



APPENDIX A

INTERNATIONAL AND DOMESTIC BASELINE AND CREDIT SCHEMES

SCHEME	DESCRIPTION	ELIGIBILITY AND COVERAGE	ADDITIONALITY	BASELINE SETTING
Australia— Carbon Farming Initiative (CFI)	<p>The Carbon Farming Initiative (CFI) is an Australian crediting scheme that began in December 2011. It is a voluntary scheme that provides incentives to landowners for activities to sequester carbon, and avoid or reduce greenhouse gas emissions.</p> <p>The CFI is created under the Carbon Credits (<i>Carbon Farming Initiative</i>) Act 2011 and is administered by the Clean Energy Regulator. The CFI is also supported by the Domestic Offsets Integrity Committee (DOIC)—an independent expert committee that assess proposals for methodologies and advises the relevant minister.</p> <p>The scheme was established to complement Australia's carbon pricing mechanism and thus includes emissions from a number of sectors not covered under that mechanism.</p> <p>Projects that either reduce emissions or sequester carbon are approved in accordance with a methodology, which establishes rules for undertaking and monitoring the project and generating credits. Credits are known as Australian Carbon Credit Units (ACCUs), each representing at least one tonne of CO₂-e emissions.</p> <p>Demand for ACCUs is primarily from liable entities under Australia's carbon pricing mechanism, which purchase credits to offset their emissions liabilities. All ACCUs can be traded or sold in Australia, and some can be exchanged for an equivalent number of Kyoto units and be sold or traded internationally.</p> <p>To date, the CFI has credited over four million ACCUs and has registered over 100 projects.</p>	<p>The CFI covers sequestration and emissions reductions from some of the sources that are not covered by the carbon pricing mechanism, namely from agriculture, legacy waste (emissions from waste deposited prior to the introduction of the carbon pricing mechanism) and land use, land use change and forestry (LULUCF).</p> <p>Participation is open to individuals; sole traders; businesses; local, state and territory government bodies; and trusts. Participants must be registered as a 'recognised offsets entity' and be assessed as 'fit and proper' prior to participation in the scheme.</p> <p>Section 27 of the Carbon Credits (Carbon Farming Initiative) Act outlines the criteria for project eligibility. To be eligible, the regulator must be satisfied that the project:</p> <ul style="list-style-type: none"> • is undertaken in Australia • uses an approved methodology • passes the additionality test • has an applicant who is the project proponent and is a 'recognised offsets entity' • meets the requirements for sequestration projects (where applicable) • does not involve the clearing of (or use products derived from) native forests • is not an excluded project on the negative list. <p>To date, most ACCUs have been generated from the waste sector (86 per cent), comprising landfill gas capture and destruction projects (80 per cent), alternative waste treatments (six per cent) and waste composting (less than one per cent). ACCUs have also been generated in forestry (13 per cent), and agriculture (less than one per cent).</p>	<p>Additionality is tested at both the project level and methodology approval stages of the process.</p> <p>At the activity level, a regulatory test is applied to ensure that the activity is not already required by law.</p> <p>The activity type must also be included on the 'positive list', specified in the Carbon Credits (Carbon Farming Initiative) Regulations 2011. Positive list of activities are considered to be additional to business-as-usual and are therefore considered to generate genuine, additional abatement. A negative-list excludes activities due to the existence of adverse impacts on employment, water, local community etc.</p> <p>The Minister for the Environment makes decisions on activities on the positive list, and considers advice from both the Department of Environment and the DOIC.</p> <p>Each methodology also provides instructions for determining a baseline that represents what would occur in the absence of the project (business-as-usual). A project's abatement beyond this baseline is deemed to be additional and is credited.</p>	<p>Each CFI project must use an approved methodology that sets out the baseline against which abatement is measured.</p> <p>Identifying the most likely baseline scenario will depend upon the proposed activity. For example, baselines can be determined on an absolute or emissions intensity basis, all CFI projects must reflect a reduction in absolute emissions levels.</p> <p>All baselines in the CFI are specified at the project activity level.</p> <p>While all CFI projects adopt static baselines, new information such as emissions factor data can be incorporated into the baseline methodology and apply when projects come up for renewal.</p> <p>Baselines are generally static and can only be reviewed at the start of a new crediting period unless approved by the project operator. Crediting periods are generally seven years but reforestation has 15 years, and native forest protection projects have a 20-year crediting period.</p> <p>A number of methodologies have been developed in-house by the department; for example, piggery methodologies, but anyone can submit new methodologies for consideration. To date, a range of government departments, councils and third parties have submitted methodologies.</p> <p>All methodologies are assessed by the DOIC and must then be approved by the minister before being eligible for use.</p>

Sources: Climate Change and Energy Efficiency 2013; Department of the Environment 2014a, 2014b.

