

# Module 8 Solutions to reduce Australia's emissions

## WHAT DO POLICIES DO?

Scientists believe global greenhouse gas emissions must be reduced by **more than 60 per cent on current levels by 2050** in order to prevent dangerous climate change. Reducing emissions by this amount is a significant challenge for all countries.

A **government policy is a plan of action** to achieve a specific outcome. The plans generally comprise broad goals and one or more mechanisms for achieving these goals. For example, an education policy could identify raising average school grades as an objective, and then list specific mechanisms such as improving access to computer resources and providing extra tuition for maths.

In deciding what policies to adopt to reduce greenhouse gas emissions, governments need to answer three questions dealing with the **three 'e's' – effectiveness, efficiency and equity**:

- Which policies will bring about the desired emission reductions – known as 'environmental effectiveness'?
- What is the cheapest way for society as a whole to reduce emissions – known as 'efficiency'?
- What is the fairest way of reducing emissions – known as 'equity'? (This is considered in more detail in **Module 5** on ethics.)

*We need to take joint action on a global scale to address climate change. There are many policy and technological options available to address the impending crisis, but we need the political will to seize them. I ask you to join the fight against climate change.*

**Ban Ki-moon, Secretary-General of the United Nations, 2007**

Governments must balance environmental effectiveness, efficiency and equity issues when deciding what policy options to adopt. For example, when considering questions of efficiency, the government is concerned about the overall impact on society rather than achieving the lowest cost for government or least impact on business or consumers. A policy that is cheap for government to implement but imposes large costs on the rest of society may not be the most efficient option. The critical question is whether the total cost to society as a whole is as low as possible.

To improve policy outcomes, businesses and members of the public are often invited to make submissions to government on these issues, particularly where a policy is likely to have a significant adverse impact on a group or section of society. Poor communities, the elderly and businesses or regions that have a high dependence on fossil fuels are some of the groups that may be given special consideration.





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## THE POLICY OPTIONS

The policy measures or 'instruments' that can be used to reduce emissions can be placed into three broad categories: regulatory measures, economic instruments, and voluntary approaches.

## REGULATORY MEASURES

**Regulatory measures impose legal requirements** on businesses that emit greenhouse gases to limit their emissions or adopt clean technologies. For example, regulations could require all new cars to meet fuel efficiency standards. Or the government could ban incandescent light bulbs and require households and businesses to buy fluorescent ones.

The advantages of regulatory instruments include **simplicity** and the certainty they provide in relation to environmental outcomes. Polluters must meet the regulatory standards or else they will be fined. In some cases this is the best approach. For example, lead has been banned from petrol in Australia and now no cars use leaded petrol.

However, there may be problems with some regulatory instruments. Take the example of a law that banned 'gas guzzlers' – cars that have very low fuel efficiency. Problems with this sort of regulation include the following.

- It could be expensive to monitor compliance with the regulations. Cars may be legally approved when they are sold but could be modified by the owners and become gas guzzlers. Monitoring this would be hard.
- It could be unfair on those who already have gas guzzlers who find that they cannot sell their cars.
- It could be cheaper to get the emission reductions by other means. For example, it could be cheaper to reduce emissions from power plants than cutting emissions from cars.

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## ECONOMIC INSTRUMENTS

Economic instruments, also known as 'market-based measures', are mechanisms that force polluters to pay a price when they emit greenhouse gases. The main ones are: financial incentives; carbon taxes; and emissions trading schemes.

### Financial incentives

These are commonly used to try to change the behaviour of businesses and consumers. Polluters are offered money by the government if they adopt certain technologies or meet emission reduction targets.

For example, homeowners may be offered money to help cover the cost of buying and installing solar hot water heaters. The attraction of these schemes for homeowners is that it reduces the cost of the equipment. And if the solar systems are installed, society benefits because it reduces the demand for electricity and ultimately the amount of greenhouse gases that are emitted.

