



ACT
Government
Environment and Planning

Carbon Neutral ACT Government Framework

Environmental Leadership –
ACT Government Carbon Neutrality



AUGUST 2014





Message from the Minister

Climate change is one of the most serious challenges facing the world. Addressing this challenge is a shared responsibility of all governments, businesses and the wider community. The Australian Capital Territory (ACT) Government is committed to the ACT acting responsibly and driving action that addresses global climate change.

In November 2010 the ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010*, which has the most ambitious greenhouse gas reduction targets of any jurisdiction in Australia, including:

- the peaking of per-capita emissions by 2013
- a 40% reduction in greenhouse gas emissions on 1990 levels by 2020 and
- zero net emissions by 2060.

These targets have been widely supported by the community and the ACT Government, along with corporate leaders, businesses, community representatives and individuals, is working to help the ACT meet these targets. The ACT Government is focusing on how to reduce carbon footprints, improve energy efficiency and make the Territory resilient to climate change.

The ACT Government is responsible for around 5% of the ACT's greenhouse gas emissions and remains committed to leading by example and working to achieve carbon neutrality in its own operations by 2020.

The Carbon Neutral ACT Government Framework focuses on avoiding and reducing emissions in the first instance, switching to lower emission energy sources, undertaking carbon sequestration, and then enabling carbon offsets to achieve carbon neutrality.

I commend the Framework as representing responsible and sound government action that reduces greenhouse gas emissions and helps the ACT community achieve its legislated greenhouse gas reduction targets.

Simon Corbell MLA

Minister for the Environment



Cover image: Showcasing renewable technology at the West Belconnen Child and Family Centre, Holt.

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Glossary

ACCU – Australian Carbon Credit Units

ACTPG – ACT Property Group

CFI – Carbon Farming Initiative

CMTEDD – Chief Minister, Treasury and Economic Development Directorate

CNGIC – Carbon Neutral Government Implementation Committee

CO₂-e – Carbon dioxide equivalent

EPD – Environment and Planning Directorate

ESP – Enterprise Sustainability Platform

GBCA – Green Building Council of Australia

GHG – greenhouse gas

ICT – Information and Communication Technology

kWh – kilowatt hour

MJ – mega joule

NABERS – National Australian Built Environment Rating System

NCOS – National Carbon Offsets Standard

NGER – National Greenhouse and Energy Reporting

RMP – Resource Management Plan

VET – Vocational Education and Training



ACT Government Carbon Neutral Framework

Target

The ACT Government will achieve carbon neutrality in all its operations by 2020.

ACT Government carbon neutrality is to cover central operations and services such as office accommodation, corporate fleet, ACTION bus fleet, streetlights, and education and health services.

What is carbon neutrality?

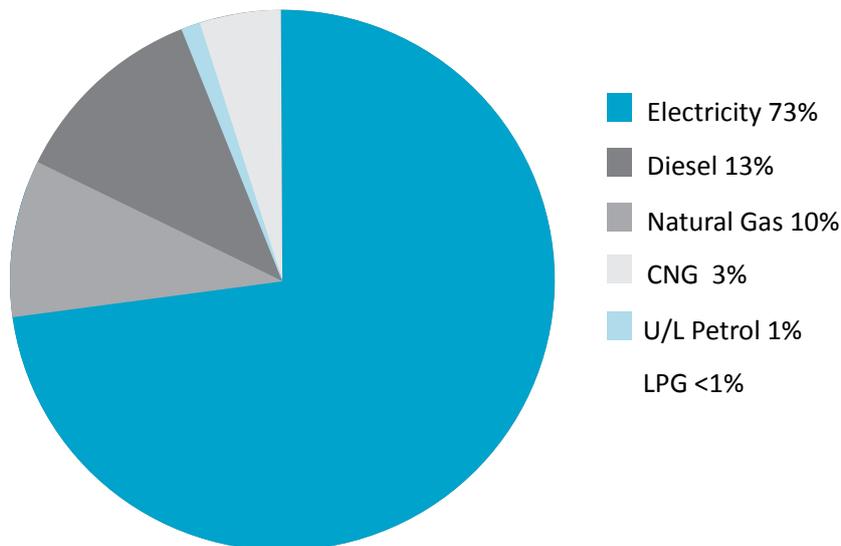
The ACT Government aims to become carbon neutral on a 'net' basis. This means that while some residual emissions may be produced each year, they will be fully balanced by the purchase of carbon offsets, which are projects that reduce emissions.

GHG emissions + GHG reductions = zero emissions = carbon neutrality

Greenhouse gas (GHG) emissions are predominately caused by using fossil fuels to generate energy. GHGs are also emitted from the breakdown of organic waste interred to landfill. The whole-of-government contracts for fuel and electricity and annual reporting for gas and waste have been used to estimate ACT Government sources of emissions in 2009–10. The National Greenhouse and Energy Reporting (NGER) calculator has been used to determine emissions associated with each fuel type.

Figure1: Indicative chart of ACT Government GHG emissions sources, based on utility bill information

Estimated ACT Government 2012-13 emissions sources



Purpose

The purpose of the Carbon Neutral ACT Government Framework (Framework) is to enable and coordinate a whole-of-government approach to achieving carbon neutrality in a cost-effective manner by 2020. The Framework complements the targets set out in AP2: A new climate change strategy and action plan for the ACT (2012).¹

The ACT Government emits approximately 5% of the ACT's GHG emissions. In implementing the Framework and reducing its carbon footprint, the ACT Government will also be more resilient to the costs and impacts of climate change.

Achieving carbon neutrality is the collective responsibility of all ACT Government directorates. A number of actions require implementation by individual directorates, while others will be pursued through a whole-of-government approach.



Steps to achieving carbon neutrality

Three steps are required to deliver the target of carbon neutrality:

Step 1. Measure, monitor and report emissions.

- Define the boundary (operations and services) and scope (type) of emission to include in the carbon footprint.
- Employ a comprehensive data management and reporting system.
- Use carbon budgets to promote accountability.

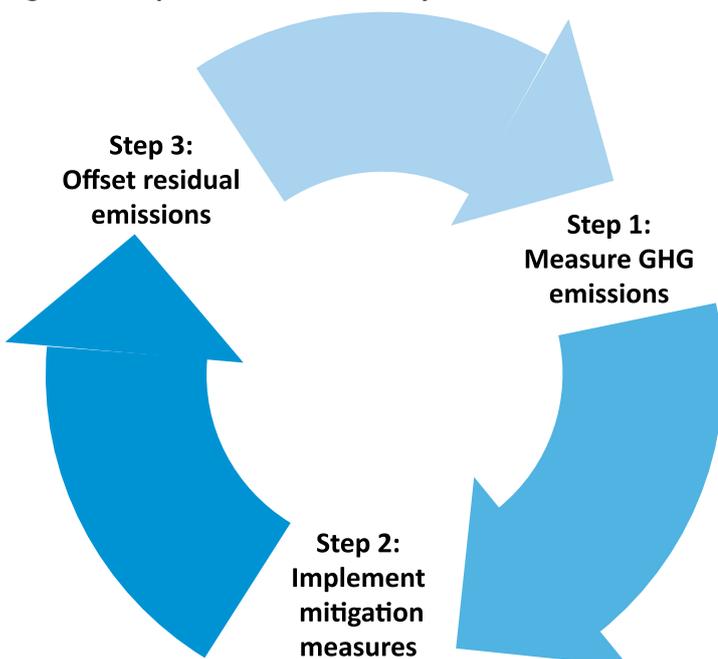
Step 2. Minimise the carbon footprint by implementing mitigation measures.

- Improve environmental performance.
- Reduce emissions, in particular from use of electricity and gas, in key areas including:
 - buildings
 - data centres
 - health
 - education
 - street lighting.
- Use sustainable transport.
- Manage waste sustainably.
- Promote sustainable procurement.
- Promote and encourage sustainable work practices.

Step 3. Source credible emission reductions to offset residual emissions.

Mitigation of GHG emissions involves actions that reduce the sources or enhance the sinks of GHGs. Mitigation can be achieved through avoiding and reducing emissions, switching to lower emission energy sources and undertaking carbon sequestration. Carbon offsets refer to measures undertaken by an entity to compensate for their own GHG emissions.

Figure 2. Steps to carbon neutrality





Tracking progress

Implementation of the Framework and reductions in GHG emissions will be tracked through:

1. directorate or administrative unit annual reports and a new whole-of-government report on ACT GHG emissions
2. carbon budgets assigned to all directorates, which may be linked to Director-General contracts
3. an interdepartmental working group, that regularly reviews implementation of the Framework's listed mitigation actions and
4. a progress report to be provided annually to the ACT Public Service Strategic Board on the implementation of the Framework.

The Framework will be reviewed in 2016, allowing sufficient time to integrate any policy developments at the national level. Decisions on the 2019–20 purchase of carbon offsets and GreenPower will be informed by the review. The review will be broad and allow for consideration of policy and administrative arrangements.

Annual reporting

The government's performance on GHG emission reductions will be monitored through GHG emissions reporting in directorate and entity annual reports and an annual whole-of-government GHG emissions report. Annual Reports measure and report on total resource use 'absolutes' – such as total energy use by a source, and resource 'intensity' – or efficiency outcomes such as energy used per unit of office area and energy used per full-time equivalent.

Annual reporting requirements

The *Annual Reports (Government Agencies) Act 2004* sets the framework for annual reporting across the ACT public sector, under which Annual Report Directions set minimum reporting requirements that include:

- transport – vehicle fleet fuel use, number of vehicles and total kilometres travelled
- energy – electricity and gas use, renewable energy use, energy intensity measures
- greenhouse gas emissions – associated with fuel / energy use
- resource efficiency and waste – paper purchased, recycled content of paper purchased, estimated waste to landfill, paper, comingled and organic material recycled
- water consumption – water used and water intensity measures.

