Northern Territory Government

Northern Territory Climate Change Policy

2009

TERRITORY CLIMATE CHANGE

greening the Territory

A Territory Government initiative

Published by the Department of
the Chief Minister

ISBN 978-0-9807286-0-6

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Foreword

Changes to our climate present a global challenge that affects everyone. The government recognises Territorians have a particular part to play helping to reduce the impacts of these changes. Our policy focuses on what the government and Territorians can do together to help tackle one of the biggest challenges of our time.

We strongly support Australia's emissions reduction targets. These can only be achieved by putting a price on carbon through an emissions trading scheme, to drive the necessary changes.

We commit the Northern Territory to playing its role in assisting Australia to achieve its climate change goals and emission reduction targets.

We are determined that government will lead by example and we commit to becoming a carbon neutral government within eight years.

Our intact natural landscapes, the immense quantities of carbon stored in trees and soil and the capacity to better store carbon through effective land management, can deliver enormous opportunities to reduce and offset carbon emissions and provide new jobs in the carbon economy.

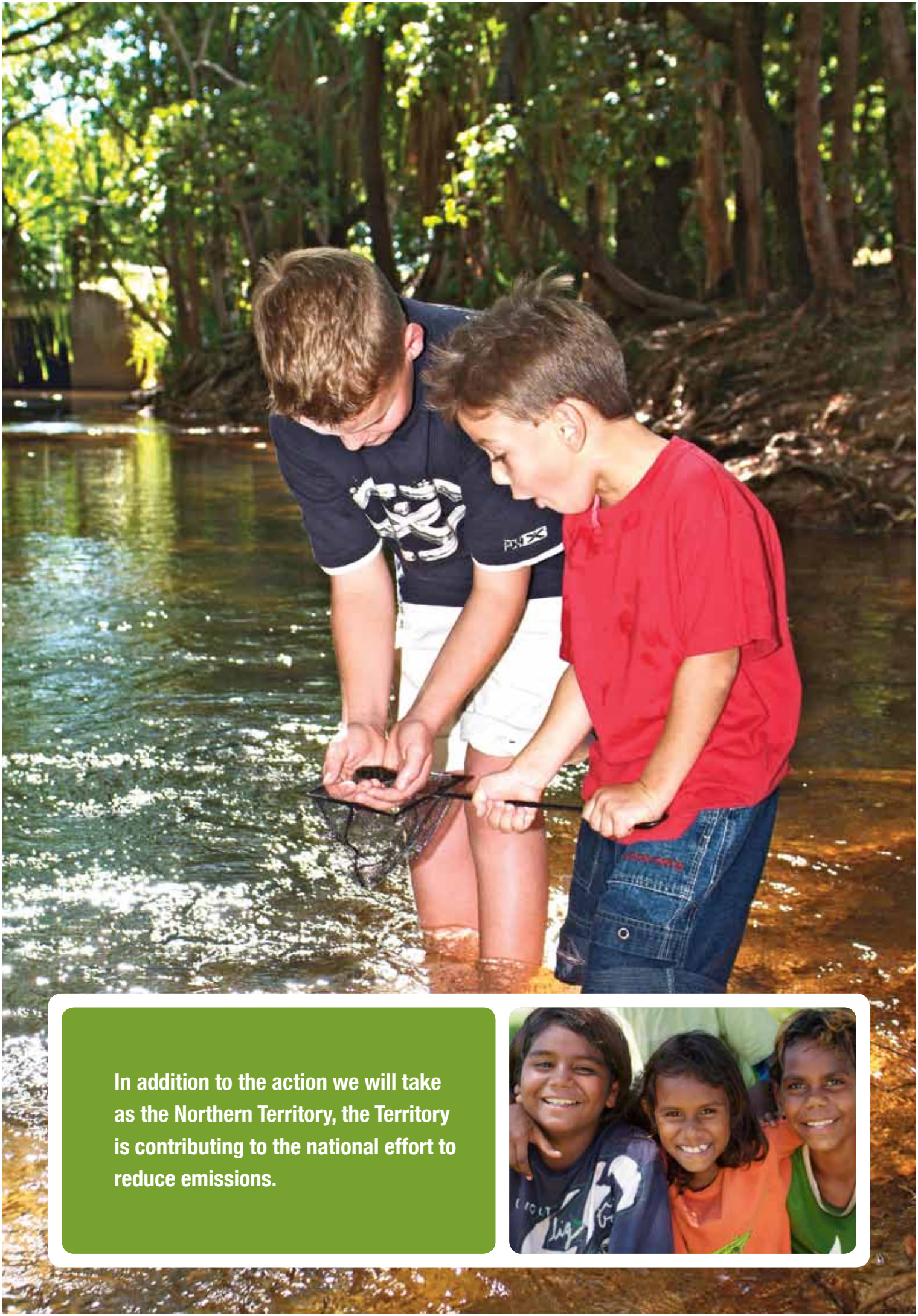
This policy balances growth and economic development with our efforts to reduce our impact on the world's climate.

It also recognises that meeting the challenges of climate change requires a partnership between government, business and the community as a whole. That's why the development of this policy has been conducted in consultation with the Territory community. Their input has been invaluable and the strong working relationships that have been established with government will continue as the Territory's climate change goals are achieved.

Climate change is a global challenge that affects us locally. It must concern everybody. Through concerted joint action, with the leadership of government, the Territory will be part of the global effort to combat climate change.

Paul Henderson MLA
Chief Minister

Karl Hampton MLA
Minister for Climate Change



In addition to the action we will take as the Northern Territory, the Territory is contributing to the national effort to reduce emissions.

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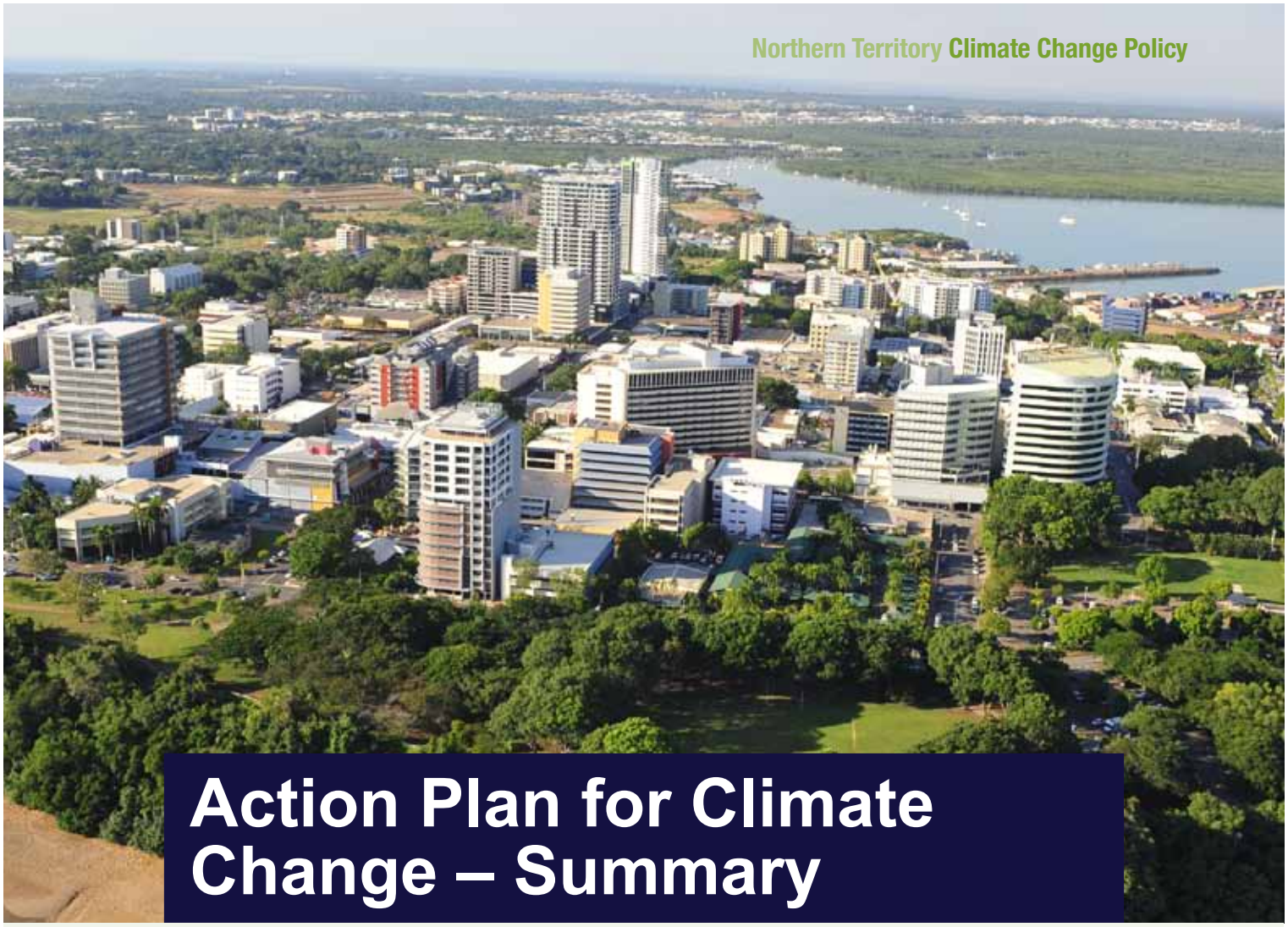
Climate change is a challenge none of us can avoid. We must work together to face it, embrace it and move forward.