The government may also provide incentives to businesses to develop and adopt low-emission technologies. Grants of public funds are paid to help fund business investment into geothermal power, for instance.

### Carbon taxes

Carbon taxes and emissions trading systems are 'big bang' policies so named because they will transform the whole economy.

**A carbon tax is a tax on the carbon content of fossil fuels.** The effect is to make carbon-intensive fuels (coal and oil) cost more relative to medium-carbon fuels (natural gas) and low or zero-carbon renewable forms of energy (such as bio-fuels or wind power).

As the price of fossil fuels goes up in proportion to their carbon content, the price consumers pay for electricity generated from coal will rise, as will the price of petrol at the pump.

The purpose of a carbon tax is to encourage polluters to reduce their emissions and prompt them to find cleaner ways to undertake their activities. If the cost of coal-fired electricity increases while the cost of wind power remains the same then electricity retailers will be more inclined to switch over to wind power.

### Emissions trading

Under the most common type of emissions trading scheme (called 'cap and trade'), **the government first places a limit (or cap) on total emissions** in Australia by way of legislation. For example, it might require that Australia's total emissions from burning fossil fuels be capped next year at 500 million tonnes of carbon dioxide-equivalent, and require that the cap be reduced by 10 million tonnes each year for ten years, so that our total emissions from these sources falls to 400 million tonnes after a decade.

Having done this, the government then creates 500 million permits, each one allowing the owner to emit one tonne of carbon dioxide. The government can hold an auction at which all companies who want to burn fossil fuels next year bid to buy the permits. In this way, emission permits acquire a price because they are scarce. Obviously, if there are fewer permits for sale then the price set at auction will be higher.

The permits then become tradable; those who buy them at the auction can sell them to polluters who find they do not have enough permits to cover their emissions for the year. This is how a market is created.

Instead of auctioning the permits, the government could give them away to existing polluters. This still establishes a market in which trading of permits can occur, but it represents a potentially large transfer of wealth to polluters, because they receive the permits for free.



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## TAXES OR EMISSIONS TRADING?

Just as with a carbon tax, emissions trading imposes a financial penalty on polluters. This encourages them to look for ways of avoiding the penalty by investing in low-emissions technology (such as switching to renewable forms of electricity) or becoming more efficient in their use of energy (such as buying fuel-efficient vehicles).

The benefit of an emissions trading system is that it encourages the emission reductions to occur where it is cheapest. If a company has the opportunity to save energy cheaply they will do that instead of buying permits, while a company that has few options to cut energy use will buy up permits.

The main difference between a carbon tax and an emissions trading scheme is how prices and quantities are set.

- Under a carbon tax, the *government* sets the price of polluting (through setting the tax rate) and the *market* decides how much to pollute.
- Under an emissions trading system, the *government* determines how much pollution will occur and the *market* determines what the price of polluting will be.

**Environmental trading schemes** are not new. For example, such a scheme has been in operation in Australian fisheries for many years. The government sets a limit or quota on the amount of fish that can be taken from a fishery. Fishers are then allocated tradable quota rights, which give them the right to catch and take a certain quantity of fish. If fishers don't use their entire quota, they can sell it to other fishers. This type of fishing scheme is based on the same principles as emissions trading. The objective is to ensure the resource is used sustainably and in the most efficient way possible.



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## VOLUNTARY INSTRUMENTS

Voluntary instruments impose no obligation on polluters but invite them to undertake certain actions. There are no penalties if they refuse.

For example, under its Greenhouse Challenge Program the Federal Government invites companies responsible for large amounts of greenhouse gas emissions to draw up a plan specifying how they will reduce their emissions. The companies register their plans with the government.

Sometimes the government praises the companies, which is a form of reward. Some companies like to enhance their public image through participation in voluntary programs. Some are genuinely interested in reducing their emissions, and some are only interested in enhancing their image. This is known as **greenwash**.

