \$32 at the start of the Scheme (based on the modelling in *Australia’s Low Pollution Future* for the ‘CPRS -5’ and the ‘CPRS -15’ scenarios respectively⁴⁰) and the existence of international carbon markets, the Government considers that a price cap of \$40 is appropriate in balancing these requirements.

Policy position 8.11

The price cap will be set at \$40 and will commence in 2010–11.

Rate of growth of price cap

An important consideration is how the price cap should change during the time that it is in place. There are a number of options for changes in the price cap through the transition period to 2014–15:

- no growth in the price cap level (that is, fixed at \$40 for the whole period the price cap is in place)
- growth in the price cap level in line with some measure of prices, such as the expected inflation rate

- growth in line with the expected rate of growth of permit prices in the carbon market
- growth at a rate greater than the expected rate of growth in permit prices in the carbon market.

While stakeholders commented on whether there should be a price cap and the level of the cap, few commented on how the cap should change during the transition period.

The main reason for a price cap is to avoid extreme prices during the initial stages of the Scheme, when uncertainty about the operation of the carbon market is at its highest. As the carbon market develops, there should be less need for a price cap to protect Scheme participants against extreme prices.

Therefore, by the end of the transition period the price cap should not be accessed; that is, the potential for its use is progressively decreased each year of the transition period. This will only be achieved by increasing the price cap level at a rate greater than the expected rate of growth in permit prices in the carbon market (estimated to be 4 per cent in real terms per year⁴¹). This aligns with the goal of reducing reliance on the price cap as the Scheme is established, and will also make it easier to phase out the price cap at the end of the transition period. Adjusting the price cap level at any other rate would effectively be increasing the opportunity for Scheme participants to access the price cap throughout the transition period.

Policy position 8.12

The level of the price cap will rise in real terms by 5 per cent per year.

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 - 2 R Garnaut, *The Garnaut Climate Change Review: Final report*, Cambridge University Press, 2008.
 - 3 Climate Change Response (Emissions Trading) Amendment Act 2008.
 - 4 Prime Ministerial Task Group on Emissions Trading, *Report of the Task Group on Emissions Trading*, Commonwealth of Australia, 2007.
 - 5 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.
 - 6 Proposal for a Directive of the European Parliament and of the Council 2008/0013 of 23 January 2008 amending Directive 2003/87/EC.
 - 7 AD Ellerman and PL Joskow, *The European Union's Emissions Trading Scheme in Perspective*, Pew Center on Global Climate Change, 2008.
 - 8 *Australia's Low Pollution Future: The Economics of Climate Change Mitigation*, Commonwealth of Australia, 2008.
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 - 13 National Emissions Trading Taskforce, *Possible Design for a National Greenhouse Gas Emissions Trading Scheme: Final Framework Report on Scheme Design*, 2007.
 - 14 Office of the Renewable Energy Regulator, <http://www.orer.gov.au/index.html>.
 - 15 NSW Greenhouse Gas Reduction Scheme, <http://www.greenhousegas.nsw.gov.au>
 - 16 ACT Greenhouse Gas Abatement Scheme: <http://www.icrc.act.gov.au/actgreenhousegasabatementscheme>.
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- 41 *Australia's Low Pollution Future: The Economics of Climate Change Mitigation*, Commonwealth of Australia, 2008.