Action Plan for Climate Change – Summary

The *Northern Territory Climate Change Policy* is an action plan that will ensure the Territory plays its part in national and international efforts to control climate change.

The policy is an uniquely Territorian approach to this most important challenge of modern times.

It emphasises the leadership of government but recognises that meeting the challenges of climate change is essentially a partnership between government, business and the community as a whole.

While we recognise that the size of our economy and carbon footprint means we are a small part of the national and international profile, we will play our part to combat climate change.

The government's priority through this policy is to help Territorians individually and in businesses, regions, industries and communities to move towards the low carbon economy of the future. In doing this there are many new opportunities to be grasped through the development of green jobs and new land management approaches. Climate change is real and we must put in place the necessary actions to adapt to the impacts of a changing climate.

Aspirational goal – 60% carbon emissions reduction by 2050

This policy has an aspirational goal underpinning it which is to achieve an overall reduction in the amount of emissions produced by the Northern Territory.

The government believes the Northern Territory should aim to reduce carbon emissions by 60% by 2050, compared to 2007 emissions.

We know this goal sets a high benchmark for success but we believe it sets the right beacon for what can be achieved over the next four decades.

The Territory is a small but rapidly developing economy. Our population is growing. Heavy industry is in its early stages of development. It is possible, on current trends, that over the next two decades carbon emissions will increase – simply as a result of this growth.

There is also no doubt that the aspirational goal will require new technology and new ways of doings things for it to be achieved. Key ways to stimulate such investment is through a clear price signal on carbon nationally and through the types of measures being advanced under this policy. Government will also play its part in developing this technology through industry investment.

This policy makes a start on achieving this aspirational goal: it sets out a pathway to travel along to achieve a significant take-up of both small-scale and large-scale renewable energy across the Territory; and it sets out how the Territory's unique landscape will feature in providing a large number of carbon offset opportunities.

We will continue the monitoring regime that publicly reports on emissions annually through the Australian National Greenhouse Accounts. Further, we will review this policy through the annual climate change forum to ensure that it takes into account new technology and achievements in tackling climate change. We will work with business and primary industry, environment groups and the community as a whole to see what further steps can be taken.

National goals – an emissions trading scheme

The Territory Government supports the establishment of the nation's emissions reduction targets. We believe that an emissions trading scheme is the way to achieve those goals.

Without a price on carbon, goals will not be achieved.

The Territory's headline actions to play our part:

1. By 2018, we will ensure the Territory Government is carbon neutral.
2. By 2020, at least four million tonnes of carbon per year will be removed from the atmosphere through better land management. Working with business, landholders and the community we can become a major player in the emerging carbon economy, assisted by the establishment of new Carbon Fund arrangements.
3. The Territory will be a low land-clearing jurisdiction, protecting the 'carbon bank' in our landscape. The rate of clearing will be contained. The government will introduce native vegetation legislation to protect Territory vegetation.
4. By 2020, the Territory will be a world leading generator of renewable and low emissions power in remote communities.
5. The Territory will be at the forefront of efforts to save the best of our priceless coastal wetlands, at risk from rising sea levels – through specific interventions aimed to reduce salt water intrusion, protect fishing and save biodiversity.

There are nine key elements in the *Northern Territory Climate Change Policy* which provide the focus for collaborative action. These are:

- **Government leadership on climate change**
- **A focus on green energy**
- **Land management – an unique Territory offset opportunity**
- **Building green cities and towns**
- **Rethinking waste**
- **Expanding green business and industry**
- **Developing a green workforce**
- **Promoting green communities**
- **Living with change.**

Government leadership on climate change

Goal

Undertake innovative government practices that provide leadership to Territorians on climate change and reduce government emissions.

Target 1: By 2018, the Territory Government's operations will be carbon neutral.

Target 2: Reduce emissions from the Territory Government's passenger and light commercial fleet by 20% by 2014 and 50% by 2020.

This has the potential to reduce greenhouse gas emissions by up to 2300 tonnes in 2014. This is equivalent to the emissions produced by about 700 cars in one year.

This has the potential to reduce greenhouse gas emissions by up to 3500 tonnes in 2020. This is equivalent to the emissions produced by about 1100 cars in one year.

Target 3: Greenhouse gas emissions from interstate air travel by Northern Territory Public Sector staff will be halved by 2020 compared to 2008–09.

This has the potential to reduce greenhouse gas emissions by up to 9000 tonnes in 2020. This is equivalent to the emissions produced by about 2700 cars in one year.

Target 4: Adopt cost effective and environmentally friendly procurement and waste strategies for government.

Target 5: Implement green building performance standards for all buildings leased by government.

Target 6: By 2020, energy intensity in Territory Government buildings will be reduced by a third from a 2004 baseline, with progressive energy savings being achieved after this.

This has the potential to reduce greenhouse gas emissions by up to 41 000 tonnes in 2020. This is equivalent to the emissions produced by about 12 500 cars in one year.

Target 7: Make public housing more energy efficient.

Target 8: Implement the Energy Smart Schools Program, which will reduce the overall energy intensity of Territory Government schools by 20% by 2015 from a 2004 baseline.

Target 9: By 2020, at least five cogeneration projects will be operational, supplying smarter power for major Territory Government infrastructure.

Target 10: By 2012, all traffic lights on Territory Government managed roads will be energy efficient. By 2015, 70% of street lighting in the Territory will be energy efficient and, by 2020, 100% will be energy efficient, where technically feasible.

A focus on green energy

Goal

To develop the Territory's green energy industry and make the Territory a world-leading provider of green energy in remote areas.

Target 11: By 2020, the Territory will have replaced diesel as the primary source of power generation in remote towns and communities, using renewable and low emissions energy sources instead.

This has the potential to reduce greenhouse gas emissions by up to 20 000 tonnes in 2020. This is equivalent to the emissions produced by about 6000 cars in one year.

Target 12: By 2020, wholesale electricity purchasers in the Territory will meet their national 20% Renewable Energy Target (RET) from Territory sources.

This has the potential to reduce greenhouse gas emissions by up to 150 000 tonnes in 2020. This is equivalent to the emissions produced by about 45 000 cars in one year.

Target 13: By 2020, develop Alice Springs and Central Australia as a world-leading solar energy centre.

Land management – an unique Territory offset opportunity

Goal

Maximise economic opportunities arising from emerging carbon markets for Territory land managers, including traditional owners.

Target 14: By 2020, the Territory Government will work with business and the community to establish a carbon offset industry in the Northern Territory, removing four million tonnes of carbon per year from the atmosphere through land management-based carbon offsets.

This has the potential to reduce greenhouse gas emissions by up to four million tonnes in 2020. This is equivalent to the emissions produced by about 1 200 000 cars in one year.

Target 15: Establish new carbon fund arrangements to provide financing for investment in land management, renewable energy technology and other sustainability programs in the Territory.

Target 16: Territory land managers will be at the forefront of sustainable land management, running economically and environmentally sustainable businesses that are ready to grasp opportunities from carbon storage in the land.

Target 17: Research emissions reduction opportunities for Northern Territory agriculture and forestry.