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Australia—New South Wales Greenhouse Gas Reduction Scheme (GGAS)	<p>The Greenhouse Gas Reduction Scheme (GGAS) was a baseline and credit scheme established in New South Wales, Australia, in 2003. The Australian Capital Territory introduced GGAS in 2005. The scheme was terminated in 2012 when the national carbon pricing mechanism commenced. GGAS was a market-based penalty scheme that allowed offsets. Its objective was twofold:</p> <ul style="list-style-type: none"> to reduce GHG emissions associated with the generation and use of electricity to develop and encourage lowest-cost emissions reduction activities to offset the production of greenhouse gas emissions <p>For the penalty component, GGAS legislation imposed a mandatory benchmark target for per capita GHG emissions reductions to 2021 on electricity retailers and certain other parties in NSW and the ACT. These parties were referred to as ‘benchmark participants’.</p> <p>Benchmark participants (liable entities) were required to reduce per capita GHG emissions to the benchmark level. If participants could not meet the benchmark, they could surrender offsetting ‘abatement certificates’ against their liability.</p> <p>These offset certificates were created by accredited certificate providers for four emissions-reducing activities and could be traded to benchmark participants. Each certificate represented one tonne CO₂-e.</p> <p>GGAS also allowed benchmark participants to count Renewable Energy Certificates from Australia’s Renewable Energy Target towards their greenhouse gas benchmark. GGAS stimulated a wide range of accredited abatement projects. Together, these projects created 144 million abatement certificates.</p>	<p>For the liability component of GGAS, benchmark participants were firms and other entities that were either captured or volunteered into the scheme. Benchmark targets were imposed on all electricity retailers and market buyers that took electricity directly from the grid. Some large consumers and state projects (over 100 MW per year) could opt in to the scheme for a variety of reasons, such as boosting environmental profiles or meeting internal energy efficiency targets.</p> <p>For the offset component of GGAS, only accredited Abatement Certificate Providers could undertake projects.</p> <p>Eligibility for the four offset activities was specified in their respective rules (methodologies):</p> <ul style="list-style-type: none"> power generation—for a range of different power generation activities (in NSW and interstate). demand-side abatement—for actions taken on the customer side of an electricity meter (i.e., the ‘demand side’). large electricity users—for the abatement of on-site greenhouse gas emissions (from industrial processes) not directly related to the consumption of electricity. carbon sequestration—for carbon sequestered in eligible forests in NSW. <p>Activities had some restrictions and exclusions—sequestration projects were to be carried out in NSW only, demand-side abatement in NSW or ACT, electricity generation projects in any jurisdiction connected to the national grid no creation of certificates under another GGAS rule or scheme; no reducing electricity consumption by reducing the economic benefit from the use of the electricity; and activities to reduce losses in electricity transmission or distribution networks were ineligible.</p> <p>Sequestration projects were required to be from Kyoto-compliant forestry (afforestation or reforestation).</p>	<p>Additionality was tested at the eligibility and methodology stage. GGAS specified that accredited projects should be:</p> <ul style="list-style-type: none"> environmental—the project reduced or offset greenhouse gas emissions from the electricity sector regulatory—the project exceeded any statutory requirements under other legislative or mandatory requirements in NSW. <p>In practice, this meant that credits were given where current greenhouse performance improved below prior practice and business-as-usual or, in some cases, current industry practice.</p> <p>For example, under the carbon sequestration methodology, land for forestry activities must be on Kyoto-compliant ‘Eligible Land’. Any additional sequestration is deemed beyond business-as-usual provided it is undertaken in accordance with the Carbon Sequestration Estimation Methodology.</p>	<p>The penalty baseline for the liability component was expressed as an intensity metric—tonnes of carbon dioxide equivalent per capita. This was a benchmark target and was set in legislation. The initial level was set at 8.65 tonnes per capita, which reduced to 7.27 tonnes in 2007 and was set to remain at this level until 2021.</p> <p>A compliance rule converted electricity sector benchmarks into individual annual benchmarks. Each benchmark participant was allocated a share of the electricity sector benchmark based on the level of their electricity sales as a proportion of the total state electricity demand.</p> <p>For the offsets component, a variety of baseline methodologies were employed for abatement projects. These were developed by policy makers. There was no scope for submissions for new methodologies, although rules allowed for any policy changes to be made via Ministerial sign-off rather than Parliamentary approval.</p> <p>For power generation abatement projects, emissions intensity was required to be lower than average for NSW generation.</p> <p>For demand-side projects, emission reductions were measured as the energy inputs from alternative (renewable) sources—metered electricity changes from baseline energy consumption.</p> <p>For large electricity user projects, three baseline methodologies were provided:</p> <ul style="list-style-type: none"> a project impact assessment model for one-off projects two baseline methods for multiple ongoing activities aimed at reducing the emissions intensity of the plant. <p>For sequestration projects, the Carbon Sequestration Rule specified the acceptable parameters to be used in estimating carbon sequestration and calculating carbon stock changes.</p> <p>There was no scope for methodologies to be developed by third parties.</p>