Carbon budgets

A new process will be established whereby all directorates will have a carbon budget that is a cap on the total quantity of GHG emissions from the government operations for which they have responsibility. Carbon budgets will be established for each directorate following implementation of the Enterprise Sustainability Platform (ESP). It is expected that carbon budgets will be trialled in 2015². Alignment between the budget process and carbon budgets is important.

Adequate administrative and technical advice and support will be provided by the Environment and Planning Directorate (EPD) with input from Chief Minister, Treasury and Economic Development Directorate (CMTEDD) to the Head of Service through a briefing process to be determined in consultation with relevant directorates.

Interdepartmental working group

Progress in implementation of the Framework will be monitored and assessed quarterly through a whole of government forum called the Carbon Neutral Government Implementation Committee (CNGIC). Champions, identified for each of the Framework's 39 mitigation actions, are responsible for reporting to the CNGIC on progress. Champions have responsibility for identifying opportunities and promoting change to achieve the Framework's target. The CNGIC will establish relevant subgroups if needed and integrate with existing fora across Government where possible (for example Fleet Managers Advisory Group and Property Forum or equivalent).



The CNGIC will give due consideration to government policies that can enhance the implementation of this Framework and the aim of carbon neutrality by 2020. Terms of reference and functions of the CNGIC will be determined upon its establishment in 2013.

Progress report on implementation of the Framework

The ACT Government will be informed of progress in reducing GHG emissions and implementation of the Framework annually. The report will be coordinated by EPD and submitted to the Strategic Board.

As part of monitoring the progress, it is acknowledged that new climate change developments nationally, such as under the Clean Energy Future Plan, may need to be reflected in the Framework. The review of the Framework in 2016 will also allow for considerations of national and other climate change policy developments.

Guiding principles

Broad principles guiding carbon neutrality in ACT Government operations are:

1. Government leadership by setting an example.
2. Transparency and accountability through monitoring, reporting and carbon budgeting.
3. Coordinating action across one ACT Public Service.
4. Building capacity to change and fostering innovation through engagement and empowerment of staff.
5. Efficient use of resources and cost-effective GHG abatement.

The following further guidance is provided to operationalise the fifth principle relating to efficient use of resources and cost-effective abatement:

- The GHG mitigation hierarchy (see figure 3) provides a broad indication of where reductions in GHG emissions are likely to be achieved at the lowest cost; that is, actions that avoid GHG emissions are likely to be the most cost-effective.
- Setting priorities for investing in GHG abatement should be informed by cost-effectiveness measures such as:
 - cost per tonne of GHG reduction and
 - payback periods, that is, the length of time something takes to ‘pay for itself’, for example, a \$1000 investment which reduced energy costs by \$500 per year would have a two-year payback period.
- New infrastructure, for example schools, hospitals or government offices, should be informed by analysis of options for minimising the cost of carbon neutrality over time; and set a carbon budget for future operation of the new facility.
- Information sharing can significantly reduce the cost of reducing GHG emissions.

Financial implications

Implementation of the Framework will have financial implications in the future, for example through investment in energy efficiency and renewable energy. Government is in a position to invest in its own buildings and energy-using assets, since there is long term certainty of tenure and service provision. Decisions can be made that will save both energy and the associated costs over both the short and long term.

The cost of energy is forecast to rise significantly over the next 10 years. The scale of these price rises provides a strong case for energy efficiency investments to be a core part of the government’s efforts over the remaining years to 2020.

Modelling undertaken to develop the framework indicates that energy efficiency can make a material contribution to the ACT Government’s efforts to reduce emissions, significantly reducing the long term cost of abatement if savings opportunities with an average six year payback period are pursued across government operations from 2012–13.

The government will reduce its emissions through a comprehensive energy efficiency investment program to 2020.



Figure 3. Mitigation measures and offsets hierarchy



Loan Fund

The Framework endorses an energy efficiency investment program across Government of up to \$6 million per year to 2020. It is expected directorates will implement actions contained in the Framework from existing resources or seek loan funding through the Carbon Neutral Government Fund (incorporating the Resource Management Fund). Many of the proposed actions have potential to create cost savings through reduced energy costs.

Administration

To ensure effective resource management planning, all directors-general and chief executives are required to provide adequate resourcing for analysis of data and review of their organisation's environmental performance. This can occur through existing staff resources (for example staff preparing annual reports, fleet managers and facility managers) to ensure that energy performance is built into core business and becomes part of standard practice. It is expected that the time required by existing staff to implement the Framework will increase in the first year, with decreasing administrative burden as a directorate's knowledge, skills and capacity increases over time.

EPD is developing a range of tools and resources to support this capacity building and knowledge sharing to enable consistency and build the skills and knowledge across government.



Cost saving opportunities:

The Government has an incentive to minimise the financial implications of expected energy price increases, by using its energy more efficiently and reducing energy use where possible. The majority of Government emissions in 2009–10 were created by the use of electricity in government buildings, facilities and street lighting. In 2009–10 the ACT Government used approximately 156,700,000 kilowatt hours (kWh) of electricity (under the whole of government contract).

The information contained in 2009–10 energy audits of seven ACT Government buildings can be used as indicative costs for energy efficiency measures. Total annual electricity consumption of the seven buildings was estimated at 12,216,109 kWh and total annual gas consumption was 9,625,972 mega joules (MJ).

By implementing recommended measures with a payback period of less than four years, at a one-off total cost of \$262,060, the audits estimated annual ongoing gas savings of 2,969,000 MJ of gas (or 31% of the gas use of seven buildings) and electricity savings of 1,693,335 kWh (or 14% of the buildings' use). Implementing these measures also supports the development of the local clean economy. The Carbon Neutral Government Fund has been established to support such energy and cost saving projects.

Many of the audit recommendations had a less than four year payback period; in fact, 22 measures were identified with a <1 year payback period, some of which had a zero cost (for example adjusting control settings to turn off half an hour earlier and removing unnecessary lamps).

Directorates will need to analyse property and assets portfolios to determine the most appropriate efficiency measures specific to their directorate.

Additional benefits

In addition to GHG savings, many mitigation measures offer significant co-benefits such as improved energy security, improved productivity and better health. For example:

- Green buildings can deliver up to a 10% increase in productivity and 40% decrease in sick days.³ By encouraging alternative travel to motor vehicles, including walking and cycling, we can make significant improvement to our health.
- Contributing to the clean economy and the implementation of the ACT Business Development Strategy through increasing the demand for clean technology products and services.

Identification of co-benefits can generate broader commitment to mitigation measures.



Implementing the Framework

Step 1: Measure, monitor and report emissions

Comprehensive monitoring and measuring of GHG emissions for all ACT Government operations is required to accurately determine the ACT Government carbon footprint, inform decisions for lowering GHG emissions and monitor progress towards the target.

Define boundary of carbon footprint

The Framework will apply to all budget-dependant entities for which the ACT Government has operational control. This includes those administrative units defined in the Annual Report Directions and covered under the *Annual Reports (Government Agencies) Act 2004*⁴, for which the ACT Government has operational control. The Framework excludes independent entities, for example ACTEW AGL, ACTEW Water and ACTAB. Operational control is determined as the authority to introduce and implement any or all of the operating, health and safety and environmental policies for the facility, which is consistent with definitions in the *National Greenhouse and Energy Reporting Act 2007* (the NGER Act).⁵

The ACT Government will formally account for those emissions identified as mandatory for reporting by the NGER Act, currently scope 1 and 2 emissions only. The ACT Government may align with best practice and voluntarily include some scope 3 emissions (business travel and or paper use), which are emissions generated in the wider economy as a consequence of the ACT Government's activities.

Greenhouse gas emission scopes

Scope 1: Direct emissions from sources owned and operated by the government

- Emissions from natural gas used to heat buildings
- Emissions from fuel used by the government fleet
- Fugitive emissions from leaks (hydrofluorocarbon (HFC) emissions during the use of refrigeration and air conditioning equipment)
- Emissions from landfill – methane leaks (at landfill sites operated by the government)

Scope 2: Indirect emissions

- Emissions from mains electricity used to power, light, cool and heat government facilities and street lights

Scope 3: Other indirect and embodied emissions

- Emissions from business travel on transport not owned and operated by the government (by air, taxi, hire cars)
- Emissions from the disposal of waste
- Emissions from paper used



