

## GLOSSARY

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Abatement	Reduction of greenhouse gas emissions, or enhancement of greenhouse gas removal from the atmosphere by sinks.
Allocation	In the modelling, an economy's allocation of emission rights is determined by the assumed international emission reduction agreement.
Annex B countries	Annex B of the Kyoto Protocol lists countries that have a quantified greenhouse gas emission limitation or reduction commitment in the period 2008–12.
Anthropogenic greenhouse gases	Greenhouse gases released due to human activities.
Banking	The ability to hold permits for use in the future.
Borrowing	The use of future permits to meet current obligations under an emissions trading scheme.
Bottom-up model	A detailed, sector specific model, often with engineering detail. This report uses bottom-up models for the electricity generation, transport and land-use change and forestry sectors.
Carbon capture and storage (CCS)	Technology to capture and store greenhouse gas emissions from energy production or industrial processes. Captured greenhouse gases have the potential to be stored in a variety of geological sites.
Carbon dioxide (CO <sub>2</sub> )	A naturally occurring gas. It is also a by-product of burning fossil fuels and biomass, other industrial processes and land-use changes. It is the main greenhouse gas that affects anthropogenic changes to the earth's temperature.
Carbon dioxide equivalent (CO <sub>2</sub> -e)	A standard measure that takes account of the different global warming potentials of greenhouse gases and expresses the cumulative effect in a common unit.
Carbon leakage	An increase in global emissions, arising from the relocation of emission-intensive production activity in response to the introduction of an emission price.
Carbon price	See emission price.
Carbon sinks	Natural or man-made systems that absorb and store carbon dioxide from the atmosphere, including plants, soils and oceans.
Clean Development Mechanism (CDM)	A mechanism under the Kyoto Protocol through which developed countries may undertake greenhouse gas emission reduction or removal projects in developing countries, and receive credits for doing so. They then may apply these credits to meet their own mandatory emissions targets.
Climate change	As defined by the UNFCCC, a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability over comparable time periods.
Computable General Equilibrium (CGE) model	A CGE model is a whole-of-economy model that captures the interactions between different sectors of the economy.
Contraction and convergence approach	An approach to international emission allocation where initial national allocations reflect actual emission levels at the start of the scheme, but over time, converge to an equal per capita basis. This approach is assumed in the Garnaut scenarios.
Coverage	The scope of an emissions trading scheme. Covered sectors are liable for their emissions under the scheme.

CPRS scenarios	Two policy scenarios in this report were modelled based on the Government's <i>Carbon Pollution Reduction Scheme Green Paper</i> . These scenarios are CPRS -5 and CPRS -15.
Deforestation	The conversion of forested land to an alternative, non-forest use.
Economic model	Economic models mathematically represent how the economy operates and how various agents respond to changing signals.
Emission	Release of greenhouse gases into the atmosphere.
Emission intensity	The ratio of emissions to output. Emission intensity can refer to both the emissions per unit of sectoral output (for instance the emission-intensity of electricity generation) and the emissions per unit of economy-wide output (which usually refers to GDP).
Emission permit	The right to release a specified quantity of greenhouse gas under an emissions trading scheme.
Emission price	The cost of releasing greenhouse gases into the atmosphere. Often referred to as the carbon price.
Emission-intensive, trade exposed (EITE) industries	Industries that either are exporters or compete against imports (trade exposed) and produce significant emissions in their production of goods.
Emissions trading scheme	A scheme that creates a market for emission rights by limiting the total amount of emissions. Market participants then buy and sell rights to emit greenhouse gases.
Fuel switching	The substitution of one type of fuel for another, for example the use of natural gas instead of coal. Fuel switching changes the emission intensity of energy production because the carbon content of fuels varies.
Fugitive emissions	Greenhouse gases that are released in the course of oil and gas extraction and processing, through leaks from gas pipelines, and as waste methane from black coal mining.
Garnaut scenarios	Two policy scenarios in this report were modelled for the Garnaut Climate Change Review. These scenarios are Garnaut -10 and Garnaut -25.
Gigatonne (Gt)	One billion ( $10^9$ ) tonnes.
Gigawatt hour (GWh)	A unit of energy equal to one billion watt hours.
Global warming potential	A system of multipliers devised to enable the comparison of the warming effects of different gases. For example, over the next 100 years, a gram of nitrous oxide in the atmosphere is currently estimated as having 310 times the warming effect as a gram of carbon dioxide.
Greenhouse gases	Gases that cause global warming and climate change. The major greenhouse gases are carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF <sub>6</sub> ).
Gross domestic product (GDP)	The total market value of all goods and services produced in an economy.
Gross national product (GNP)	GDP adjusted for international transfers of income. GDP measures what an economy produces; GNP measures what an economy can afford to buy.
Gross output	The value of an industry's output — the value of inputs produced by other industries used in the production process (intermediate inputs) plus gross value added and any taxes, less subsidies on production. Gross output is a measure of turnover or activity.
Gross value added (GVA)	GVA measures the returns accruing to the owners of the primary factors, such as land, labour and capital used in the production process, plus taxes less subsidies on production. GDP is the sum of GVA across industries.