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<p>Australia—New South Wales Energy Savings Scheme (ESS)</p>	<p>The NSW Energy Savings Scheme (ESS) began 1 July 2009 and was designed to encourage lowest cost energy efficiency activities and reduce energy consumption without reducing production levels or service quality. It was developed as a complementary measure to the proposed national carbon pricing mechanism and was modelled on a component of the Demand-Side Abatement Rule under GGAS.</p> <p>The scheme provides incentives for electricity retailers and certain other parties to improve their energy efficiency.</p> <p>The ESS is a market-based penalty scheme and requires electricity retailers to meet individual annual energy savings targets based on their electricity market share in NSW. The retailers and other parties captured in the scheme are referred to as 'Liabe Entities'.</p> <p>Obligations for liable entities under the scheme can be met by surrendering offsetting 'energy savings certificates' or by paying a penalty for the shortfall.</p> <p>For 2014, the scheme shortfall penalty rate is set at \$25.97 per certificate and is adjusted for inflation annually.</p> <p>The offset certificates can be generated by Accredited Certificate Providers (ACPs) that undertake energy savings activities.</p> <p>Demand for 'energy savings certificates' comes from:</p> <ul style="list-style-type: none"> • liable entities • intermediary agents—traders who subsequently sell the 'energy savings certificates' to liable entities • the voluntary market—organisations or individuals interested in managing their carbon footprint. <p>To date, 7.7 million certificates have been created and 3.8 million have been surrendered against compliance obligations (as at 7 March 2014).</p>	<p>The ESS penalty scheme covers electricity consumption. Liabe entities are:</p> <ul style="list-style-type: none"> • all holders of electricity retail licenses in NSW • certain electricity generators that supply directly to retail customers in NSW • market customers in NSW who purchase their electricity directly from the National Electricity Market. <p>Exemptions may be granted by the minister for emissions-intensive and trade-exposed industries.</p> <p>For the complementary offsets component, ACPs are voluntary participants in the scheme and are eligible to create and sell 'energy savings certificates' related to energy savings in commercial, residential and industrial sectors.</p> <p>Eligible activities relate to the modification, installation, replacement and removal of end-user equipment for the purposes of improving energy efficiency. Excluded activities include energy generation (i.e., solar or bi/tri-generations systems), fuel-switching and energy savings that are not linked to the national grid.</p> <p>The offsets scheme allows aggregators to 'aggregate' the savings from a number of clients to make it feasible for them and their clients to participate in the ESS. By participating through an aggregator, a business or householder can receive a benefit from the ESS without the compliance obligations. A supplier, installer or service provider can be the aggregator.</p>	<p>Additionality is tested at both the eligibility stage and in the baseline measurement stage.</p> <p>For the eligibility criteria, ACPs activities, certificates and benefits must:</p> <ul style="list-style-type: none"> • not be undertaken in order to comply with a statutory requirement (regulatory additionality) • not have been previously created from the same energy savings or from other schemes, to avoid double-counting • not have a negative effect on production or service levels • have an implementation date on or after 1 July 2008—no credit for early action. <p>Additionality is also tested via the three baselines measurement methodologies. For instance, when using the Project Impact Assessment method, evidence is required to demonstrate that the energy savings project did not result in a decrease of service levels or output from a site or process.</p>	<p>For the penalty scheme, liable entities are required to self-assess their individual energy savings target. This starts at approximately 0.4 per cent of total electricity sales in 2009, increasing gradually to four per cent in 2014 and then remaining constant until 2020.</p> <p>Liable entities have met individual energy savings target for a compliance year if the energy savings attributable are equivalent to (or exceed) their individual energy savings target.</p> <p>For the offsets component, there are three baselines methods to calculate emissions reductions:</p> <ul style="list-style-type: none"> • Deemed Energy Savings—involves installing or replacing low-efficiency end-user equipment such as lighting and commercial or industrial equipment with more efficient ones. It measures the lifetime (deemed) savings of an energy savings project upfront at the time of project implementation. • Metered Baseline—compares energy use before the activity is implemented (the baseline) with that after the activity. This methodology is based on electricity consumption of a whole facility or discrete part of a facility. • Project Impact Assessment—for smaller projects on a facility where their impact on overall electricity use is small relative to total site use. It measures energy consumption before and after the project is implemented. <p>Depending on the activity or methodology, a variety of baseline measures can be adopted, including absolute or intensity baselines—using historical or proxies where historical is not available.</p> <p>There is no scope for methodologies to be developed by third parties. The use of a rule allows, however, for any policy changes to be made via Ministerial sign-off (rather than parliamentary approval).</p> <p>There is no specified crediting period length, which can be based on the project specifics and the ESS Rule for the methodology.</p>

Sources: IPART 2013b; ESS website; New South Wales Government 2009, 2011; Electricity Supply (General) Regulation 2001.