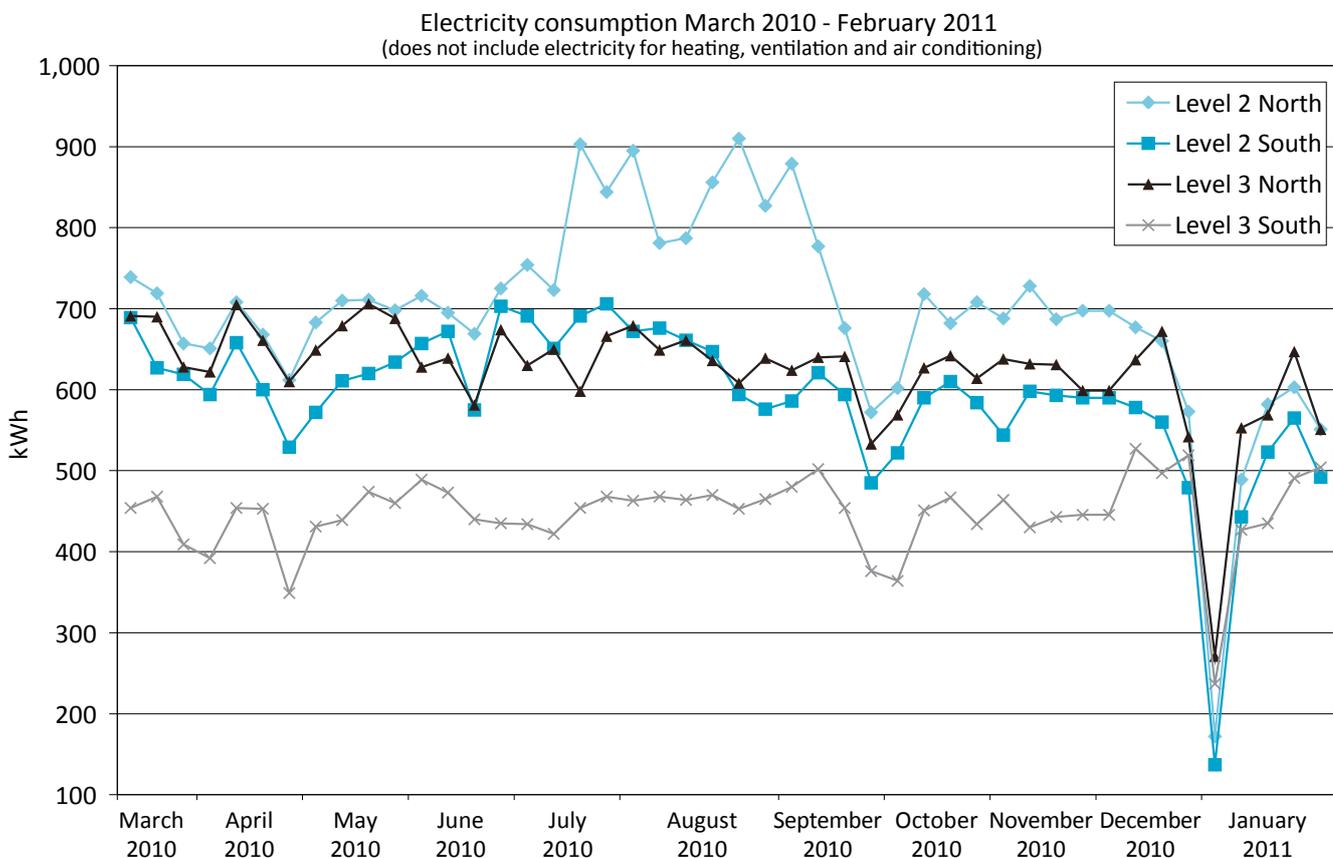
Data Management and Reporting System

The ACT Government will implement an Enterprise Sustainability Platform (ESP) to provide accurate and reliable data to government entities covered by this Framework and enable consistent reporting on GHG emissions. Data encompasses electricity, gas, water and GHG emissions and potentially transport fuel. This data will be used by ACT Government directorates to report resource use in their annual reports.

Through a whole-of-government approach, total GHG emissions for ACT Government operations will be measured and monitored. A whole-of-government GHG inventory will be prepared annually. The new data system will enable the ACT Government to accurately monitor resource use, compare performance and set carbon budgets for each directorate.

In addition, smart meters enable better monitoring of performance, providing energy use data on a regular basis for an identified building, facility or part of building. Installation of more electricity sub-meters or smart meters will allow energy use and costs to be identified with more precision, which will help to inform decisions on where and how to reduce GHG emissions.

Figure 5. Example of data that can be obtained from smart meters



The ESP will be introduced in close consultation with the managers of the whole-of-government electricity account to maximise efficiencies between data collection, bill processing and reporting of GHG emissions.

Carbon budgets

A mechanism to set, monitor and comply with carbon budgets will be established by the ACT Government in 2015, following implementation of the whole-of-government ESP. All directorates can be involved in determining the methodology of calculating and setting carbon budgets. It is expected that carbon budgets will be in place for each directorate by 2016, with EPD trialling a carbon budget in 2015.

A carbon budget will be established for each directorate for each financial year, allowing for services growth and reflecting the capacity of directorates to achieve further energy reductions. Forward estimates for the following three years, similar to the setting of financial budgets, will be included. Central oversight by EPD and CMTEED will allow for alignment and ensure consistency between the budget process and carbon budgets. Carbon budgets will align with the budget process.



The ACT Government's whole-of-government electricity contracts

Currently the whole-of-government electricity contracts include over 450 individual accounts, representing approximately 90% of the electricity used by ACT Government. The following list indicates the 14 highest users, making up 66% of the 2009–10 whole-of-government electricity report. Electricity is responsible for approximately 73% of total ACT Government GHG emissions.

Electricity use	% of total contract
Public lighting (street, traffic, some car park)	25
The Canberra Hospital	18
CIT (total all campuses)	8
Office building – Callam Offices Woden	3
School – Erindale College (extended hours community use)	2
Office building – Macarthur House Lyneham	2
Laundry – Capital Linen Sanford	2
ACTION Bus Depots total	2
ACT Health Alinga St (services and office)	1
Alexander Maconochie Prison	1
North Building London Circuit (extended hours, office and community use)	1
ACT Magistrates Court	1
School – Lake Tuggeranong College	1
Office building – 255 Canberra Ave, Fyshwick	1

Directorate carbon budgets will be calculated on the basis of:

- the previous year's emissions
- agreed operational targets (decreases in budgets)
- exceptions (increases in budget) due to service growth or major changes in operations
- cap on GHG emissions for the stated year and forward estimates for the following three years and
- GreenPower purchases should be noted but not included in the calculation of the cap on GHG emissions.

Operational targets may be absolute or intensity targets. Operational targets should be identified in consultation with those managing and working in relevant areas. Achieving targets may involve changes in operating practices, modifications to existing plant or buildings, or capital investment in more energy efficient plant or buildings. Directorate Resource Management Plans should include operational targets and actions to achieve the targets. Major project plans could also incorporate targets.

Carbon budgets will account for those elements for which a directorate may not have complete control, such as the central services of a leased building. Directorates will be expected to use the tools available (such as environmental leases and building management committees) to negotiate environmental performance outcomes in their accommodation. The effective implementation of environmental leases will allow the government to demonstrate leadership to the community on this issue.

Directors-general will be required to report to the head of the ACT Public Service on the performance against their directorate's carbon budget. EPD and CMTEDD will provide central oversight and briefing to the Head of Service.

Measuring performance through carbon budgets will:

- encourage monitoring and continual improvement in environmental performance
- promote investment that reduces GHG emissions and
- increase accountability and commitment from directors-general.



Directors-general may adopt a number of mechanisms to align and integrate their operations to achieve sustainability objectives such as resource management planning, corporate planning and budget cycles, human resource management and staff performance agreements.

The expected time frame for carbon budgets is as follows (a confirmed timeframe will be set in consultation with all directorates as part of determining carbon budget methodology):

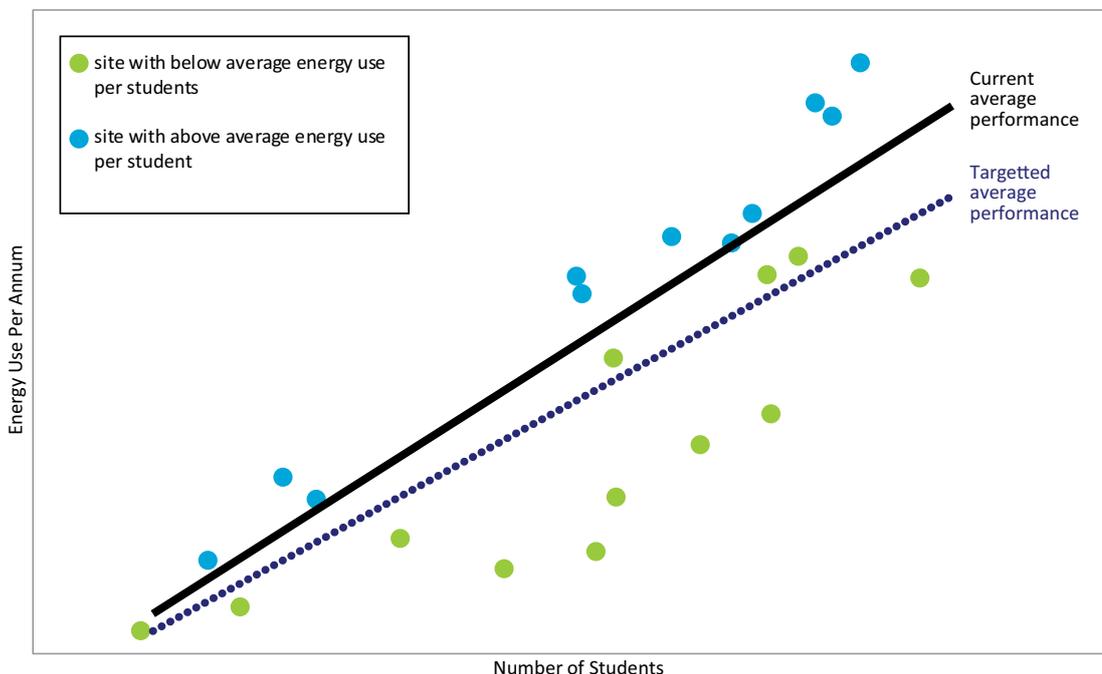
- Mid-2014: ESP provides three years of backdated resource use data from which to draw baselines at the building and organisational (directorate) levels.
- 2014–15: first full financial year of ESP service, providing directorates with timely accurate, complete and consistent resource use data. All directorates are involved in determining the methodology for calculating and setting carbon budgets.
- During the 2015–16 financial year: voluntary trial of carbon budgets in EPD.
- By 2016–17: every directorate will have negotiated a carbon budget for the following three financial years.
- 2016–17: the expected first financial year that carbon budgets take effect in each ACT Government directorate with performance against the carbon budget to be reported annually to the Head of Service.

Operational targets – Absolute and intensity targets

Absolute targets reduce absolute emissions over time. For example, reduce tonnes of CO₂-equivalent by 50% below 2011 levels by 2015. Absolute targets are designed to achieve a reduction in a specified quantity of GHG emissions. They are environmentally robust as they entail a commitment to reduce GHG emissions by a specified amount. However absolute targets do not take into account productivity or output, in particular if growth is closely linked to GHG emissions.