Target 18: Support landholders to use carbon offset markets to reduce the emissions from savanna burning by 500 000 tonnes per year by 2030.

This has the potential to reduce greenhouse gas emissions by up to 500 000 tonnes in 2030. This is equivalent to the emissions produced by about 150 000 cars in one year.

Target 19: Explore the viability of developing a Territory-based biofuels industry.

Target 20: Immediately reduce the impact of feral camels on vegetation in arid environments and, by 2015, achieve measurable improvements in carbon sequestration.

Building green cities and towns

Goal

To build smart and sustainable cities and towns for the future.

Target 21: Develop sustainable housing and buildings policies and programs for the Territory so that by 2020, six, seven and eight star ratings for energy efficiency will be the norm in the Territory's residential and commercial building stock.

Target 22: Develop Weddell as a world-class green city and a model for the future.

Target 23: Plan and implement an integrated public transport system that sees a 20% increase in the use of cycling, walking and public transport across the Territory by 2020.

Rethinking waste

Goal

To minimise greenhouse emissions from the waste sector by reducing the amount of waste generated and going to landfill and developing innovative solutions for cost-effective recycling.

Target 24: Phase out single-use plastic shopping bags and move to multiple-use shopping bags with a smaller carbon footprint.

Target 25: Introduce Cash for Containers in 2011.

Target 26: Develop recycling options for the Territory.

Target 27: Reduce the amount of waste being taken to our rubbish dumps by 50% by 2020.

Expanding green business and industry

Goal

To help Territory business and industry successfully transition to the green economy of the future and make their contribution to tackling climate change.

Target 28: In partnership with the private sector and Territory research organisations, such as Charles Darwin University and the Alice Springs Solar Centre, the government will encourage the development of leading edge, innovative and commercially-viable energy efficiency applications in business and industry across the Territory.

Target 29: Increase the uptake of free energy audits and energy efficiency upgrades among small-to-medium sized businesses.

Target 30: The Northern Territory will be a leading green tourism destination.

Developing a green workforce

Goal

Maximise opportunities for the Territory's workforce to participate in and grow the green economy.

Target 31: As part of the future Jobs NT strategy, the Territory's workforce will be equipped with the skills to meet the existing and new needs of the green economy.

Target 32: By 2020, 10 000 Territorians will have had training in green skills so they can participate fully in the green economy.

Promoting green communities

Goal

For Territorians to adopt energy efficient and sustainable practices in their homes, their transport and their lifestyles.

Target 33: Through partnerships with community organisations and governments, raise awareness of climate change issues and provide solutions for practical use in the daily lives of Territorians.

Target 34: Maximise the number of Territorians who access climate change rebates and grants offered by local government, and the Northern Territory and Australian governments.

Living with change

Goal

To build the Territory's and Territorians' resilience to climate change and protect our communities and unique natural environment.

Target 35: By 2011, develop a Territory Climate Change Adaptation Action Plan.

Target 36: Take conservation efforts into the 21st century by partnering with landholders to create Territory Eco-link, a 1600 km conservation corridor from the tropics to the desert that will link our national parks and provide the buffer that species need as they adapt to the changing climate.

Target 37: The Territory will be a low land-clearing jurisdiction, protecting the 'carbon bank' in our landscape. The rate of clearing will be contained. The government will introduce native vegetation management legislation to protect Territory vegetation.

Target 38: Provide leadership across Northern Australia through continued sustainable water use planning and allocations in the Top End and Central Australia, ensuring water resources are proactively managed to respond to climate change impacts.

Target 39: Establish community water plans for Territory Growth Towns and remote communities for the sustainable management of water supplies

Target 40: By 2013, develop, test and select new methods to rehabilitate damaged wetlands and protect the Mary River freshwater wetlands and their carbon stores from the risks of rising sea levels.

To balance Territory growth against the need to play our role in a national climate change framework, the Territory Government, business and community must act together.

Northern Territory Climate Change Policy

The Territory picture

Climate change will impact on the Territory during our lifetime.

There is still uncertainty about how much the planet will be affected, or exactly when, but the science is quite clear – greenhouse gas emissions will affect the planet's climate and this will impact on us.

The Northern Territory will play its part in achieving national goals and targets for climate change through the *Northern Territory Climate Change Policy*.

The Territory's strong economic growth is resulting in a rapidly increasing population and a larger environmental footprint. This is the inevitable result of a young economy that has only recently started to grow and diversify.

To balance this growth against the need to play our role in the international and national efforts to tackle climate change, the Territory Government, business and community must act together. Contained within this policy are nine key elements, each with clear goals. Supporting these goals is a comprehensive action plan that sets out 40 targets and their outcomes.

In addition to these goals the Territory is well placed to assist the world in addressing climate change through our ongoing development of natural gas fields off our shores. Liquefied natural gas (LNG) is a transitional fuel that will significantly contribute to the reduction of greenhouse gas emissions worldwide.

Northern Territory emissions

The Northern Territory's emissions profile is unique because of:

- The vast geographical area of the Northern Territory and its low population density
- The Territory's climate, which gives rise to a high use of air-conditioning throughout much of the year
- The presence of some major emissions-intensive industries in the Territory, particularly the mining sector
- A high rate of savanna burning, which accounts for over a third, and in some years up to a half, of the Territory's total emissions. Without savanna burning, our emissions profile is similar to that of other parts of Australia, with stationary energy (i.e. electricity generation) being the largest source.

Figure 1: Northern Territory's greenhouse gas emissions

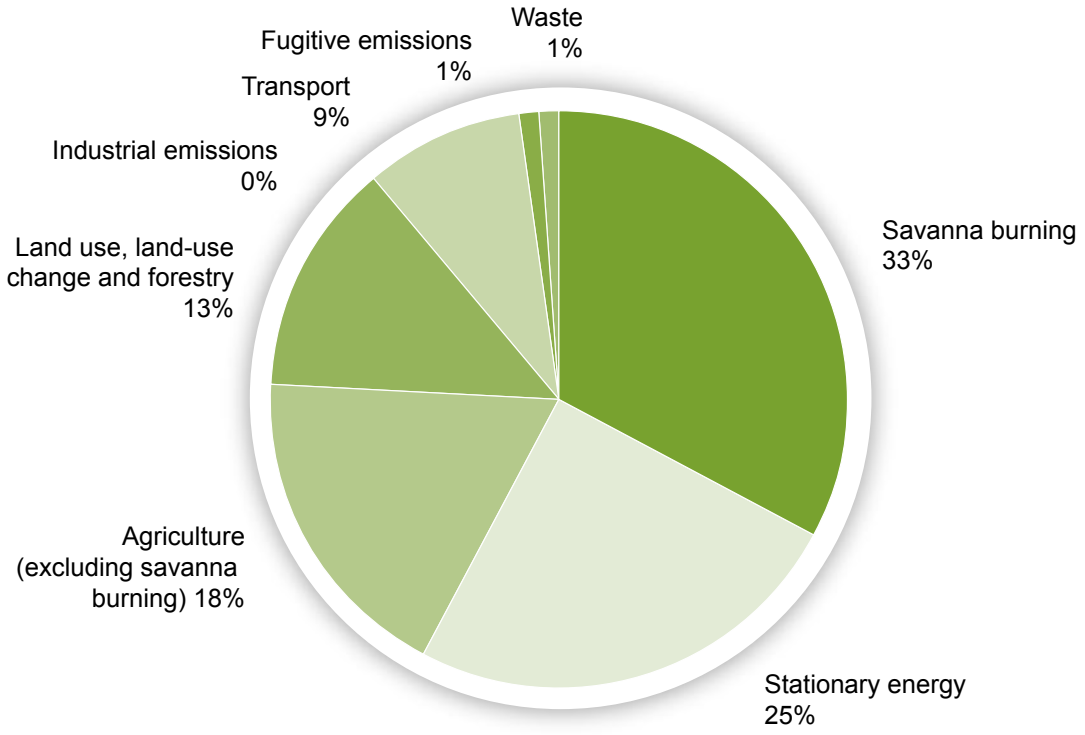
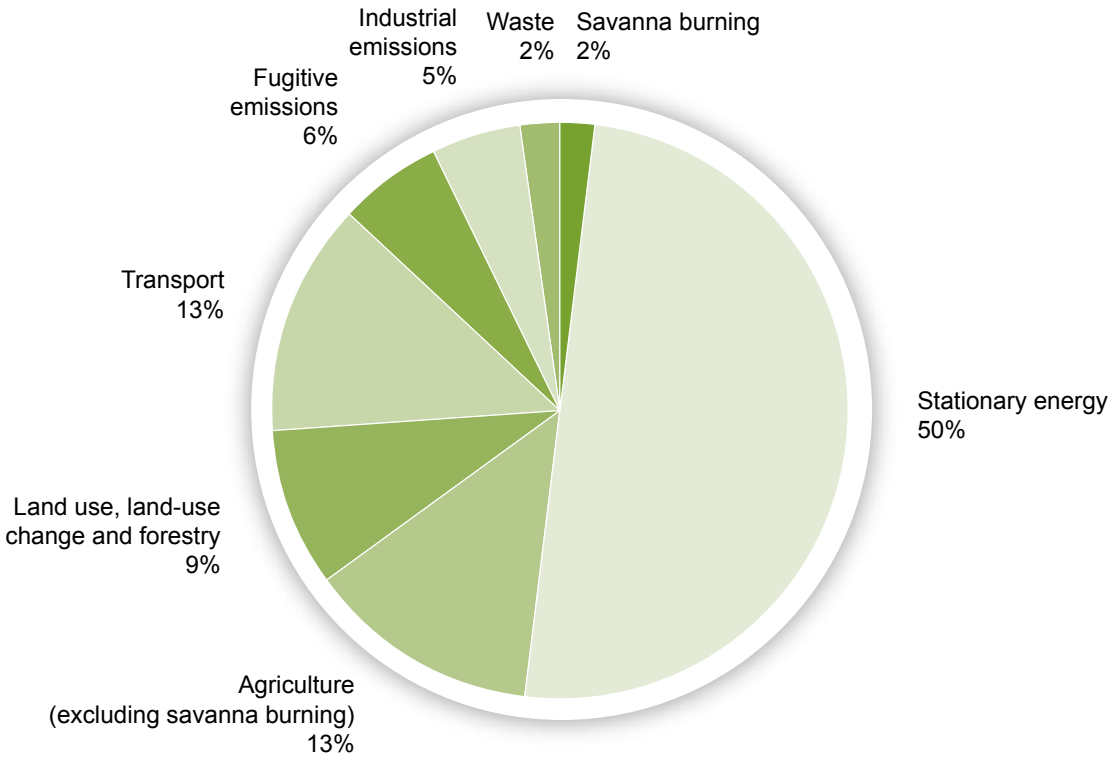