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International—Clean Development Mechanism (CDM)	<p>The Clean Development Mechanism (CDM) is a global baseline and credit scheme used to credit emissions-reducing projects. It is established under the United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol and has operated since the beginning of 2005.</p> <p>The CDM has two objectives:</p> <ul style="list-style-type: none"> to assist non-Annex I Parties to meet sustainability goals by hosting projects that contribute to the UNFCCC's overall objective to stabilise global concentrations of GHGs to assist Annex I Parties (developed) to meet their Kyoto targets at a lower cost. <p>Emissions-reducing projects are undertaken in developing countries (non-Annex I), which generate credits. Projects are issued Certified Emission Reductions (CER) (offset credits) for each tonne of CO₂-e they abate. CERs can be purchased by Annex I countries to meet their Kyoto targets.</p> <p>As of 31 January 2014, there were 7,426 registered projects, which have had 1.43 billion CERs issued. It is estimated that by 2020, the CDM will generate between 2.8 and 3.7 billion CERs for emissions reductions, destructions or sequestrations.</p> <p>The Program of Activities (PoA) is a feature of the CDM that provides a framework to generate large quantities of GHG reductions. Each PoA registers with the CDM as a single program activity, and then registers a larger number of sub-projects undertaking the same activity. There are currently 243 registered PoAs, which cover 1,611 individual activities that have generated about 138,000 CERs.</p>	<p>CDM projects must be carried out in a non-Annex I country that has ratified the Kyoto Protocol and the project participant must be approved by the host country. The CDM is open to all sources of emissions reductions except nuclear and forestry-based projects (other than afforestation and reforestation). Parties can be private and/or public entities.</p> <p>There are differing eligibility requirements for large-scale, small-scale, forestry and PoA projects.</p> <p>The eligibility requirements for large-scale projects are:</p> <ul style="list-style-type: none"> the country hosting the project has met the participation requirements stakeholders have been consulted the socioeconomic and environmental impacts of the project have been considered emissions reductions are additional baseline, monitoring and verification methodologies comply with requirements the project complies with all other relevant requirements. <p>Small-scale projects must meet the same requirements but have simplified procedures. To be classed as small-scale, projects must be:</p> <ul style="list-style-type: none"> small renewable energy project activities (max output 15 MW) energy efficiency improvement project activities (up to 60 GW hours per year or equivalent) other project activities that both reduce emissions by sources (less than 60 Kt of CO₂-e). <p>Forestry projects must also meet similar rules, but also demonstrate that the land is 'eligible land' and address non-permanence.</p> <p>Each PoA project activity must meet eligibility criteria, along with each individual sub-project, which must be satisfied before inclusion in the PoA project.</p> <p>Most of the CERs issued to date have come from destroying industrial gases (52 per cent), hydro (13 per cent) and wind projects (10 per cent).</p>	<p>Additionality is tested at the methodology stage and there is a positive list for some specific activity types.</p> <p>The methodology specifies what additionality test will apply. These have been standardised over the life of the CDM.</p> <p>Large-scale projects must pass a series of tests:</p> <ul style="list-style-type: none"> a prior consideration test a financial additionality test—whether the project would be feasible without the revenue from CDM offsets a barrier analysis test—whether there are significant barriers to the project in the absence of CDM a common practice test—comparing emissions performance to common practice—or a first-of-its-kind test. <p>Small-scale projects are required to address one of the following simplified tests:</p> <ul style="list-style-type: none"> investment barrier—more attractive alternatives to the project would have led to higher emissions access-to-finance barrier—no access to appropriate capital without consideration of the CDM revenue technological barrier—identification of higher risks due to the performance uncertainty or low market share of the new project technology barrier due to prevailing practice—prevailing practice, regulation or policy would have led to implementation of a higher emissions technology other barriers—institutional barriers, limited information, managerial resources, organisational capacity or capacity to absorb new technologies. <p>There is a positive list for some small-scale electricity projects (e.g., up to 15 MW) including solar, off-shore wind, marine (wave, tidal) and wind turbines (up to 100 kW). These are assumed to be additional.