Intensity targets reduce the ratio of emissions relative to a business metric over time. Targets can be developed from units of energy per number of employees, per building area or per a specific indicator of production/ service such as per patient or per student. (See figure 6) For example, reduce emissions of CO₂ equivalent by 20% per square metre of office floor space between 2011 and 2015. Targets can be used to track energy efficiency and provide a means to quantify energy costs and consumption against outputs. Intensity targets reflect GHG performance improvements independent of organic growth or decline and can be used to compare GHG performance among similar service types. This will assist sectors such as health whose service delivery is expected to grow as a result of population growth and population health demographics, to track environmental performance in a meaningful way. Tracking of performance based on intensity targets is also not as affected by structural change in government directorates.

Figure 6. Using energy data to set operational targets.





Step 2: Implementing mitigation measures

The Framework suggests 10 strategies and 39 actions for mitigation that focus on:

- individual directorates' management of resources
- sources of GHG emissions, that is stationary energy (electricity and gas), transport and waste and
- whole-of-government approaches, including purchase of GreenPower and procurement policies.

Each directorate must play an active role in improving their environmental performance, particularly through:

- Strategy 1 – Resource management planning and actively identifying and pursuing operational and energy efficiency opportunities and
- Strategy 2 – Fostering a staff culture of smart energy use and conservation of resources.

The ACT Government manages a range of buildings and facilities, including office buildings, schools and hospital buildings, as well as numerous community centres and depots. Use of electricity and gas for heating, cooling and powering buildings and facilities forms the majority of the Government's GHG emissions. Streetlights, data centres and events also use significant amounts of energy. Provision of public transport and vehicles in the ACT Government fleet also use fuels that emit GHG emissions. The Framework sets out the mix of measures that will support a whole of government move to carbon neutrality in 2020.

Strategies have been identified that target GHG emissions from different types of services and / or sectors:

- Strategy 3 – Buildings
- Strategy 4 – Data centres
- Strategy 5 – Health services
- Strategy 6 – Schools and education sector
- Strategy 7 – Public lighting and events
- Strategy 8 – Transport
- Strategy 9 – Waste

Other whole-of-government approaches to reduce GHG emissions focus on:

- Strategy 10 – Sustainable procurement including embedding carbon neutrality objectives into general procurement, purchasing of GreenPower and assessing capital projects for GHG impacts.

Table 1 Carbon Neutral ACT Government Framework summarises the mitigation strategies and actions aimed at reducing the ACT Government's carbon footprint. While a whole of government approach is presented, individual directorates will be responsible for the scheduling and implementation of the mix of measures across their activities.



Table 1. ACT Government Carbon Neutrality Framework

Step 1: Measuring, monitoring and carbon budgeting	
Step 2: Mitigation	
Responsibility of each directorate	
Strategy 1 Directorate resource management	
Action 1.	Resource management plans
Action 2.	Energy audits
Action 3.	Carbon Neutral Government Fund
Strategy 2 Staff culture	
Action 4.	Staff engagement
Action 5.	Sustainability committees (Green Teams)
Action 6.	Sustainable work travel options
Stationary Energy (electricity, gas and onsite diesel use)	
Strategy 3 Buildings	
Action 7.	Energy performance standards
Action 8.	Renewable energy
Action 9.	Environmental leases
Action 10.	Building management committees
Action 11.	Lighting
Action 12.	Design and construction of new buildings
Action 13.	Government facilities showcasing sustainability
Action 14.	Investigate distributed energy (co and tri-generation) for large sites
Strategy 4 Data centres and ICT	
Action 15.	Data centre energy performance plans
Action 16.	ICT sustainability plan
Strategy 5 Health Services	
Action 17.	ACT Health Sustainability Strategy
Action 18.	Energy management and monitoring for hospitals
Action 19.	Energy efficiency of Health Centres
Strategy 6 Schools and education	
Action 20.	Carbon neutral schools
Action 21.	Solar energy in schools program
Action 22.	ACTSmart Schools program
Action 23.	Energy standards for new school buildings
Action 24.	Preschools and early childhood facilities
Action 25.	Colleges
Strategy 7 Public lighting and events	
Action 26.	Public lighting policy
Action 27.	Streetlight trials and energy efficiency upgrades
Action 28.	Sustainable public events
Transport	
Strategy 8 Sustainable transport	
Action 29.	Green vehicle ratings
Action 30.	Sustainable fleet management
Action 31.	Trial new technologies in both fuel and vehicle efficiency
Action 32.	ACTION buses
Action 33.	Medium and heavy vehicles
Action 34.	Air travel
Waste	
Strategy 9 Carbon neutral waste sector	
Action 35.	ACTSmart Business / Office sign up
Action 36.	Sustainable waste management
Procurement	
Strategy 10 Sustainable procurement	
Action 37.	Integrate sustainability into procurement
Action 38.	GreenPower
Action 39.	Major capital projects incorporating sustainability
Step 3: Offset residual emissions through purchase of offsets.	



Directorates' management of resources

Strategy 1: Directorate and entity resource management

Directors-general and chief executives will be responsible for their organisations' resource management and for providing evidence that they are actively working to achieve the government's carbon neutrality objectives by implementing GHG reduction measures within their organisation.

Directors-general are to nominate a sustainability officer to provide the directorate's executive with regular reports on the directorate's environmental performance. Tools used for monitoring and identifying GHG reduction actions include the ESP, resource management plans and energy audits. Investment in GHG reduction projects can be accessed through a loan facility-Carbon Neutral Government Fund. In the short term, this may increase the administrative burden on directorates; however after the first 12 months, skills and knowledge of existing staff will be increased to help embed sustainability as core business. The ESP will simplify and streamline the sustainability reporting process for directorates providing reporting officers with more time to analyse the sustainability data, rather than seek and calculate it.

Action 1: Resource management plans

Action 2: Energy audits

Action 3: Carbon Neutral Government Fund

Strategy 2: Fostering staff culture for smart energy use

Engaging and empowering ACT Government staff to use energy efficiently in their working environment is a key component of the Framework and encourages and supports individuals to reduce their emissions and participate in improving the sustainability of their directorate. Promoting sustainable and active travel in the work place will also have health benefits for employees. The ACTSmart Government Energy and Water Program (a trial during 2012–15) can support directorates with advice on behaviour and culture change programs as well as technical advice on achieving sustained energy and water savings.

Action 4: Staff engagement

Action 5: Sustainability committees (Green Teams)

Action 6: Sustainable and active work travel

Sources of greenhouse gas emissions

Strategy 3: Buildings⁶

Under the Council of Australian Governments (COAG) National Strategy on Energy Efficiency⁷ (NSEE), the ACT Government has committed to significantly improve the environmental performance of the buildings it owns and occupies. Opportunities for improving energy efficiency in buildings include lighting, heating and cooling, power factor correction in larger buildings and using cleaner energy as a power source for buildings. Responsibility for improved environmental performance of buildings is shared by both the owners and the tenants.

EPD and ACT Property Group (ACTPG) will collaborate to establish two full time energy project officers (housed in ACTPG) with a whole-of-government property function. The officers will ensure energy savings opportunities are identified across Government buildings and assets, and that energy saving initiatives are implemented in a timely manner by integrating energy decisions into core business of property maintenance and management.

The ACT Government's ACTSmart Energy and Water Program⁸ assists both building owners and occupants to implement more efficient management practices for energy, water and waste within their building or facility. These free programs offer assistance including assessments, advice, signage, staff education, accreditation and troubleshooting on a site-by-site basis.

Focusing on improving the performance of government buildings will directly support the implementation of the ACT Business Development Strategy⁹ and address clean economy opportunities and support growth, diversification and jobs in the ACT.



Action 7: Energy performance standards

Action 8: Renewable energy

Action 9: Environmental leases

Action 10: Building Management committees

Action 11: Lighting

Action 12: Design and construction of new buildings

Action 13: Government facilities showcasing sustainability

Action 14: Investigate distributed energy (co and tri-generation) for large sites

Strategy 4: Data centres

Improving the energy efficiency of data centres will support the ACT Government to achieve carbon neutrality. Action 4 of the ACT Government's Strategic Plan for ICT 2011–2015¹⁰ sets high level commitment to improving the energy efficiency of ACT Government ICT infrastructure and using ICT in other sustainability initiatives. Opportunities for improvement will be further identified in the Government's Information and Communication Technology (ICT) Sustainability Plan. Initiatives to improve the energy performance of data centres include separate electricity metering, efficient technology improvements to data centre facility infrastructure and design as well as appropriate innovations in data storage. Data centres rated using the NABERS Data Centre energy rating tools¹¹ (which are used to measure the efficiency of ICT equipment and energy use in data centres and server rooms) will have performance targets aligned with national requirements.

Action 15: Data Centre energy performance plans

Action 16: ICT Sustainability Plan

Strategy 5: Health services

Through the implementation of its sustainability strategy, the Health Directorate is looking to streamline and embed sustainability into everyday activities and develop actions directed at ensuring sustainable provisions of services for the future. Identified key focus areas include buildings and infrastructure, and transport, both of which offer opportunities to more efficiently use energy.

The provision of health services to the ACT community includes the operation of large hospitals and many smaller facilities offering mental health, aged care, pathology and general community health services. The ACT Health sector is likely to grow with increasing demand from a growing population, changing demographics characteristic of an aging population and its role as a major health service provider in the region.

Action 17: ACT Health Sustainability Strategy

Action 18: Energy management and monitoring by the hospital

Action 19: Energy efficiency of health centres

Strategy 6: Schools and education

ACT Government public schools and preschools occupy a considerable proportion of the government's buildings. Improving the energy efficiency of education facilities will support the ACT Government to reach its goal of carbon neutrality by 2020. In delivering their essential service, some large secondary colleges consume a significant proportion of the ACT Government's electricity use and therefore are a priority for energy management plans and efficiency measures.

Through the National Vocational and Education Training (VET) Sector Sustainability Action Plan 2009–2012¹² tertiary facilities are committed to reducing the VET sector carbon footprint and to developing training programs to improve workforce skills as industry, government, individuals and the wider community move to a sustainable economy.