Figure 2: Australia's greenhouse gas emissions



Source: Department of Climate Change, Australian National Greenhouse Accounts, State and Territory Greenhouse Gas Inventories 2007, Canberra, May 2009.

The national picture – Australia's approach to reducing emissions

The Northern Territory is taking action on climate change locally and is also contributing to the national effort to reduce emissions.

National policies for emissions reduction are the best way for Australia – and the Northern Territory – to contribute to change. This is because a greater range of cost-effective emissions reduction opportunities is more likely to be available across Australia as a whole than in any single state or territory.

Governments across Australia are taking action on a national basis to reduce Australia's greenhouse gas emissions at least cost to the Australian economy. The national response to climate change includes:

- an emissions trading scheme
- the National Strategy for Energy Efficiency
- a Renewable Energy Target.

An emissions trading scheme (ETS)

The Australian Government proposes the introduction of a national system of emissions trading, the Carbon Pollution Reduction Scheme (CPRS), from 1 July 2011. Under this scheme, major greenhouse-gas emitting industries will be required to purchase a permit for each tonne of greenhouse gas they emit. This will provide a strong incentive for industry to reduce the amount of greenhouse gases produced by their operations.

The CPRS outlines the Australian Government's national strategy to reduce greenhouse gas emissions. It will be one of the broadest emissions trading schemes in the world and, when it starts, will cover transport, power generation, industrial processes and waste.

As it is currently drafted, the key implications of the CPRS for the Territory are:

- A national reduction in emissions target of between 5% and 25% below 2000 levels by 2020, depending on the response of other developed countries. The Northern Territory is committed to doing its part to achieve this national goal.
- Forestry projects, which absorb greenhouse gases, will be included in the scheme under an opt-in basis, offering opportunities for Territory land managers to develop eligible forestry projects that create carbon permits.
- Mechanisms to assist emissions-intensive businesses that compete in international markets where there is no price on carbon emissions will have positive outcomes for Territory-based resource companies.
- Goods and services for remote and regional parts of Australia, including the Northern Territory, may be higher than elsewhere in Australia because of the need to truck goods long distances. The Australian Government will assist motorists and freight transport operators adjust to potential fuel price rises in the early years of the scheme by reducing the fuel excise by a comparable amount.
- The growing interest in carbon offsets, both internationally and in Australia, is likely to provide opportunities for Territory land managers, including traditional owners, to produce carbon offsets from reduced savanna burning. Whether this is in the CPRS-regulated or voluntary markets is yet to be finalised by the Australian Government.
- Revenue generated by the sale of emissions permits under the CPRS will be used, via the Climate Change Action Fund, to assist businesses, communities and households adjust to the new carbon-constrained economy, particularly the increased price of emission-intensive goods and services such as electricity.

A National Strategy for Energy Efficiency

Energy efficiency has been recognised internationally and nationally as a low-cost means of achieving significant reductions in Australia's greenhouse emissions.

A *National Strategy for Energy Efficiency* was agreed by all states and territories at the Council of Australian Governments (COAG) meeting on 2 July 2009. The strategy will ensure a consistent and unified approach to energy efficiency and drive growth in the Northern Territory in the areas of:

- assisting businesses to transition to a low-carbon future
- reducing impediments to the uptake of energy efficiency
- making buildings more energy efficient
- governments working in partnership and leading the way.

The 10-year strategy aims to accelerate energy efficiency improvements for households and businesses across all sectors of the economy.

The Renewable Energy Target

The Territory Government has committed to the expanded national Renewable Energy Target (RET) which requires 20% of Australia's wholesale electricity to be sourced from renewable energy by 2020. The RET is a transitional measure to assist Australia's transformation to a low emissions economy. The RET scheme will end in 2030, recognising the role the CPRS will play in driving the deployment of renewable energy.

Under the RET's conditions, wholesale purchasers of electricity (retailers and some generators) will incur liabilities under the RET. The Power and Water Corporation in Darwin will be the Territory's only entity to incur liabilities under the RET.

Opportunities for the Territory

The Territory is well positioned to benefit from new opportunities in the green economy. Our supply of low emissions fuel sources such as natural gas and uranium, the potential for renewable power generation and the treatment of emissions from savanna burning will create new businesses, industries and jobs for Territorians.

Key role for LNG in reducing global greenhouse gas

The Territory Government believes that the LNG sector plays an important role in reducing global greenhouse gas emissions by reducing the world's dependence on high carbon, polluting fossil fuels like coal. Gas from the Northern Territory, or brought to the Northern Territory for processing, can play an enormous and expanding role in reducing global greenhouse gas emissions.

We will continue to foster growth of the LNG sector in the Northern Territory for the opportunities it presents to the Territory and its important environmental benefits.

The Territory Government believes that all the operations of the LNG sector, wherever they operate in Australia, should be subject to a national emission trading scheme. It would be a backward step that would produce sub-standard environmental outcomes for LNG projects to become subject to project-specific or state-based regimes.

Green electricity generation

Under the CPRS, the current price disadvantage of electricity in the Territory – because most electricity is produced by gas rather than coal – will be reduced over time. This will increase the competitive position of the Territory compared with other jurisdictions and pave the way for industrial development.

Geothermal technologies are potentially a source of economic, zero-emissions baseload power, while high temperature solar thermal energy is also projected to become an increasingly competitive energy source. The potential for geothermal power generation in the Northern Territory has been enhanced with the passage of the *Geothermal Energy Act* in 30 April 2009 and possible resources have already been identified by Geoscience Australia.

Land management: emissions, carbon storage and carbon offsets

There is significant potential in the Northern Territory to optimise carbon storage through land management in the Territory. Preliminary estimates suggest that savings of four million tonnes per year can be achieved by improving land management and harnessing emerging carbon markets.