Hotelling rule	Derived from resource economics, the Hotelling rule explains the growth in the price of finite resources. In this report, the emission price follows a Hotelling rule, whereby it grows at the real interest rate from a specified starting level.
Intergovernmental Panel on Climate Change (IPCC)	Established in 1988, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognised as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the UNFCCC's decision-making bodies.
Kyoto Protocol	An international treaty negotiated under the auspices of the UNFCCC. It entered into force in 2005. Among other things, the protocol sets binding targets for the limitation of greenhouse gas emissions by individual developed countries to be met within the first commitment period of 2008–12.
Land use, land-use change and forestry	A reporting category comprising agriculture emissions (land use), and emissions from deforestation (land-use change) and carbon sequestered through reforestation (forestry).
Learning by doing	Reductions in technology costs due to greater use of a technology, such as through incremental innovation.
Marginal cost of mitigation	The cost of reducing emissions by one additional unit.
Market exchange rate (MER)	The rate of exchange between currencies in foreign exchange markets in the real world. Also see purchasing power parity exchange rate.
Market failure	A situation where the market is not able to provide an efficient level of production and consumption of goods and services, including natural resources or ecosystem services. In the climate change context, market failure arises because those emitting greenhouse gases do not bear all the risks of adverse climate change impacts from emissions, but share them across the world.
Megatonne (Mt)	One million ( $10^6$ ) tonnes.
Megawatt hour (MWh)	A unit of energy equal to one million watt hours.
Mitigation	A human intervention to reduce the sources of or enhance the sinks for greenhouse gases.
Mitigation cost	The proportional decline in economy-wide activity that occurs as a result of reducing emissions. This is distinct from the marginal cost of mitigation which refers to the cost of reducing a unit of emissions. Regions which have a high marginal cost of mitigation do not necessarily have high mitigation costs.
Multi-stage approach	An approach to international allocation where the number of economies participating in global mitigation gradually expands. This approach was assumed in the CPRS scenarios.
Nominal emission price	The emission price in current dollars (that is, including the effects of inflation).
Policy scenario	A projection of the future path of the global and Australian economy if policies to reduce emissions are introduced.
Purchasing Power Parity (PPP) exchange rates	Hypothetical exchange rates that adjust for differences in prices levels across countries. Under a PPP exchange rate, one Australian dollar buys the same amount of goods and services in every country: no more, no less. Also see market exchange rate.
Real emission price	The emission price in constant dollars (that is, without the effects of inflation).
Reference scenario	A projection the future path of the global and Australian economy if no new policies to reduce emissions are introduced. The reference scenario is a point of departure to explore the possible implications for the global and Australian economy of policies to reduce greenhouse gas emissions. The reference scenario does not include any impacts of climate change on the economy.

Scenario modelling	Scenario modelling is an assessment of what <i>could</i> happen in the future, given the structure of the models and input assumptions. It is not a prediction of what <i>will</i> happen in the future.
Sensitivity scenario	A modelling scenario that tests the impact of changing particular assumptions in the reference or main policy scenarios.
Sequestration	The removal of atmospheric carbon dioxide, either through biological processes (for example, photosynthesis in plants), or geological processes (for example, storage of carbon dioxide in underground reservoirs).
Stabilisation	Refers to the stabilisation of the atmospheric concentration of greenhouse gases in the atmosphere. This occurs when the amount of greenhouse gases released into the atmosphere matches the earth's capacity to absorb greenhouse gases.
Terms of trade	The ratio of the price of an economy's exports to the price of its imports. The terms of trade are said to improve if that ratio rises.
Terawatt hour (TWh)	A unit of energy equal to one trillion ( $10^{12}$ ) watt hours.
United Nations Framework Convention on Climate Change (UNFCCC)	An international treaty adopted after the Rio Earth Summit in 1992 and aimed at achieving the stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.