Action 20: Carbon neutral schools

Action 21: Solar energy program

Action 22: ACTSmart Schools program

Action 23: Energy performance standards for new buildings

Action 24: ACT preschool and early childhood facilities

Action 25: Colleges

Strategy 7: Sustainable public lighting and events

The ACT Government manages and maintains a diverse range of public areas, venues and open space for community access and events. It is important that policies governing government's use of open space consider opportunities that will support the government to reduce its own emissions (for example the requirement to maintain large areas as lawn requires mowing).

Street lighting is the highest consumer of electricity in the ACT Government and uses approximately 39 gigawatts of electricity per year. This number is growing by 5% per year and is expected to rise further with an accelerated land release program. Under NSEE, the ACT Government has committed to increasing the energy efficiency of street lighting. Mechanisms to avoid, reduce and switch fuels from street lights are required to achieve ACT Government carbon neutrality by 2020.

Implementing sustainable event and venue management will ensure that ACT Government demonstrates effective event planning to achieve reduced environmental impacts (and GHG emissions) from its events.

Action 26: Public lighting policy

Action 27: Streetlight energy efficiency trails and upgrades

Action 28: Sustainable public events

Sustainable transport

Strategy 8: Improving fuel efficiency of government vehicles

Under NSEE, the ACT Government has committed to reducing travel relating to government business and the associated GHG emissions. At the whole-of-government level a consistent approach to sustainable fleet management and the procurement and operation of fuel-efficient vehicles is required. This strategy is linked directly with policy commitments and outcomes identified in Transport for Canberra 2011–2031.

Action 29: Green vehicle ratings

Action 30: Sustainable fleet management

Action 31: Trial new technologies in both fuel and vehicle efficiency

Action 32: ACTION buses

Action 33: Medium and heavy vehicles

Action 34: Air travel



Waste

Strategy 9: Carbon neutral waste sector and waste recovery

Improved waste management and resource recovery can significantly contribute to reducing GHG emissions through minimising organic waste to landfill, increasing recycling and adopting energy from waste technologies to produce power and sequester carbon. This strategy aligns directly with the ACT Waste Management Strategy 2011–2025, which guides the ACT in reducing waste and recovering resources to achieve a sustainable, carbon neutral Canberra. In 2013, the ACT Government transferred the carbon liability for its landfill from the landfill operator to the government, as part of the Commonwealth's *Clean Energy Act 2011*.

Action 35: ACTSmart Office Accreditation

Action 36: Sustainable waste management

Whole-of-government approach

Strategy 10: Sustainable procurement

Whole-of-government sustainable procurement is an important contributor to a low-carbon ACT Government. By developing a sustainable procurement policy, the government can ensure that environmental performance and whole-of-life considerations become routine in the procurement of goods, services and capital works. The principles of avoid, reduce, reuse and recycle/reprocess can be applied to all phases of the life cycle of an item including acquisition, operation, maintenance and disposal.

A key element of sustainable procurement is a common energy cost model (in line with national policy and markets) to allow a consistent approach to forecasting the ongoing cost of operating plant and equipment.

Purchasing energy efficient appliances and office equipment, such as fridges and multi-function devices (combined printer, photocopier, scanner), will play an important role in achieving improved performance in office energy use. Minimum energy performance standards will be set for office and kitchen equipment and the full life-cycle impact of goods and services will be taken into account in the setting of procurement contracts and preferred items. Consideration of embodied energy (energy used in the production of goods) is appropriate in the context of assessing tenders for construction projects.

The procurement of energy (electricity, GreenPower and gas) for use by the ACT Government is an opportunity to ensure that low carbon energy is a priority. There is a direct link, through procurement, to the ACT Business Development Strategy to address clean economy opportunities and support growth, diversification and jobs in the ACT.

Action 37: Sustainable procurement policy

Action 38: GreenPower

Action 39: Major capital projects incorporating sustainability



Step 3: Purchasing carbon offsets

Once emissions have been mitigated (Step 2) it is likely that residual emissions will exist either at a directorate and/or whole-of-government level. Carbon offsets may need to be purchased to reduce net emissions (that is, total emissions less carbon offsets) to zero.

The purchase of offsets should represent the last action that can feasibly be implemented to reduce emissions to achieve an identified carbon budget or goal and should only be considered after cost-effective avoidance and reduction opportunities are fully explored.

The Framework focuses on avoiding and reducing emissions in the first instance, switching to lower emission energy sources, undertaking carbon sequestration and, finally, minimising the carbon offsets required to achieve carbon neutrality.

A carbon offset is achieved through a project that reduces emissions (or sequesters carbon already in the atmosphere) and thereby compensates for emissions made elsewhere. Offset projects typically involve investment in renewable energy and reforestation activities and can help emissions targets to be cost-effectively achieved. Carbon offset projects may also have social and environmental benefits.

There is a diversity of potential offset projects available on the open market and potential projects within the ACT region. New markets for offsets are expected. For example, the Australian Government is creating incentives for people to undertake land sector abatement projects, through the Carbon Credits (Carbon Farming Initiative) Act 2011. This provides the framework for the purchase, and surrender, of domestic carbon offset projects while ensuring project methodologies are rigorous and lead to real and verifiable emissions abatement.

The ACT Government developed a carbon offset policy as part of its climate change strategy AP2¹³ in 2012, giving consideration to national policies such as the Carbon Farming Initiative (CFI) and National Carbon Offsets Standard (NCOS). The policy provides the direction for the procurement of carbon offsets in relation to this Framework.

Decisions on the procurement of carbon offsets will be made following the review of this Framework (scheduled for 2016).



Endnotes

- 1 <http://www.environment.act.gov.au/cc/what-government-is-doing/emissions-and-mitigation>
- 2 Since ACT Government agreed to the Framework in August 2012, the timeline for the introduction of carbon budgets has changed, consequently the superceded dates have been removed from this 2014 version. Carbon neutral budgets and greenhouse gas emission inventories are being developed in consultation with the Carbon Neutral Government Implementation Committee (CNGIC), which reports to ACTPS Strategic Board. The CNGIC was instituted in 2013.
- 3 *Numerous studies provide evidence for the benefits of greens buildings, for example: Sustainability Victoria and Kador Group (2008), Employee Productivity in a Sustainable Building* www.resourcesmart.vic.gov.au/documents/500_Collins_Productivity_Study.pdf
- 4 *Annual Reports (Government Agencies) Act 2004* - www.legislation.act.gov.au/a/2004-8/current/pdf/2004-8.pdf
- 5 *National Greenhouse and Energy Reporting Act 2007* www.climatechange.gov.au/reporting
- 6 Buildings is taken to mean any built facility that, in its operation for a Government activity, emits greenhouse gases through the consumption of energy (for example an office, depot, school, community centre).
- 7 Council of Australian Governments National Strategy on *Energy Efficiency* July 2009
- 8 www.actsmart.act.gov.au
- 9 www.business.act.gov.au
- 10 The Strategic Plan for ICT 2011-2015 www.cmd.act.gov.au
- 11 www.nabers.gov.au – Data Centres
- 12 National VET Sector Sustainability Policy and Action Plan (2009) National VET Sector Sustainability Advisory Group and Ministerial Council for Vocational and Technical Education.
- 13 <http://www.environment.act.gov.au/cc/what-government-is-doing/emissions-and-mitigation>
(refer AP2 a new climate change strategy - Appendix A)



Appendix 1: Mitigation actions

Directorate and entity actions

Action 1: Resource management plans

Resource management plans (RMPs) provide a practical means of identifying actions to reduce resource use within directorates and other ACT Government entities, engage staff on energy, water and waste efficiency, and monitor improvements. To ensure effective planning all directors-general and chief executives are required to provide adequate resourcing for analysis of data and review of their department's RMP. A nominated sustainability officer is to report departmental environmental performance to the directors-general on a quarterly basis. All directors-general are also required to endorse their department's RMP and report to their Minister annually on implementation.

RMP's are to include the environmental impacts associated with asset management and utilisation (owned or leased), identify barriers and actions to implement environmental improvements across these assets. The focus for directorates and other budget-dependant entities will be to continually improve their environmental performance over time, through actively managing the actions and targets identified in their RMP. Performance measures will align to the principles identified in the ACT Performance and Accountability Framework, overseen by Chief Minister, Treasury and Economic Development Directorate.

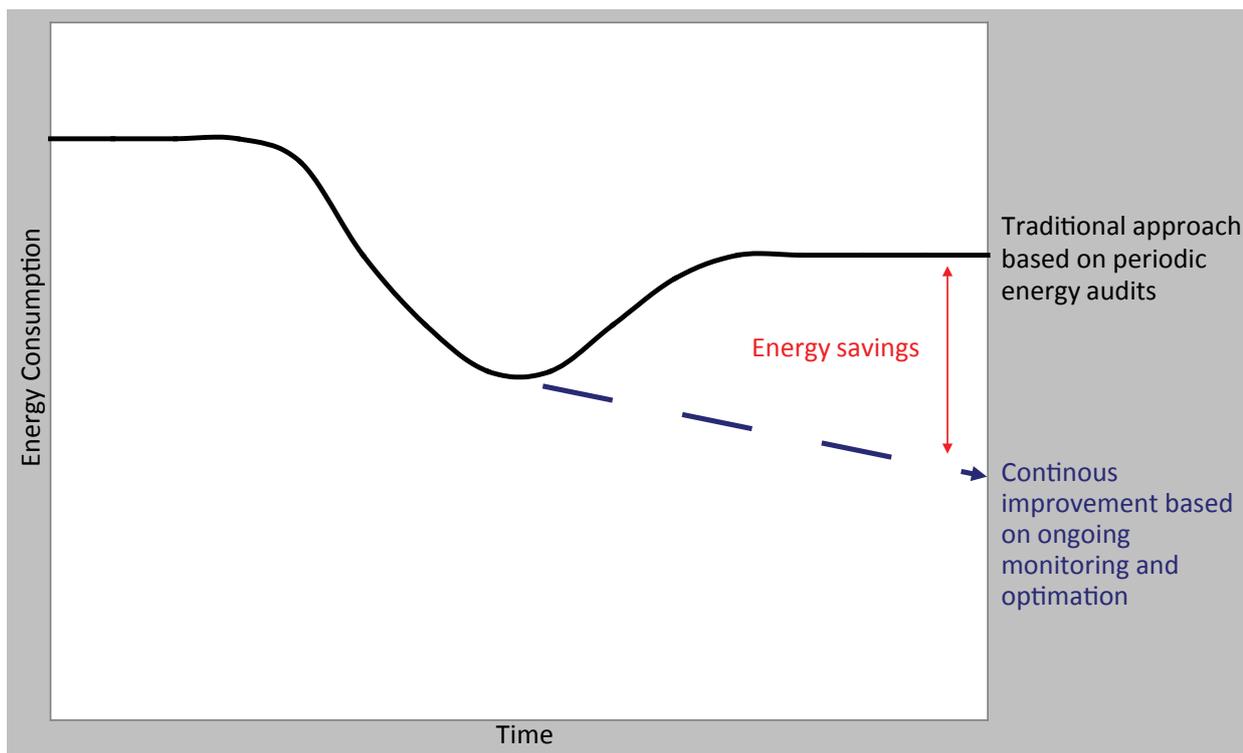
Implementation champion/s: All directorates