It should be noted that the accounting rules around emissions reductions from land management are complex and are expected to change either during the Copenhagen negotiations in December 2009 or thereafter. Australian standards are also being established for carbon offsets so investors have certainty about the offsets they are buying.

Establishing certainty around carbon offsets at the national and international levels will help the Territory attract new investments in this area. A well-designed carbon offset program has the potential to deliver substantial social, economic and environmental benefits, especially for remote and Indigenous communities.

Carbon Capture and Storage

There is emerging interest from the Australian Government and industry in the use of Carbon Capture and Storage (CCS) technology to abate carbon emissions directly at the source of production. As this technology develops it could enable major industrial projects in the Northern Territory to abate their carbon emissions.

Action Plan – Territory Climate Change

Addressing climate change is not a task for any one individual, community, sector or country. The problem is global – yet some of the solutions are very local.

The *Northern Territory Climate Change Policy* is a partnership between government, business and industry, and the community. How well we work together and how each of us takes up the challenge of reducing our emissions will determine how successfully we contribute to the global challenge of reducing global greenhouse gas emissions. Working in partnership will also be very important to ensure the Territory embraces the opportunities the new green economy presents.

Actions carried out under the policy will be developed and driven by all Territory Government agencies with implementation coordinated by the Department of the Chief Minister. In addition, an annual climate change forum will be held at which a progress report on the *Northern Territory Climate Change Policy* will be presented. The inaugural forum will be held in Alice Springs in October 2010.

There are nine key elements in the *Northern Territory Climate Change Policy,* which provide the focus for collaborative action. These are:

- Government leadership on climate change
- A focus on green energy
- Land management – an unique Territory offset opportunity
- Building green cities and towns
- Rethinking waste
- Expanding green business and industry
- Developing a green workforce
- Promoting green communities
- Living with change.

The practices government adopts will impact on climate change and can make a significant contribution to reducing emissions.

Government leadership on climate change

Goal

Undertake innovative government practices that provide leadership to Territorians on climate change and reduce government emissions.

Target 1

By 2018, the Territory Government's operations will be carbon neutral.

Actions	Outcomes
1.1 Government will implement the *Northern Territory Climate Change Policy* and significantly reduce emissions from its operations.	Government's operational emissions are minimised.
1.2 After minimising its emissions as far as possible, government will offset the remaining emissions by investing in carbon offsets delivered in the Territory.	Government is carbon neutral. A market for Territory-based carbon offsets is developed.

Target 2

Reduce emissions from the Territory Government's passenger and light commercial fleet by 20% by 2014 and 50% by 2020.

This has the potential to reduce greenhouse gas emissions by up to 2300 tonnes in 2014. This is equivalent to the emissions produced by about 700 cars in one year.

This has the potential to reduce greenhouse gas emissions by up to 3500 tonnes in 2020. This is equivalent to the emissions produced by about 1100 cars in one year.

Actions	Outcomes
2.1 Implement the *Northern Territory Greening the Fleet Strategy* that establishes minimum greenhouse emissions standards for NT Fleet passenger and light commercial vehicles. The strategy will encourage and adopt better fuel use, lower emissions fuels, and evaluate different fuels (such as biofuels and electricity) as they become commercially viable in the medium-term. The strategy will also assess the viability for the Territory of low emissions vehicles, such as electric cars, as they become available in Australia.	Significant emissions reductions from the Territory Government fleet. Government leadership in this area will flow through to the Territory's second-hand vehicle market. The Territory Government will be an early adopter of climate friendly vehicles and vehicle technology.

Target 3

Greenhouse gas emissions from interstate air travel by Northern Territory Public Sector staff will be halved by 2020 compared to 2008–09.

This has the potential to reduce greenhouse gas emissions by up to 9000 tonnes in 2020. This is equivalent to the emissions produced by about 2700 cars in one year.

Action	Outcomes
3.1 Install a high-definition, high-security video conferencing network for intergovernmental meetings.	Greenhouse gas emissions from interstate travel will be significantly reduced over five years as a result of the use of the video conferencing network instead of face-to-face attendance by Territory Government officers at interstate meetings.

3.2 Investigate and implement green technologies for government meetings to reduce reliance on air and road travel.	Reduced reliance on air travel and travel costs across government. Increase in productivity. Improved work/life balance as employees spend less time away from their homes and families.
3.3 Create a grants program aimed at assisting community-based climate change groups, funded by the Climate Change Travel Levy. The levy will be applied to all Territory Government intrastate, interstate and overseas travel and will be a rate equivalent to the average flight offset rate set by major Australian airlines.	Territory community-based climate change groups have increased capacity and assistance.

Target 4

Adopt cost effective and environmentally friendly procurement and waste strategies for government.

Actions	Outcomes
4.1 Implement the *Sustainable and Green Procurement Policy* across all procurement. This will include the use of energy efficient equipment in government operations and an examination of whole-of-life costs, such as disposal and contribution to landfill.	Reduced environmental and economic cost of goods and services purchased by the Territory Government over their whole life. Reduction in waste going to landfill and a greater focus on resource recovery.
4.2 The Territory Government will use its purchasing power and buying decisions to demonstrate that climate friendly goods and services are efficient and effective, both environmentally and economically.	Government leadership in the purchase of climate friendly goods and services will flow through to other sectors of the Territory economy.
4.3 The Territory Government will maximise recycling in office buildings through new building service contracts and building management committees.	Reduction in waste going to landfill and a greater focus on resource recovery.

Target 5

Implement green building performance standards for all buildings leased by government.

Actions	Outcomes
5.1 Implement the *Green Office Building Policy* which will reduce energy consumption and greenhouse gas production for each building that adopts the standards by around 50% by 2012.	Significant reductions in energy consumption and greenhouse gas production for each building that adopts the standards. Green office buildings will contribute to improved workplace productivity and engender behavioural change in the Territory community towards energy efficient practices at work and at home. Government leadership in this area will flow to the broader commercial property market in the Territory, driving improvements in the energy efficiency of the Territory's commercial building stock.
5.2 Existing leased office buildings will be encouraged to achieve a 4.5 Star National Australian Built Environment Rating System (NABERS) Base Building Energy Standard by 1 July 2012.	
5.3 New leased office buildings will target 5-Star Green Star Design standards and 5-Star NABERS Base Building Energy standards through a NABERS commitment agreement.	
5.4 Investigate locating new government offices in population growth areas.	The location of workplaces within walking and cycling distances of major residential areas and their alignment with public transport routes will reduce energy, pollution and time associated with commuting. Workplaces will be located closer to schools, sporting, medical and other facilities, improving the quality of life for government employees.

Target 6

By 2020, energy intensity in Territory Government buildings will be reduced by a third from a 2004 baseline, with progressive energy savings being achieved after this.

This has the potential to reduce greenhouse gas emissions by up to 41 000 tonnes in 2020. This is equivalent to the emissions produced by about 12 500 cars in one year.

Action	Outcomes
6.1 Implement cost effective energy efficiency improvements to government-owned buildings, including through the $6 million Government Energy Efficiency Program, which will fund energy saving projects in government buildings that have higher energy usage.	The Territory Government will provide leadership in the commercial property sector by adopting best practice energy efficiency standards in the Territory's commercial building stock.
6.2 Develop initiatives to significantly increase the environmental performance of government owned and occupied buildings.	The Territory Government's drive for energy efficiency improvements in its leased buildings will have broader impacts on the Territory's commercial building sector. The rate of energy efficiency retrofits will have increased and new buildings will target at least a 4.5-Star rating.

Target 7

Make public housing more energy efficient.

Actions	Outcomes
7.1 All public housing will have an energy efficiency audit by 2015, providing essential data on energy efficiency requirements in the Territory's public housing stock.	Improved energy efficiency and sustainability in the Territory's public housing stock. Greenhouse gas emissions reductions. Less electricity used, flowing through to electricity bills.
7.2 All public housing will be equipped with solar hot water and a one-shot booster by 2020, where technically feasible.	
7.3 All new public housing built from 2010 will include a solar or other renewable energy component and will include best practice sustainability measures.	

Target 8

Implement the Energy Smart Schools Program, which will reduce the overall energy intensity of Territory Government schools by 20% by 2015 from a 2004 baseline.