The main benefits of voluntary instruments are their flexibility and the fact that they are often supported by polluters, especially big businesses that could otherwise be forced to reduce their emissions. The disadvantages arise because of their voluntary nature. If polluters are not forced to participate, there is no guarantee the desired emission reduction targets will be achieved. Polluters that refuse to participate can also 'free ride' on the backs of those that do, thereby avoiding the costs associated with cutting emissions.







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## CURRENT & FUTURE POLICIES

Ever since global warming emerged as a serious issue in the early 1990s, Australian governments have tended to focus on voluntary programs to limit greenhouse gas emissions. One such program is the \$500 million **Low Emissions Technology Demonstration Fund**, which allocates money to support the development of new technologies like cleaner forms of coal-fired electricity generation and solar power.

These voluntary programs have been complemented by a small number of regulatory and economic instruments. The most significant of these was the Mandatory Renewable Energy Target (MRET), which required more of our electricity to be supplied by renewable sources. It led to a mini-boom in investment in wind farms, but lost its effectiveness when the target was quickly reached and not increased.

**Too much reliance on voluntary measures has meant that Australia's emissions from fossil fuels have increased rapidly.** Between 1990 and 2005, Australia's emissions from burning fossil fuels increased by 26 per cent, one of the fastest growth rates in the developed world (see **Module 3** on Australia's emissions).

The failure of voluntary approaches and growing domestic and international pressure to reduce emissions has sparked renewed interest in regulatory and economic measures. The major political parties in Australia now support the introduction of a national emissions trading scheme. This scheme is likely to commence between 2010 and 2012.

Before an emissions trading system is introduced, some big questions will need to be resolved.

- 1 What cap will be placed on emissions?** Will it be stringent, forcing polluters to pay high prices for permits or find ways of cutting their pollution? Or will the cap be close to expected emission levels, thereby imposing little incentive to cut emissions?
- 2** Should certain industries be exempt from the scheme? For example, should industries that rely on large quantities of cheap electricity (e.g. the aluminium industry) be exempt, or should they be included?
- 3** Will the Australian emissions trading scheme be designed so that it can be integrated with emissions trading schemes in other countries (especially the **European Emissions Trading Scheme**)? In that case, there would be international trade in permits.
- 4** Can all greenhouse gas emissions be covered by the scheme or will additional measures be needed? For example, a large share of Australia's emissions comes from agriculture (mainly from the use of fertilisers and from belching sheep and cattle) and from land clearing. How can we reduce these emissions?





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## STUDENT ACTIVITIES

### Comprehension Questions

- Write in your words what a government policy is.
- List the issues governments should consider when deciding on the policies to introduce to reduce greenhouse gas emissions.
- Name and describe the three different types of policies that can be used to reduce greenhouse gas emissions.

### Analysis Questions

- Evaluate the major differences between a carbon tax and an emissions trading scheme?
- Given the problems with voluntary programs, why would governments rely on them as the main way of trying to limit Australia's greenhouse gas emissions?
- Would the introduction of a carbon tax or emissions trading scheme make renewable energy more or less popular?

### Exercise 1

Write a submission to a government inquiry into solutions to reduce Australia's emissions.

#### Teachers Notes

Ask students to split into pairs. Each pair is to write a one page submission in support of one of the policies discussed in the module. The submissions should describe the policy and explain why it should be implemented by the Federal Government.

Students may like to look at [submissions](#) to previous government inquiries.

### Exercise 2

When governments draw up policies they are often required to balance several competing interests. Consider the position of three different groups that the Australian Government would have to take into account in climate change policy.

#### Teachers Notes

To facilitate discussion, the students could be divided into three groups.

- **Group 1** would represent the domestic interests of Australia. Students should note that Australia relies on fossil fuels for most of its energy and is a major exporter of fossil fuels. It is also vulnerable to climate change, particularly declining water availability.
- **Group 2** would represent the interests of developing countries, having regard to the fact that they have much lower emissions per person than Australia and lower standards of living.
- **Group 3** would represent the interests of the global community as a whole, having regard to the available science on what needs to be done to avoid dangerous climate change.