Action 2: Energy audits

Tools such as energy and water audits provide information on energy use and identify measures to improve energy and resource efficiency. Energy audits of ACT Government-owned and tenanted buildings will be conducted, followed by the implementation of cost-effective audit recommendations. Effective and regular monitoring of building energy use will track performance and identify further priority areas for action. Subsequent audits to be performed after five years, or if there is a change to the building that could alter its resource use significantly (such as major refurbishment or change in tenancies).

Energy audits are to recommend priorities for action and estimates of payback periods for inclusion in RMPs. Directors-general are responsible for enabling required resourcing and ensuring that energy audits are conducted for priority facilities, determined through energy use data and identified as priorities in RMPs, or by the energy project officers (ACTPG).

Figure 1: Continuous improvement and energy consumption.

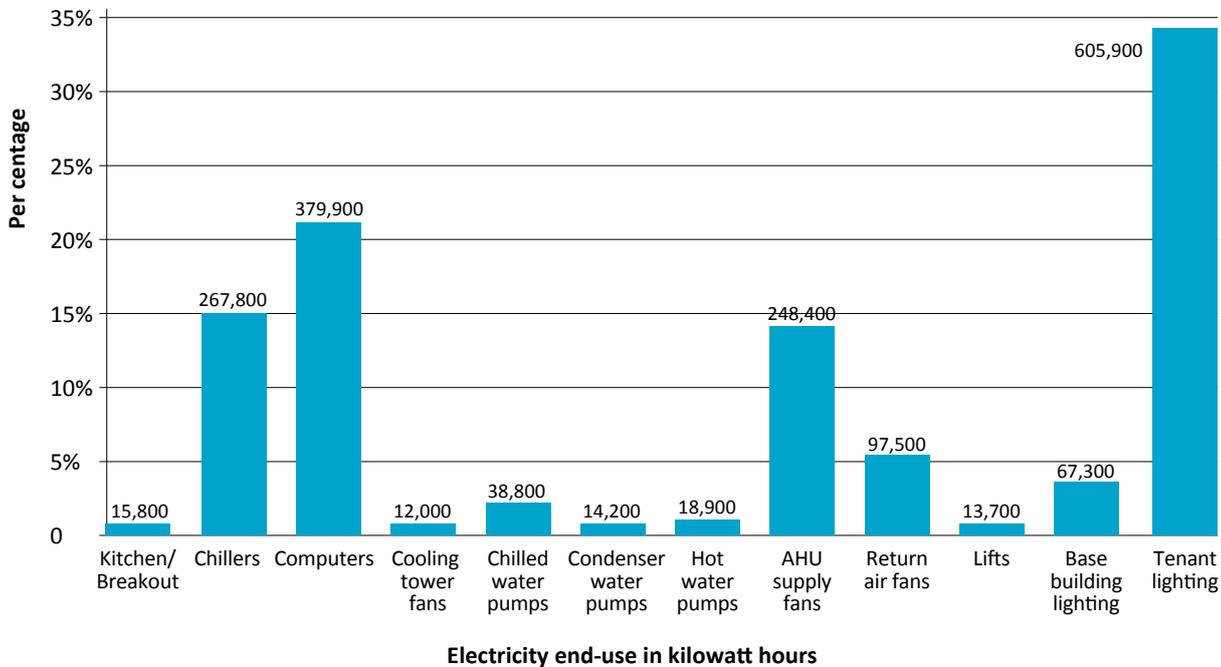




As a minimum, potential improvements identified in audits that have a four-year payback period, or less, are expected to be implemented within 12 months of receiving the audit. Such improvements can seek funding through the Carbon Neutral Government Fund. Directorates will incorporate recommended improvements with a payback period of longer than four years into their strategic asset management plans.

Implementation champion/s: All directorates

Figure 2: Example of electricity end-use breakdown from office energy audit (in kilowatt hours).



Action 3: Carbon Neutral Government Fund

Loan funding is available to all directorates for energy efficiency projects under the Carbon Neutral Government Fund. This fund incorporates the previous revolving Resource Management Fund, administered by EPD, and provides loans for the implementation of measures identified in RMPs, including those measures identified through energy audits. Directorates can apply to borrow money from the fund to implement sustainability and energy efficiency projects, to then be repaid to an agreed timeframe out of savings derived from the project. The fund is an important mechanism in providing capital works funding to improve resource efficiency.

Responsibility for the central oversight of the Fund rests with Environment and Planning Directorate with key input and advice provided by Chief Minister, Treasury and Economic Development Directorate and ACT Property Group. Loan fund monies will be returned to budget after 2019–20 investments, at the point where loan funds are no longer required by directorates (the date will be considered as part of the review of the Framework). Reports and advice provided through the trial ACTSmart Government Energy and Water Program can directly support directorates to identify and scope suitable projects for loan funding.

Implementation champion/s: All directorates

Action 4: Staff engagement

The energy efficiency message will be reinforced throughout the organisation through support for individual behaviour change and demonstration of leadership from executives. Specific activities could include support for sustainability ‘champions’, training and information sessions, communication on good practice and promotion of achievements. Directors-general are responsible for their Directorate’s staff engagement activities and are to report progress through their directorate’s RMP. Regular communications from a directorate’s sustainability team (Action 5) will support the engagement of staff in ongoing behavioural change in the workplace.

Implementation champion/s: All directorates



Action 5: Directorate sustainability committees (Green Teams)

All directorates will establish a sustainability committee that reports to the director-general on at least a quarterly basis. Sustainability committees will consist of directorate 'champions' who will provide peer-to-peer support and encouragement for behaviour change and reinforce corporate and whole of government energy efficiency messages. Representatives of sustainability committees from different directorates will regularly share success stories and lessons learnt. Involvement with the sustainability committee will be recognised in performance and career planning discussions and supervisors will support staff involvement.

Implementation champion/s: All directorates

Action 6: Sustainable and active work travel

All directorates to provide a range of sustainable transport options for work travel by 2013 that limit the use of corporate vehicles and promote active travel as a priority where possible. A range of transport options could include avoiding travel where possible, providing directorate bike fleets, encouraging walking, adequate bicycle parking and change room facilities (including lockers), MyWay bus tickets for corporate use, carpooling and encouraging tele and video conferencing. The ACT Government supports ACT Public Service employees to save on ACTION bus fares for travel between work and home, or between school and home, through salary packaging arrangements announced in 2011.

Workplace travel plans and staff surveys can assist directorates to understand opportunities for adopting travel modes other than fleet vehicles and the nature of work related travel; address barriers to reducing travel and increasing the adoption of sustainable transport options. Plans will also assist directorates to develop effective active travel options, including walking, for work travel. There are multiple benefits of adopting sustainable transport such as improved health outcomes of workers.

Implementation champion/s: All directorates

Stationary energy (electricity and gas)

Action 7: Energy and greenhouse performance standards for buildings

Under the National Framework for Sustainable Government Office Buildings¹ the ACT Government is committed to ensuring that the principles of ecologically sustainable development are incorporated in the design, construction, refurbishment and operations of government buildings. A set of performance targets for sustainable design, energy and water efficiency in government office buildings is outlined in the Government Office Buildings Sustainability Ratings Targets Matrix (Sustainability Matrix).

At present, ACT Government office accommodation aims to meet the minimum standards set in the Sustainability Matrix, which includes 4.5 Star NABERS Office™ Energy rating for all new office buildings, major refurbishments or fit outs and leases in excess of 2000m² in new and existing buildings. For major refurbishments in buildings over 2000m² the target is to achieve a *Green Building Council of Australia 4 Green Star™* rating, with schools aiming for new buildings to meet 5 Green Star (as built). Green Star ratings include elements not directly related to greenhouse gas emissions and use the NABERS calculations for some aspects of energy use and associated emissions.

The ACT Government will agree benchmarks for all types of government buildings and facilities (including non-office) and these will be correlated with a rating or energy performance standard where appropriate/available, aiming for continuous improvement over time. The benchmarks will provide similar types of facilities with greater information on energy and greenhouse performance within their sector (for example libraries, health or community facilities).

Energy efficiency upgrades or refurbishments and clean energy measures for buildings will be actively pursued as a cost-effective means to achieve improved energy performance. Efficiency measures can be identified through effective and regular building monitoring systems, audits and through staff engagement programs, then prioritised by the Directorate sustainability committee.

Implementation champion/s: All directorates



Action 8: Renewable energy used by buildings

Directorates are encouraged to investigate renewable energy installation options. Opportunities to install renewable sources of energy will depend on site specifications and the nature of facilities, buildings and sites. As part of procuring new renewable energy assets, directorates are advised to retain relevant credits (Solar Credits, previously known as Renewable Energy Certificates) associated with the energy generation, in order to claim that as part of the Governments move towards carbon neutrality.