</p>	<p>All CDM baselines are set at the project level.</p> <p>Depending on the project, baselines can be set using historical or projected data, using absolute or intensity baselines, and can be specified with reference to a standardised level.</p> <p>Baselines may also be modified to account for future increases in emissions where they are expected to rise above current levels in the host country—known as a suppressed demand baseline.</p> <p>Instructions for setting baselines are set out in methodologies. CDM methodologies can be developed by project operators or other agents, and must be approved by the CDM Executive Board. Some methodologies are also developed by the Secretariat to the CDM Executive Board.</p> <p>Baseline methodologies are regularly updated—these are applied to new projects adopting the methodology or to existing projects undergoing renewal. Crediting periods for CDM project activities are set at either seven years (repeatable twice), or a single 10-year period. Project operators can choose which crediting period to use.</p> <p>Each PoA must have its own baseline established. Each sub-project must also provide a calculation of the particular project's baseline.</p>

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China—China Certified Emissions Reduction (CCER) Scheme	<p>The China Certified Emissions Reduction (CCER) scheme is an offset scheme that is complementary to the country's pilot emissions trading schemes. It provides liable entities in the pilots with the flexibility to access cost-effective emission reductions from uncovered sectors.</p> <p>This was developed under China's 12th Five-Year Plan (2011-15), which specifies plans to develop a carbon trading market to help reduce GHG emissions. The scheme rules were established in 2012, and the market commenced with the pilots.</p> <p>The offsets are issued by China's National Development and Reform Commission (NDRC) under a voluntary, government-administered Chinese offset program that uses either domestic-specific methodologies, or adapted CDM ones. The NDRC must approve these methodologies.</p> <p>While the CCER offsets are eligible for use in the seven ETS pilots, their use is limited to between five and 10 per cent of compliance obligation.</p> <p>Two wind power projects have been approved, three CDM projects are under review for transition to the CCERs, and about 60 projects, mostly relating to renewables and energy efficiency projects, are currently under review.</p>	<p>The CCER covers a wide range of activities similar in scope to the CDM.</p> <p>National and international organisations, enterprises and individuals are all under consideration for eligibility to participate in the scheme. Covered entities in the Chinese pilot ETSs cannot develop or generate CCERs within the geographic scope of the pilot schemes.</p> <p>Projects can be located around China, not just in ETS zones.</p> <p>The CCERs covers a wide range of emissions sources including renewables and non-renewables in a variety of sectors, fugitive emissions, waste, afforestation, bamboo forest carbon sinks and agriculture. It also includes scope for HFC-23 and N₂O industrial gas offsets.</p> <p>If a CDM project is transitioning to CCER, the registered CDM project must first be withdrawn from the CDM, and then an application can be made for entry into the CCER scheme. However, if the registered CDM project has already issued credits, it would not be eligible for CCERs.</p>	<p>The CCER does not allow credit for early action as projects that started before 16 February 2005 are not eligible.</p> <p>There is no specific reference to other additionality requirements in the guiding regulations. However, the scheme will use adapted CDM methodologies, which will include the same or similar additionality tests as the CDM.</p>	<p>All CCER projects must use an NDRC-certified methodology for calculating their baseline.</p> <p>CCER projects are based on activity/project level baselines, and there are no current active scaled baselines available, such as at the facility or sector/industry level.</p> <p>The NDRC will review emissions factors annually. Revisions to emissions factors will apply to all new projects and those being renewed. It is not confirmed whether the revisions to the emissions factors will affect baselines for existing projects.</p> <p>Baselines can only be reviewed and revised at renewal. This crediting duration is the same as the CDM—a single 10-year crediting period or a seven year period (repeatable twice). Carbon sink projects may have different arrangements.</p> <p>New methodologies can also be proposed; for example, by project developers or research institutions, which would also need to be approved by the NDRC.</p> <p>175 methodologies have been approved as CCER methodologies, 171 of these are adapted from the CDM.</p>