Actions	Outcomes
8.1 Provide technical advice to coordinate applications by all Territory schools for the National Solar Schools Program, an Australian Government program offering grants of up to $50 000 to schools to install solar or other renewable energy power systems, solar hot water systems, rainwater tanks and a range of energy efficiency measures.	Reduced energy consumption and greenhouse gas emissions in Territory schools. A culture of sustainability is built into school teaching and learning. Remote schools in particular will benefit as the necessary technical advice would otherwise not be readily available.
8.2 All Territory schools will have a solar photovoltaic panel installed by 2015, where technically feasible, and will be adopting best practice sustainability measures.	

Target 9

By 2020, at least five cogeneration projects will be operational, supplying smarter power for major Territory Government infrastructure.

Actions	Outcomes
9.1 Develop a plan for cogeneration options for government by 2012.	Significant improvements in energy efficiency and emissions reductions of at least 15% from large-scale government buildings that make the switch to cogeneration.

Target 10

By 2012, all traffic lights on Territory Government managed roads will be energy efficient. By 2015, 70% of street lighting in the Territory will be energy efficient and, by 2020, 100% will be energy efficient where technically feasible.

Actions	Outcomes
10.1 Working with local governments, the Department of Lands and Planning will submit a plan to the Territory Government by the end of 2011 that identifies barriers to the uptake of more energy efficient street lighting and develop strategies to address these.	Reduced greenhouse gas emissions and costs to Territory and local governments in providing safe and reliable street lighting.
10.2 Replace incandescent and halogen traffic lights with energy efficient light-emitting diode (LED) lights on all Territory Government managed roads.	Energy consumption by traffic lights on Territory Government managed roads will be reduced by 80%.

Government procurement, travel and waste

The Territory Government is a major employer and the practices it adopts will impact on climate change. Like every business, simple steps can make a significant contribution to reducing emissions.

Government buildings

Commercial buildings produce around 10% of Australia's greenhouse gas emissions. The Centre for International Economics has found that emissions reductions of 30–35% are achievable in the commercial and residential building sector with minimal policy intervention.

The Territory Government owns a large number of buildings for use as offices, schools and public housing and also owns hospitals, courthouses and prisons. Government-owned buildings account for approximately 92% of government building energy usage and 91% of emissions. Increasing the energy efficiency and climate friendliness of all government buildings will have a major impact on the emissions produced from the building sector in the Territory, and represents a more cost-effective use of government resources.

The government also leases 65% of the Territory's commercial building space, making it the major lessee in the Territory's commercial building market. The government recognises its responsibility to promote and lead change and has committed to improving the energy efficiency of its leased office space.

The Territory's approach to the workplace is in keeping with a national approach that sees all state and territory governments working to reduce greenhouse gas emissions from energy used in the workplace, and reconfiguring how buildings will be constructed in the future. The Territory will participate in the development and implementation of the *National Green Lease Policy* for government leased buildings.

Lighting upgrade for Royal Darwin Hospital: practical changes making a big difference

The lighting upgrade for Royal Darwin Hospital (RDH) is part of the $6 million Government Energy Efficiency Program and will include de-lamping, ballast and diffuser upgrades, fitting of reflectors, replacement of existing fittings with more energy efficient fittings and lighting controls.

The project is expected to have a 30% rate of return and a payback period of less than five years: i.e., the cost of the upgrade will be returned after five years. Importantly, the project will also prevent 450 tonnes of greenhouse gases from entering the atmosphere each year – the equivalent of taking around 100 cars off the roads every year.

Cogeneration

Cogeneration is a technology whereby waste heat from on-site electricity generators is used to provide chilled water for air-conditioning (via absorption chillers) and/or steam and hot water. Research commissioned by the Territory Government has shown that cogeneration can cost-effectively reduce greenhouse gas emissions by at least 15% in Territory Government buildings, with significantly larger, cost-effective savings possible for some building sites. Other benefits of cogeneration include increased energy security and reduced power network loads.

Going green in government workplaces

The Territory Government's *Green Office Building Policy*, to be implemented in 2010, will set minimum, targeted energy efficiency building standards for leased government buildings, and will be applied to leases of 2000 sq metres or above.

Standards for new buildings will apply immediately, while standards for existing buildings will apply from 1 July 2012, where technically feasible, allowing owners of existing buildings adequate time to prepare and implement asset improvement plans. Environmental standards will be implemented via a Green Lease Schedule, to be finalised in early 2010.

A supporting *Green Workplaces: Workplace Design and Management Policy* will be developed to improve the environmental sustainability and energy efficiency of government fit-outs and will include maximising recycling in offices.

As a member of the Government Property Group, the Northern Territory will participate in the Victorian Workplace of the Future pilot project and will apply the learnings from this project to the Territory where relevant. The project has the potential to substantially reduce government leasing costs, energy and resource consumption in office buildings, as well as the costs associated with fitting out, maintaining, and demobilising offices.

The Territory Government is also developing an overarching plan to demonstrate green leadership in key areas including commuting times, use of public transport and the percentage of staff that walk or cycle to work.

Public housing

The government is a significant owner of residential housing in the Territory and has a responsibility to lead by example in terms of energy efficiency in the home. Around 60% of existing public housing stock is already equipped with solar hot water.

Heating water accounts for around 25% of energy and greenhouse gas emissions in the average Australian family home. Installing solar hot water systems in new public houses and replacing electric or gas hot water systems in existing housing is a straightforward and cost-effective way to reduce greenhouse gas emissions.

The Territory Government will take the lead to phase out the use of diesel in remote communities, and create pathways for industry investment in renewable and low emissions energy sources in the Territory.

A focus on green energy

Goal

To develop the Territory's green energy industry and make the Territory a world-leading provider of green energy in remote areas.

Target 11

By 2020, the Territory will have replaced diesel as the primary source of power generation in remote towns and communities, using renewable and low emissions energy sources instead.

This has the potential to reduce greenhouse gas emissions by up to 20 000 tonnes in 2020. This is equivalent to the emissions produced by about 6000 cars in one year.

Actions	Outcomes
11.1 By 2010, establish a phase-out timetable for diesel-powered electricity generation in regional and remote communities and replace with renewable and low emissions energy.	Remote communities in the Territory will benefit from reliable power that will contribute to improved economic, social and environmental outcomes This will have particular benefits for Indigenous Territorians.
11.2 The Territory Government will contribute $4 million to a $14 million showcase of renewable and low emissions energy in the remote communities of Alpurrurulam (Lake Nash), Ti Tree and Daguaragu/Kalkarindgi.	Lake Nash will source most of its electricity from renewable and low-emission sources by the end of 2010. Renewable energy will also displace diesel for electricity generation at Ti Tree, on the Stuart Highway, and the Territory Growth Town of Daguaragu/Kalkarindgi.

Target 12

By 2020, wholesale electricity purchasers in the Territory will meet their national 20% Renewable Energy Target (RET) from Territory sources.

This has the potential to reduce greenhouse gas emissions by up to 150 000 tonnes in 2020. This is equivalent to the emissions produced by about 45 000 cars in one year.

Actions	Outcomes
12.1 Establish a Green Energy Taskforce to provide expert advice on strategies, incentives and pathways to encourage the growth and funding of the renewable and low emissions energy industry in the Territory.	Renewable and low emissions energy investment decisions by the commercial sector will be in place by 2020. New industry is established in the Territory using renewable energy. The Territory maximises its share of Australian Government grant funding on renewable energy. The Territory's renewable resources have been mapped and costed to provide information required to attract investment. Territory electricity generators on grids over 100 MW meet their 20% renewable energy target by 2020 using renewable energy generation sourced within the Territory.
12.2 Establish the Centre for Renewable Energy at Charles Darwin University.	The Northern Territory will have the local capability and capacity to build a strong and sustainable renewable energy sector. The centre will work in partnership with government, renewable energy organisations in Alice Springs, the CSIRO and industry to provide information, advice, targeted research and vocational and higher education in green energy technologies and applications relevant to the Territory.

12.3 Establish an Energy and Climate Change Unit in the Department of the Chief Minister.	Climate change and green energy objectives of the Territory Government will be realised by providing central coordination across government for policy and strategies.
12.4 Provide certainty for investors in geothermal energy production through the *Geothermal Energy Act* and clear geothermal energy regulations.	The geothermal industry will have a robust regulatory framework to promote investment in this emerging industry. The Territory Government will use this framework to promote investment in geothermal exploration in the Territory.