Implementation champion/s: All directorates

Action 9: Environmental leases

Where the tenant and landlord are different entities, there is not necessarily an efficient outcome in terms of minimising energy use. For example, where the landlord/owner of a building incurs the capital and maintenance costs of heating/air conditioning a building and the tenant pays the recurrent costs associated with power used for heating/cooling, the tenant and not the landlord could gain the savings from an investment in more efficient heating/air conditioning. Therefore, the landlords have little financial incentive to invest in improved energy efficiency.

The ACT Government, along with other jurisdictions including the Australian Government, agreed to the National Green Leasing Policy which commits governments to only leasing energy efficient offices from the private sector. The ACT Government endorses national policy through the ACT Environmental Leasing Policy (2011), specifying that environmental lease schedules should be included in all new and renewed leases for office accommodation.

Environmental leasing policies and schedules require government tenants and private building owners to achieve environmental performance targets as well as providing a mechanism for owners and tenants to collaborate on improving the environmental performance of office accommodation. Environmental leases are to directly align with directorate RMPs, which should include a target for office tenant light and power use, to track energy used by tenants within office accommodation.

Directorates in ACT Government-owned buildings will follow the performance standards contained in the ACT Environmental Leasing Policy, including establishment of building management committees.

Implementation champion/s: All directorates

Action 10: Building management committees

Building management committees (BMCs) will be established in leased buildings as per the requirements of the ACT Environmental Leasing Policy and in ACT Government-owned buildings of >1000m². These Committees provide a forum for contact between the building occupants, the building owner and ACT Property Group. The committees will analyse directorate and building resource use data from building monitoring systems, electricity smart meters, water consumption and waste management data and identify opportunities for improvements, including refurbishment opportunities.

BMCs can also discuss maximising the performance of building plant and equipment (air conditioning and hot water system) through regular monitoring and maintenance. Asset management plans are to identify opportunities for upgrades and replacement of plant and equipment with more efficient technology and equipment.

Implementation champion/s: All directorates

Action 11: Lighting

Lighting systems in new office buildings and major refurbishments (work impacting at least 2000m²) to meet a target energy intensity of <8 watts / m² and <6 watts/m² for open plan areas. Automated lighting systems, such as motion sensors and after hours shut-down are to be in place for all office environments by 2015 in owned buildings and incorporated in future office leasing decisions.

Implementation champion/s: All directorates



Action 12: Design and construction of new buildings

Decisions on the design and construction of new buildings are to include cost benefit analysis of options to improve energy performance through energy efficiency measures, renewable energy and distributed energy. Project evaluations are to take into account future energy prices and benefits of GHG abatement through inclusion of a carbon price (\$ per tonne of CO₂ mitigated).

Initially, the ACT Government will aim to achieve the equivalent of a minimum 5 Green Star™ (as built) rating for its office space including fit outs in new government-owned buildings >2000m². Energy efficiency measures include solar passive design and low impact materials, bike storage, energy efficient heating ventilation and Cooling (HVAC), solar power systems and smart building management systems for HVAC, water and energy use. This will be reviewed and policy on sustainable design and construction will be developed for office and non-office buildings, including standards for energy ratings for new hospitals. Distributed energy such as co-generation and tri-generation are likely to be most applicable at larger scales (e.g. hospital, commercial, industrial blocks and new suburb level in developments such as Eastlake and Molonglo) and energy intensive use such as data centres.

Implementation champion/s: All directorates

Action 13: Government facilities showcasing sustainability

Environmental leadership at government facilities such as CIT, schools and new government office accommodation can act as green learning centres for the ACT Government and community. Demonstration of sustainability in schools and other public buildings can help promote environmental outcomes within the wider community.

Implementation champion/s: All directorates and ACT Government facilities

Action 14: Investigate distributed energy options

Large facilities such as hospitals are significant energy users and demand for health services is expanding in the Territory. Distributed energy options such as co-generation, tri-generation or geo-exchange have potential to significantly improve the energy efficiency of large facilities and reduce future energy costs. Planning for new buildings or the expansion of large sites such as a hospital facility should include consideration of distributed energy options in relation to cost-effective service delivery (savings in the cost of energy to run the facility) and as a cost-effective way to reduce GHG emissions (at a lower cost than GreenPower).

Implementation champion/s: All directorates

Action 15: Energy performance plan for data centres

Under high level direction of The Strategic Plan for ICT 2011–2015, Shared Services ICT is to develop energy performance plans for data centres and implement energy efficiency measures as identified through active monitoring of energy use and benchmarking of the performance of Government data centres. Future data centres are to meet established efficiency performance standards.

Implementation champion/s: Chief Minister, Treasury and Economic Development Directorate

Action 16: Information and Communication Technology (ICT) Sustainability Plan

Shared Services ICT is developing an ICT Sustainability Plan (the Plan), which will identify opportunities for ICT to contribute to whole-of-government emission reductions. The Plan will cover minimum energy standards for ICT equipment, sustainable ICT procurement considerations, establish ICT energy intensity measures and /or targets such as desktop energy per end user or data centre energy use and suggest energy management principles and procedures relevant to ICT. The Plan will provide guidance on the appropriate use of technology to increase sustainability in Government operations and services, such as replacing paper-based systems with electronic systems where feasible.

Implementation champion/s: Chief Minister, Treasury and Economic Development Directorate

Action 17: ACT Health Sustainability Strategy

Implementation of the *ACT Health Sustainability Strategy* – Focus Area 2 – Buildings and Infrastructure will focus on how the built environment is designed and operated. Key initiatives are environmental initiatives within the Health Infrastructure Program. Implementation is planned to support champions in each of the strategy's focus areas and to deliver priority actions identified by focus area teams.

Implementation champion/s: Health Directorate



Action 18: Energy management and monitoring by the hospital

Develop energy management plans and a monitoring program to actively manage electricity and gas usage at The Canberra Hospital. Energy management plans will identify opportunities for energy savings with cost-effective actions prioritised for implementation by 2015. Focus will be given to monitoring progress against energy intensity targets, for example energy used per hospital bed/night.

Implementation champion/s: Health Directorate

Action 19: Energy efficiency of health centre facilities

By 2015, develop and implement a program that supports the identification and implementation of energy efficiency measures within health service centres. Monitoring the energy performance of facilities will allow for energy benchmarks to be established by 2015 and the active monitoring of energy use by health centres.

Implementation champion/s: Health Directorate

Action 20: Carbon neutral schools

Continue the implementation of resource reduction actions in education facilities to enable all ACT schools to implement priority energy efficiency actions and support the aspirational target of public school carbon neutrality by 2017. Focus will be given to the implementation of actions identified by audits (energy, waste and water) and change agent teams within each school. Schools are supported by the guiding principles outlined in the 2011 document What is a Sustainable School?

Implementation champion/s: Education and Training Directorate

Action 21: Solar energy program

All ACT public schools are to install solar photovoltaic systems, accessed through the ACT Solar Schools Program, the National Solar Schools Program and other programs. Installations have been completed at 52 schools with installations at the remaining schools to occur in 2013.

Eligible ACT public schools will receive an ongoing income under the ACT's Feed-in-Tariff scheme, with this income to be applied to further environmental sustainable initiatives within the school.

Implementation champion/s: Education and Training Directorate

Action 22: ACTSmart Schools program

The ACTSmart Schools program (formally the Australian Sustainable Schools Initiative – ACT) enables the implementation of resource reduction actions and builds the capacity of schools to understand, educate and continuously monitor and improve their environmental performance across all elements of energy, water, procurement, biodiversity and waste. ACTSmart Schools also supports Action 20.

Implementation champion/s: Environment and Planning Directorate, Education and Training Directorate

Action 23: Energy and greenhouse performance standards for new school buildings

Design and construction of all new ACT Government schools will be modelled on the minimum energy performance of the Green Building Council of Australia's (GBCA) Green Star Education Design v1 rating tool. Achieve continuous environmental improvement in the design and construction of new schools to meet high energy performance standards. Aligning with Action 7, energy benchmarks will be established for new schools and these will be correlated with a rating or energy performance standard where available, to allow energy performance levels of new school buildings to be monitored.

Implementation champion/s: Education and Training Directorate

Action 24: Energy efficiency for ACT preschool and early childhood facilities

By 2015, develop and implement a program that supports the identification and implementation of energy efficiency and sustainability measures within ACT preschools and early childhood centres. Monitoring the environmental performance of facilities will allow for energy benchmarks to be established by 2015 and the active monitoring of energy use at ACT Government early childhood centres and preschools. Future opportunities include incorporating preschools in the successful model established by ACTSmart Schools.

Implementation champion/s: Education and Training Directorate, Community Services Directorate



Action 25: Energy management plans for colleges

Energy audits of colleges and large high schools will inform energy management planning at these sites. Develop and implement an energy efficiency program for colleges to enable ongoing energy performance monitoring, establish benchmarks, better manage peak electricity loads and identify priority actions to reduce energy use and costs.

Implementation champion/s: Education and Training Directorate

Action 26: Energy efficient public lighting policy

Enhance and update TAMS Standards DS-12 and SS-14 to regulate policy on public lighting distribution (including car park, traffic and street lighting) and appropriate energy efficient technologies for fittings and globes. These standards will provide advice to lighting designers for new and retrofit works that implement measures to avoid and reduce emissions from public lighting of streets and carparks. ACT street lighting standards are to include energy efficiency criteria.

Implementation champion/s: Territory and Municipal Services Directorate, Chief Minister, Treasury and Economic Development Directorate

Action 27: Streetlight trials and energy efficiency upgrades

Collaborate with other organisations on trials of energy efficient streetlights and traffic lights to assist in determining the most energy efficient street and traffic lights for various environments in the ACT and potential energy and financial savings from the resulting operation, maintenance and replacement costs of lamps and lights.