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India—Perform, Achieve Trade (PAT)	<p>PAT is a mandatory national market-based mechanism. It will contribute to meeting India's national emissions target of a 2025 per cent reduction in carbon intensity (of GDP) from 2005 levels by 2020.</p> <p>PAT is a penalty-based mechanism and creates liable entities. The scheme is a closed trading scheme with no provision for offset credits from uncovered sectors or third parties. The price of the certificates is determined by the market.</p> <p>Its objective is to reduce the energy consumption intensity of large industrial facilities. This is achieved by establishing energy consumption targets that are set by the regulator, India's Bureau of Energy Efficiency.</p> <p>The PAT covers high-energy-consuming industries in eight sectors, in which covered facilities are required to meet, or exceed, individual energy consumption intensity targets.</p> <p>The scheme allows for the creation of credits by liable entities. If a facility exceeds its energy saving target, it is issued with energy saving certificates (ESCerts), which can be banked or traded. If it fails to meet its target, it is required to purchase ESCerts or pay a penalty.</p> <p>While the overall intensity reduction targets vary from facility to facility, reductions will average 4.8 per cent by the end of the scheme's first compliance period (2012–15). The energy efficiency measures under PAT will help drive energy savings of an estimated 6.7 million tonnes of oil equivalent (28.6 Mt CO₂-e) during the PAT's first cycle (2012–15).</p>	<p>Both the penalty and credit components of PAT cover eight major sectors of the Indian economy. This represents nearly 60 per cent of India's primary energy consumption. The sectors include:</p> <ul style="list-style-type: none"> • thermal power • iron and steel • cement • fertilizer • pulp and paper • aluminium • textiles • chlor-alkali. <p>Nearly half (48 per cent) of the energy savings will come from the thermal power sector, with iron and steel accounting for 22 per cent.</p> <p>Within each sector, large energy-intensive industrial facilities (plants or factories) have been identified and issued individual energy consumption targets.</p> <p>There are currently 478 facilities in the program for the first compliance period. PAT includes both publicly and privately owned facilities.</p>	<p>There are no specific additionality tests in the PAT scheme.</p> <p>As the PAT scheme is a mandatory national level scheme that sets binding efficiency targets for covered facilities, it does not matter if the efficiency improvements are not truly additional. The sum of the individual targets ensures that overall net efficiency improves.</p>	<p>PAT sets baselines at the facility level, and is established on the average of three years historical activity. The baseline is an intensity-based measure, specified as metric tonnes of oil equivalent per unit of production (in units of product).</p> <p>Where there is significant variation in historical activity due to uncontrollable factors (such as volatile exchange rates), this data can be smoothed for use in establishing the baseline.</p> <p>PAT apportions reduction targets pro rata across sectors—high-consuming sectors are allocated a more stringent target. Within each sector, facilities are benchmarked against the best facility in the sector. More inefficient plants will be assigned higher targets relevant to their estimated baseline energy consumption.</p> <p>As emissions intensity is measured per unit of product, this varies across facilities and sectors. Where a facility has multiple products, the PAT rules specify that the main product made in the facility is used (or an equivalent product worked out from the product mix). There is only one baseline for each facility.</p> <p>Baselines in PAT were the result of an extensive consultation between government departments and firms. New methodologies would only relate to new facilities.</p> <p>New facilities can be included in PAT. Baselines for new facilities can be set using appropriate historical data where available. If only one year of data is provided, then this full year of data can be used to set the baseline.</p>

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<p>Canada— Alberta Specified Greenhouse Gas Emitters Regulation (SGER)</p>	<p>The SGER is an emissions reduction system established in Alberta, Canada in 2007. It is a single penalty and credit trading scheme that allows for a separate offsets component.</p> <p>The penalty component specifies emissions reduction targets for large emitters. These liable entities are required to reduce their emissions intensity to 12 per cent below their 2003–05 baseline emissions intensity.</p> <p>Liable entities can generate credits. Facilities that emit below their baseline can generate bankable and tradable credits—‘emission performance credits’. Those that do not meet their targets can use any combination of the following compliance options:</p> <ul style="list-style-type: none"> • purchase emission performance credits from other entities • purchase offset credits • purchase fund credits (penalty). <p>The price ceiling on the fund credit penalty is \$15 per tonne CO₂-e.