Target 13

By 2020, develop Alice Springs and Central Australia as a world-leading solar energy centre.

Action	Outcome
13.1 Establish a 10-year plan, commencing in 2011, for solar energy generation and usage in Alice Springs and Central Australia.	Alice Springs and Central Australia will b e recognised nationally and internationally as a leader in solar energy applications and demonstrations in desert settings.

Electricity generation

While greenhouse gas emissions from electricity generation in the Territory were around 25% of our total emissions in 2007, by removing the contribution of savanna burning to total emissions, the share of power generation is closer to 38%. This is similar to the electricity sector's share of emissions for Australia as a whole.

The primary fuel source of electricity used by the Power and Water Corporation (PWC) is natural gas, which has a lower carbon footprint than other fossil fuels such as coal. The PWC uses a combination of combined cycle gas turbines, open cycle gas turbines and gas-fired reciprocating engine generation that together provide a significant emissions advantage over black or brown coal. Diesel, which has a higher carbon footprint than gas, is the main source of fuel in remote and regional communities. Other major electricity generators in the Territory all use liquid fuel.

Electricity and other household energy sources such as diesel are projected to experience the greatest price increases under the CPRS. Electricity prices will increase by around 6%, while the expanded Renewable Energy Target (RET) could add a further 3% to prices.

It is essential for the Territory to have increased access to competitively priced energy supplies with a modest carbon footprint. Shifting to renewable and low carbon generation technologies represents one path to lower emissions. Another is to improve energy efficiency in both industry and the general community. Achieving improvements in energy efficiency is currently the cheapest way to reduce greenhouse gas emissions and save money on electricity bills.

The Territory Government already encourages the adoption of renewable energy, particularly in remote areas not serviced by an electricity grid. Green Power was introduced by the PWC in March 2009. It is sourced from methane emissions captured at the Darwin Shoal Bay Landfill site.

The PWC also pays for electricity produced by home-based rooftop photovoltaic systems that is fed back into the electricity grid. In Alice Springs, the Alice Solar City project offers additional incentives for home owners to install such systems.

Renewable energy

Renewable energy is energy produced from natural and completely renewable sources, such as the sun and the tides. There are virtually no restraints on their replacement, unlike fossil fuels. Some renewable technologies are now commercially available and cost-competitive in particular market circumstances.

Around the world, governments and industry are trialling and developing new renewable energy technologies on a commercial scale. Availability of these technologies should improve over the next few years, particularly with the introduction of the CPRS and the RET. However, some forms of renewable energy will remain relatively expensive compared to fossil fuels for some time.

Australian Government modelling forecasts that there will be no new commercial investment in renewable energy in the Northern Territory until after 2020. This is because, in the current marketplace, the renewable energy investment opportunities in other jurisdictions, particularly around wind, are immediately available and more cost-effective.

The Territory Government will therefore take the lead and create the pathways, interest and opportunities to encourage industry to invest in renewable and low emissions sources of energy in the Territory well before 2020.

Renewable energy in regional and remote communities

Most of the Territory's remote communities and pastoral stations are not serviced by an electricity grid and diesel is the most economical energy source in these areas. This will change dramatically, however, with the introduction of the CPRS, and will make renewable and low emissions energy sources more cost competitive.

With support from the Australian Government, the Power and Water Corporation has already rolled out renewable energy power generation in six remote communities: Bulman, Kings Canyon, Hermannsberg, Lajamanu, Yuendemu and Jilkminggan. The Power and Water Corporation has also been active in trialling different renewable energy sources across the Territory.

Alice Springs is achieving success through the Solar Cities program and will continue to grow the renewable and low emissions energy focus in Central Australia.

With the introduction of the Carbon Pollution Reduction Scheme, there are likely to be substantial opportunities for land managers and commercial investors to trade offsets from reduced savanna burning in carbon markets.

Land management – an unique Territory offset opportunity

Goal

Maximise economic opportunities arising from emerging carbon markets for Territory land managers, including traditional owners.

Target 14

By 2020, the Territory Government will work with business and the community to establish a carbon offset industry in the Northern Territory, removing four million tonnes of carbon per year from the atmosphere through land management based carbon offsets.

This has the potential to reduce greenhouse gas emissions by up to four million tonnes in 2020. This is equivalent to the emissions produced by about 1 200 000 cars in one year.

Actions	Outcomes
14.1 Work with Territory land managers, landowners and investors to develop new carbon offset opportunities that are recognised: under existing and emerging Australian and international climate change frameworks; in the voluntary offset market and potentially in future carbon offset frameworks.	Territory jobs will be created through the implementation of offset projects, bringing significant investment into the Territory economy. Investment certainty and flexibility for industry to invest in carbon offset projects, based on rigorous scientific assessment. Territory-based offset projects with multiple benefits, including carbon abatement, development in the Territory Growth Towns and Indigenous economic development.
14.2 Assist land managers, industry participants and stakeholders to develop governance frameworks for sustainable participation in carbon offset markets.	

14.3 The Territory Government will work with the Australian Government so that land management projects in the Territory can be recognised under national offset standards.	The national carbon offset standard meets the Territory's unique needs and promotes flexibility in the development of new carbon offset schemes.
14.4 Develop a policy framework for carbon property rights in the Territory. This will include an assessment of the interrelationship between carbon property rights under the Carbon Pollution Reduction Scheme (CPRS), Indigenous property rights and land tenure under Commonwealth and Territory legislation.	Legislative frameworks are established that provide certainty for investors in nationally and internationally recognised Territory carbon offsets schemes.
14.5 Develop guidance on opportunities for Territory offsets in 2010 that will set out options for investors to sequester or abate carbon through native vegetation and land management practices such as reforestation and savanna burning.	Carbon offset options and opportunities in the Northern Territory are identified and promoted to potential investors

Target 15

Establish new carbon fund arrangements to provide financing for investment in land management, renewable energy technology and other sustainability programs in the Territory.

Actions	Outcomes
15.1 Develop a governance structure for managing financial arrangements for a carbon fund in the Territory.	In addition to meeting any liabilities under a national emissions trading scheme, companies producing significant emissions have a structured way to contribute to projects that will provide additional economic, social and environmental benefits to the Territory. Companies, other organisations and individuals with no formal emissions liability are able to contribute to these projects.

Target 16

Territory land managers will be at the forefront of sustainable land management, running economically and environmentally sustainable businesses that are ready to grasp opportunities from carbon storage in the land.

Actions	Outcomes
16.1 Undertake collaborative research on the measurement of soil carbon to inform the agriculture industry.	A better understanding of soil and carbon storage under pastoral management systems.
16.2 Through education programs, assist land managers to develop on-farm best management practices for carbon emissions and carbon storage.	A practical education strategy is in place for regional land managers on climate change issues.
16.3 Supply information on various economic uses of land, taking into account greenhouse gas emissions and new and emerging opportunities that are likely to arise for land use through the CPRS and emerging international climate change frameworks.	Landowners are better informed about usages of land in a carbon constrained economy. Development opportunities for rural and regional communities are identified, while ensuring the future maintenance of the land and country.
16.4 In close consultation with stakeholders, refine measurement and monitoring systems for greenhouse gas emissions for land use and land use changes through research that improves understanding of greenhouse gas sources and sinks including full life cycle analysis.	Best practice measurement and monitoring systems on greenhouse emissions from land use are communicated to land managers and other stakeholders. Robust emissions methodology developed for measuring greenhouse gas emissions from various land uses in the tropical savannas of the Northern Territory, leading to more informed decisions on land use.
16.5 In partnership with Charles Darwin University, research the costs and benefits of land use change for agricultural development and the carbon dynamics of exotic grasses and vegetation.	Identify the net benefit of various types of land uses.
16.6 Work with key partners, including pastoralists, Indigenous and other land managers, to identify, communicate and develop opportunities for land management services that reduce carbon emissions.	Identification of opportunities for land management services in the Territory that contribute to carbon abatement and deliver multiple benefits such as improved condition of vegetation and biodiversity.

Target 17

Research emissions reduction opportunities for Northern Territory agriculture and forestry.