Expand the streetlight energy and public lighting efficiency upgrade program to deliver continuous improvement in the energy efficiency of ACT Government street lights annually to 2020.

Implementation champion/s: Territory and Municipal Services Directorate, Chief Minister, Treasury and Economic Development Directorate

Action 28: Sustainable public events

The ACT Government will continue to build sustainability measures into the development, management and maintenance of public spaces. Focus will be on minimising GHG emissions from ACT Government activities in public areas, in particular at events. A Sustainable Event Management guide is under development to support event managers to better analyse environmental impacts of events and implement best practice. Early focus will be on reducing energy consumption and improving waste management of public activities and events for example by reducing the impact of onsite fuel use by diesel generators and reducing waste by increasing recycling.

The ACTSmart Public Event program was established in 2012 and is open to ACT Government agencies. The program is designed to help event organisers implement recycling facilities at a public event and provide the public the opportunity to recycle within that event. Event organisers are provided with a best practice guide, bin covers, vendor signage/stickers, education and support to achieve a reduction in waste to landfill whilst increasing materials recovered for recycling.

Implementation champion/s: Chief Minister, Treasury and Economic Development Directorate, Territory and Municipal Services Directorate and Environment and Planning Directorate.

Sustainable transport

Action 29: Green vehicle ratings

By implementing a minimum green rating for new vehicles, the government can enable continuous improvement in energy performance and reduce the GHG emissions of the fleet. A minimum of 50% of fleet to comply with Green Vehicle Guide A Rating by 2015; 80% by 2020. More information on efficient vehicles is at www.greenvehicleguide.gov.au.

Implementation champion/s: All directorates

Action 30: Sustainable Fleet Management

An ACT Government sustainable fleet strategy will be completed by 2013 as part of Transport for Canberra 2011–2031. Sustainable Fleet Management guidelines and procedures will be outlined in that strategy such as:

- revised transport practices and driver-training to promote more fuel-efficient service delivery;
- increasing the number of hybrid and electric vehicles in the fleet



- reviewing the number of vehicles in the fleet
- reducing the need for general staff travel
- encouraging the use of sustainable transport modes and
- more efficient use of vehicles (by encouraging walking, cycling or catching public transport through provision of bike fleets and MyWay bus cards, car pooling, improved scheduling of meetings).

Implementation champion/s: All directorates

Action 31: Trial new technologies in both fuel and vehicle efficiency

Explore and trial new technologies in both fuel and efficient vehicles, where economically and environmentally viable. Whole-of-government trials will enable consistent direction and avoid duplication. Electric vehicles powered through GreenPower will be incorporated into the ACT fleet.

Implementation champion/s: Territory and Municipal Services Directorate, Chief Minister, Treasury and Economic Development Directorate, Environment and Planning Directorate

Action 32: ACTION buses

Continue to improve the efficiency of public transport, the ACTION bus fleet. ACTION buses can reduce GHG emissions through improved fuel efficiency such as reducing dead running and engine idling time and shifting to lower emission intensity fuel types. The cost-effectiveness of alternative fuels will be investigated and implemented.

Increasing patronage of public transport by ACT Government employees also plays an important part in reducing transport emissions. In transforming the ACT to a more sustainable and low carbon city, growth in use of public transport by ACT Government employees is required.

Implementation champion/s: Territory and Municipal Services Directorate, Environment and Planning Directorate, Capital Metro Agency

Action 33: Medium and heavy vehicle services

Identify emissions from key heavy vehicle services undertaken by contractors and require GHG emissions reporting to government in new contracts.

Implementation champion/s: Territory and Municipal Services Directorate, Environment and Planning Directorate, Chief Minister, Treasury and Economic Development Directorate

Action 34: Air travel

As part of its commitment to the NSEE the ACT Government will look to reduce emissions from work related air travel by avoiding flying where possible and adopting video and/or tele conferencing when appropriate. Accurate and complete reporting by Procurement Solutions of whole-of-government work-related air travel will allow for the purchase of carbon offsets, to negate the emissions made by work related air travel. Alternatives to travel, such as tele conferencing, will also be considered where appropriate to avoid emissions associated with travel.

Implementation champion/s: All directorates

Waste

Action 35: ACTSmart Business and Office Accreditation

The ACT Government's ACTSmart Business and Office programs assist both building owners and occupants to implement more efficient management practices for energy, water and waste within their building or facility. These free programs offer assistance including assessments, advice, signage, staff education, accreditation and troubleshooting on a site-by-site basis. The program provides a step-by-step best practice guide to waste management as well as advice and assistance to establish a waste management system, conduct waste audits and staff education. Annual accreditation provides public recognition of waste management achievements. Assuming ACTSmart Program capacity, all government offices and eligible services will be signed up to ACTSmart, by 2013. By 2014:

- all ACT Government offices will be accredited for waste under the ACTSmart Office Program and
- all suitable ACT Government service facilities will be accredited for waste under the ACTSmart Business Program.

Implementation champion/s: All directorates



Action 36: Sustainable Waste Management

Waste management can contribute to reducing greenhouse gas emissions. Particular areas include improving methane capture from landfill, minimising organic waste to landfill, exploring energy from waste technologies to produce power and sequester carbon, increasing recycling, ensuring energy efficient waste collection and processing and the reuse and recycling of waste created from demolition and construction of government buildings and infrastructure.

In 2013, Territory and Municipal Services Directorate are considering the implications of the *Clean Energy Act 2011* on waste related operations and related carbon credit opportunities *under the Carbon Farming Initiative*.

The ACT Waste Management Strategy 2011–2025 provides guidance on reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra and commits to achieving a carbon neutral waste sector by 2020.

Implementation champion/s: Environment and Planning Directorate, Chief Minister, Treasury and Economic Development Directorate and Territory and Municipal Services Directorate

Whole-of-government procurement

Action 37: Sustainable procurement policy

Adopting a sustainable procurement methodology to government procurement by 2014 (Sustainable Procurement Policy) will support the government to lead by example on climate change. This will enable the ACT Government to make a conscious effort to curb GHG emissions through its purchases of goods and services. A Sustainable Procurement Policy will use a principles based approach to procurement. Best value for money can be achieved through a consideration of the social, economic and environmental outcomes that can be achieved through procurement. This approach is consistent with the existing Triple Bottom Line Assessment for the ACT Government.

Sustainable procurement will consider the environmental, social and economic impacts across the lifecycle of goods and services including design, material use, manufacture/production, logistics, service delivery, use, operation, maintenance and reuse/recycling/disposal.

The ACT Government will analyse options for minimising emissions from the development of land, provision of roads and other infrastructure in the ACT. This action is linked to high level commitments under Action 16: ICT Sustainability Plan.

Implementation champion/s: All directorates

Action 38: GreenPower

GreenPower purchases ensure that part of the electricity supply comes from designated, accredited renewable sources. In 2011–12 the ACT Government purchased 37.5% of its electricity as renewable energy including GreenPower through a whole-of-government process managed by the Treasury. The level of GreenPower purchase committed by the ACT Budget for 2012–13 is 37.5%, however the majority of GreenPower would be sought from outside the ACT. From 2012–13, the government will temporarily redirect the majority of its GreenPower budget to investing in energy efficiency projects in government, through the Carbon Neutral Government Fund. A 5% GreenPower purchase will be maintained to 2018–19 and two energy project officers will be established in ACT Property Group to provide a whole-of-Government energy efficiency service.

Following the review of the Framework in 2016, the government will determine the most appropriate level of GreenPower purchase for achieving carbon neutrality in 2020.

Implementation champion/s: All directorates

Action 39: Capital Projects to include GHG reduction options

Investigate feasibility of capital works construction projects to quarantine funding for sustainability measures. Enable the consideration of annual energy costs and long term sustainability outcomes as part of project funding approval process. Implement principles of triple bottom line throughout operations and services.

Ensure that tender evaluation criteria for the selection of major construction works include evaluating supplier commitment and capacity to deliver effective climate change outcomes and sustained reductions in GHG emissions.

Implementation champion/s: All directorates



Examples of abatement measures

The long term strategy for minimising the impacts of rising energy costs is captured in the Carbon Neutral ACT Government Framework. Each directorate will determine their own potential savings measures relevant to property and asset portfolios and Strategic Asset Management Plans. The following contains general information relevant across government on abatement measures that could be implemented from 2013 and would see benefits realised from 2013–14 and so on with subsequent years.

Medium investment delivers much higher GHG abatement, with savings persisting in the long term (to 2034).

Low payback activities (taking an average of two years or less to pay for themselves in savings)

If rapid savings are to be realised that have an impact in the next financial year then a focus on low-cost initiatives that can be delivered quickly could be progressed. Opportunities that may fall into this category include:

- tuning of building management system (BMS) controls and settings, applied to a majority of government facilities (offices, depots, schools, hospitals)
- amending operating procedures for security and cleaning staff to ensure energy systems are turned off when buildings are vacated
- engaging staff in energy saving activities, driven by senior management
- implementing lighting controls such as occupancy sensors
- tuning of controls for heating systems including boilers, and implementation of low-flow tapware where this has not already been done and
- accelerating the rate at which current energy efficiency programs are implemented – for example the rate of street lighting upgrades to efficient technology.

Medium payback activities (taking an average of 6 years to pay for themselves in savings)

Some further savings could be achieved in the short term through implementation of some medium payback opportunities, such as:

- retrofitting or replacement of office / fluoro lighting across directorates with light emitting diode (LED) or T5 technology
- acting on the recommendations of recent energy audit reports commissioned for several of the government's largest office buildings and several schools
- rolling out LED to all traffic signals (though recognising this is not a short-term payback it is a long-life asset and the level of savings will be very substantial)
- ensuring all planned asset replacement projects involving energy-using equipment (such as air conditioning, chillers, new fit-outs) are reviewed to ensure high levels of energy efficiency are specified
- cogeneration projects in swimming pools and other suitable facilities.