</p> <p>The offsets component is a voluntary market based compliance option available to liable entities. Offset credits can be generated by facilities and sectors not captured under the penalty scheme who are able to reduce GHG emissions according to an approved protocol (methodology).</p> <p>The offsets scheme has 145 projects registered, with 28.6 Mt CO₂-e emissions reductions registered (19.8 Mt CO₂-e emissions reductions retired as at September 2013).</p>	<p>The penalty and credit scheme covers all GHGs at facilities generating more than 100kt CO₂-e annually in industrial sectors:</p> <ul style="list-style-type: none"> • chemical manufacturing • coal mining • conventional oil and gas extraction • fertilizer and mineral product manufacturing • oil sands, petroleum and coal products • pipeline transportation • primary metal manufacturing • utilities • waste • wood product manufacturing. <p>In 2012, this included 106 facilities from 13 sectors, about 70 per cent of industrial emissions and about half of Alberta’s provincial emissions.</p> <p>The offset scheme covers electricity generation, agriculture, energy efficiency, forestry, geological sequestration, methane/waste management, renewable energy, transportation, biofuels and some industrial activities.</p> <p>The offset scheme specifies that project-based emission reductions/removals must:</p> <ul style="list-style-type: none"> • occur in Alberta • be additional to regulations, and be beyond business-as-usual and sector common practices • be from actions taken on or after 1 January 2002 • be real, demonstrable, quantifiable and verifiable • have clearly established ownership • be counted once for compliance purposes • use a government-approved methodology • be verified by a suitable auditor. <p>The largest volume of offsets has come from agricultural tillage (38 per cent), which has been driven by the use of aggregators and an early action policy (to 2002). Wind energy projects have generated 19 per cent of the credits in the scheme.</p>	<p>In the penalty and credit scheme, there is no specific additionality test—as long as the baseline is met or exceeded, it does not matter whether the reductions are additional.</p> <p>Offset credits must be generated from activities that go beyond both business-as-usual and regulatory. Alberta assesses additionality during methodology development and periodically during the methodology review.</p> <p>The ‘Offset Protocol Development Guidance’ document outlines integrity standards for additionality, including regulatory and financial tests, available technology tests, and a common practice test in which common practice is defined as a 40 per cent level of adoption of the activity in the sector.</p> <p>Alberta also uses a discount factor in some sequestration projects to help ensure additionality; for instance, tillage projects apply a discount of 10 per cent on credits to hedge against future reversal risk.</p>	<p>For the penalty scheme, liable entities are measured at the facility level and on an emissions intensity basis (units, tonnes CO₂-e per production unit).</p> <p>Production units are the various products produced on the facility, which is summed together to get a single unit.</p> <p>A facility’s stated baseline emissions intensity value must represent the facility’s business-as-usual scenario. Baselines are set using historical data.</p> <p>New facilities can be included in the trading scheme and are gradually introduced over a period of up to six years.</p> <p>For offset projects, the baseline represents business-as-usual emissions.</p> <p>Offset baselines can be specified as historic benchmark, performance standard, comparison approach, projection-based or adjusted baselines. Baselines can also be static or dynamic.</p> <p>Methodologies are subject to periodic review. New projects must use the current methodology. Where revisions occur, active projects will be allowed to finish the current crediting period unless the project operator agrees to the revision.</p> <p>These crediting periods are generally eight years, with a possible five-year extension. Conservation cropping projects have a longer crediting period of up to two 10-year periods. Afforestation can have up to three 20-year crediting periods. One Carbon Capture and Storage project was given a project specific variance of 25 years to assist this technology innovation.</p> <p>Methodologies were originally started by federal-provincial and territorial governments. Project providers can also submit methodologies. These must be assessed and approved by Alberta Government prior to use.</p>

Sources: Auditor General Alberta 2011; Alberta Government 2012, 2013, 2013b; BNEF 2013; Environment and Sustainable Resource Development website; International Institute for Sustainable Development 2011; Specified Gas Emitters Regulation 2007.

SCHEME	DESCRIPTION	ELIGIBILITY AND COVERAGE	ADDITIONALITY	BASELINE SETTING
United States—California Air Resources Board (ARB) Compliance Offset scheme	<p>The ARB Compliance Offset scheme is a crediting mechanism that is complementary to the Californian Cap-and-Trade scheme, which commenced in 2013.</p> <p>Liabe entities under the Cap-and-Trade scheme are required to reduce their emissions, or acquire allowances or a limited number of offset credits (up to eight per cent of total compliance obligation) to comply with the program.</p> <p>ARB Offset credits represent verified emissions reductions or removals achieved under ARB's Compliance Offset Protocols (methodologies approved by the Board).</p> <p>Californian law requires that offsets used for compliance must be real, additional, quantifiable, verifiable, permanent and enforceable. These criteria are met through the:</p> <ul style="list-style-type: none"> • design of the regulation • use of standardised, Board-approved methodologies • use of accredited third-party verification bodies and verifiers • ARB review of offset project documentation related to reporting and verification. 	<p>ARB offset credits are issued by ARB and are the only type of offset credit that can be used to meet compliance obligations for liable entities.</p> <p>The program includes older Californian offset scheme credits which may be cancelled and transitioned to ARB offset credits:</p> <ul style="list-style-type: none"> • early action offset credits - voluntary offset credits that were issued under approved early action methodologies • registry offset credits - voluntary offset credits issued by an approved third party registry prior to ARB consideration for compliance issuance <p>ARB offset credits can only be earned by activities not covered under the cap.</p> <p>ARB offset projects must use an approved methodology. There are four areas covered:</p> <ul style="list-style-type: none"> • urban forestry • US forestry • livestock digesters • destruction of ozone-depleting substances (ODS), which relates specifically to Montreal Protocol gases. <p>A mine methane capture protocol will be proposed to the Board for approval in Spring 2014. A rice cultivation methodology is under development for draft release.</p> <p>Offset projects must start after 31 December 2006, unless otherwise specified in the applicable methodology. Projects originally developed under an approved early action methodology may have a start date before 31 December 2006 and must transition to a Compliance Offset Protocol beginning in 2015.</p> <p>Offset projects must be located in the US and its territories, Canada or Mexico.</p> <p>Currently, all approved methodologies are for US based projects only, and would need to be modified for projects located in Canada or Mexico and be approved by the Board.</p> <p>About 5.5 million ARB credits have been issued—about 15 per cent for compliance ODS projects; 53 per cent for early action ODS projects; 30 per cent for early action US Forest projects and around two per cent for early action livestock digester projects. No credits have been issued for urban forest projects.</p>	<p>Emissions reductions used for compliance are required to be beyond what would otherwise be required by law, regulation, or legally binding mandate, and that exceeds a conservative business-as-usual scenario.</p> <p>For each proposed project, tests are applied to determine whether the activity is additional to local, state, or federal regulation.</p> <p>Each individual methodology also tests for additionality by establishing if the activity is common practice in the applicable geographic area. For instance, livestock projects:</p> <ul style="list-style-type: none"> • It must be demonstrated that the activity is beyond business-as-usual—whether the physical depth of the anaerobic lagoons or ponds prior to implementation were sufficient to prevent the activity from occurring anyway. • For new livestock projects, it can be demonstrated that the project activity is not common practice in the industry and geographic region. <p>The ODS destruction methodology adds an additional criteria to the standard tests—projects can only be undertaken by the non-public sector (as ODS destruction is common practice for the US Government and is therefore non-additional).</p>	<p>Baselines in the ARB offset scheme are mostly project-based and some are specified at the facility level.</p> <p>Methodologies include standardized methods for determining project baselines for each project type. The standardized baseline methodologies reflect a conservative estimate of business-as-usual.</p> <p>Baseline quantifications are specified for the four methodologies. Each baseline is measured differently depending on the specifics of the project; for instance:</p> <ul style="list-style-type: none"> • ODS baselines estimate GHG emissions within the project boundary that would have occurred in the absence of the project. • livestock digester baselines estimate GHG emissions resulting from the installation of biogas control systems that capture and destroy methane from livestock operations. • urban forestry baselines estimate the amount of carbon sequestered in eligible project trees, minus emissions from the planting, care and maintenance of those trees over the reporting period. • US Forest baselines calculate the onsite carbon stock of the project area, which are then annually compared to the actual onsite carbon stock. <p>Activities are either metered/monitored (for GHG destruction), or measured as changes in carbon stock (carbon sink). Accordingly, absolute baselines are used for these activities.</p> <p>Crediting periods in the scheme are generally seven to 10 years for non-sequestration projects, and up to 25 years for forestry.</p> <p>Depending on the methodology, a range of data can be used including historical, projections and standardised default factors.</p> <p>New methodologies can be developed by ARB, with public input and Board adoption, to satisfy the requirements of the regulation.</p>

Sources: ARB Offset Credit Issuance, Article 5: California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms, Subchapter 10 Climate Change; California Air Resources Board, California ARB 2011a, 2011b, 2011c, 2011d, 2012, 2012b, 2013; Global Warming Solutions Act of 2006.