Actions	Outcomes
17.1 Undertake research into the development of sustainable production systems with enhanced carbon sequestration.	More carbon efficient and productive Northern Territory production systems.
17.2 Collaborate on research to reduce ruminant livestock emissions and the more efficient use of applied fertilisers to reduce nitrous oxide emissions.	Land managers better understand methods for reducing emissions from enteric fermentation and agricultural soils.
17.3 Collaborate on national research into the use of organic soil improvement techniques.	Improved carbon capture in agricultural soils.

Target 18

Support landholders to use carbon offset markets to reduce the emissions from savanna burning by 500 000 tonnes per year by 2030.

This has the potential to reduce greenhouse gas emissions by up to 500 000 tonnes in 2030. This is equivalent to the emissions produced by about 150 000 cars in one year.

Actions	Outcomes
18.1 In partnership with the private sector and non-government organisations, assist Territory landowners and managers, including Indigenous and pastoral land managers, to develop offset products like the West Arnhem Land Fire Abatement project (WALFA).	A greater number of carbon offset projects are established, delivering reduced emissions from the Territory's largest source and supporting economic development in remote communities.

18.2 Take the lead across Australia to design a savanna burning carbon offset market, including the development of physical infrastructure and governance frameworks to support a market that will result in the best outcomes for the Territory. This includes seeking the establishment of an independent office, with funding from the Australian Government, that will provide certifiable fire and associated greenhouse gas emissions mapping products and accredit and validate savanna burning emissions abatement projects across northern and central Australia.	Working with the Australian, Western Australian and Queensland governments, and with non-government stakeholders, establish benefits from carbon offsets for Northern Australia. Increased abatement of greenhouse gas emissions over an appropriate baseline period through the development of new offset schemes in the Territory.
18.3 Provide funding for 2010 and 2011 calendar years for the ongoing management and development of the North Australian Fire Information (NAFI) website. Alternate funding models to be developed during this period.	The North Australian Fire Information website continues to offer fire information across Northern Australia.

Target 19

Explore the viability of developing a Territory-based biofuels industry.

Actions	Outcomes
19.1 Collaborate on research for the use of biofuels using ethical and sustainable sources grown in the Territory. 19.2 Develop implementation strategies for a biofuels industry. 19.3 The Territory Government will replace diesel fuel with biofuels as ethical sources become available.	The Territory has ethical sources of biofuels to replace diesel and creates real jobs focused in particular on identified regional Territory Growth Towns through the *Working Future* framework and in remote areas. There are no perverse outcomes associated with the growth of feedstocks for biofuels, including competition with food production. Local jobs are created through growing the feedstock required for biofuels.

Target 20

Immediately reduce the impact of feral camels on vegetation in arid environments and, by 2015, achieve measurable improvements in carbon sequestration.

Actions	Outcomes
20.1 Work with Central Australian communities and the Australian Government under the proposed national Feral Camel Action Plan to design control strategies to reduce camel impacts.	Approaches to control that optimise cost effectiveness and benefits to the Territory.
20.2 Ensure that control programs are designed to optimise the recovery of vegetation from overgrazing and other damage, especially in and around wetlands and waterholes.	Protection of the most sensitive environments and good rates of recovery, including carbon sequestration.
20.3 Monitor vegetation recovery and report changes in vegetation and soil condition and carbon sequestration at least biennially.	Demonstration of effectiveness of control operations and maximisation of benefits.

Land Management

Our diverse and extensive landscapes are one of the Territory's most unique assets. Managing land well presents one of the Territory's greatest opportunities to contribute to national and global emission reductions, while also enjoying other environmental, social and economic benefits.

The Territory Government recognises its obligation to reduce emissions and encourage carbon storage in land management. The Territory's land mass is conservatively estimated to be holding 18 billion tonnes of carbon in the soil, plants and trees. Increasing the amount of carbon held in Territory lands presents significant carbon offset opportunities, in both established and emerging offset markets.

Building on Territory leadership in savanna fire management, where a novel, indeed world-first, concept for reducing emissions has become a reality, the Territory Government will work with business and the community to take up the opportunities to realise carbon offsets from land management.

In addition, the Territory Government will invest in and assist the development of Territory-based carbon offset programs to fulfil the commitment to become carbon neutral by 2020. This will deliver real benefits in terms of both reducing the Territory's carbon footprint and opening up innovative new land management markets. Offset projects will be developed around:

- Expanding the already successful savanna burning fire management programs
- Reforestation and rehabilitation of previously cleared lands to create production landscapes that also store more carbon
- Wetland rehabilitation and protection through control over saline intrusion
- Regional feral animal management programs designed to deliver and to demonstrate delivery of increased carbon sequestration
- Reducing impacts of grazing and increasing sequestration of carbon through additions to the protected lands system and collaborative projects with pastoral landholders

The government will work with land managers, key partners, and potential investors to identify and establish practices and projects that reduce emissions and capture significant amounts of carbon in vegetation and soils. Government will facilitate access to carbon markets for land-based offset projects and work with stakeholders to have the offsets recognised under national and international standards where this is not already the case, emphasising participation in the regions.

Government will also look to future carbon offset frameworks and actively encourage opportunities for public and private sector investment.

Savanna burning

Savanna burning, or bushfires, is the single largest source of greenhouse gas emissions in the Northern Territory. In 2007, it contributed 33% of total emissions; in some years, savanna burning has contributed up to 50% of emissions.

Controlled burning is an integral part of land management in the Northern Territory. It can improve pasture and bush food production, reduces potential fuel sources for bushfires, thus protecting life and property, contributes to biodiversity and is a customary Indigenous practice.

Savanna burning in northern and central Australia cannot be completely stopped. But emissions from savanna burning in the wet-dry tropics can be reduced through a scientifically proven strategic fire management program in the early dry season. There is also potential to reduce emissions from savanna burning in Central Australia by strategic burning following above-average rainfall, to reduce the size and severity of unmanaged wildfires. Other key benefits include the protection of biodiversity and cultural values, sustainable employment and the reduction of risks associated with erosion and impaired landscape function.

Reducing emissions from savanna burning while maintaining its benefits presents the Territory with substantial opportunities and some challenges.

The Australian Government has indicated that it is unlikely that emissions from savanna burning would ever attract liabilities as a covered sector under the CPRS, and has also stated that it will facilitate the development of savanna burning carbon offset schemes. This means there is considerable potential for savanna burning offsets to be traded either in the voluntary or regulated carbon offset market.

In addition to reducing emissions, savanna burning offset schemes can result in positive Indigenous employment outcomes, greater Indigenous involvement in land management decisions, and the re-establishment of a traditional presence on country. The achievement of these benefits is evidenced through the success of the West Arnhem Land Fire Abatement (WALFA) project. Innovative partnerships are also being developed in Central Australia and on the Tiwi Islands, where Tiwi Land Council Rangers, the Tiwi College and CSIRO are working together to explore Indigenous livelihood opportunities for managing fire to reduce greenhouse gas emissions, while maintaining the biodiversity values of the Tiwi Islands.

Savanna burning offset schemes also present opportunities for the Territory's pastoral industry to abate greenhouse gas emissions whilst achieving sustainable and productive land management.

The West Arnhem Land Fire Abatement Project

The West Arnhem Land Fire Abatement Project (WALFA) is a partnership between traditional owners and Indigenous ranger groups, ConocoPhillips, the Territory Government and the Northern Land Council.

Through this partnership Indigenous ranger groups are implementing strategic fire management across 28 000 sq km of Western Arnhem Land in the Northern Territory, to offset some of the greenhouse gas emissions from the Liquefied Natural Gas plant at Wickham Point, Darwin.

The project is now reducing greenhouse gas emissions from this area by the equivalent of over 100 000 tonnes of carbon dioxide each year. This is the equivalent of taking over 31 000 cars off the road each year. It does this by undertaking strategic fire management early in the dry season to reduce the size and extent of unmanaged bushfires. Such practices are also helping to conserve environmental and cultural values in the project region – values equivalent to those in the adjacent World Heritage-listed Kakadu National Park.

Building on the success of the WALFA project, the Australian Government has recently allocated $10 million to the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) to work with traditional owners to further develop fire management projects across four areas of the Northern Territory, Queensland and Western Australia. In addition, the CSIRO is researching strategic fire management in Central Australia.

CSIRO Tanami Fire Model

The Central Land Council (CLC), Aboriginal landowners and Aboriginal community rangers are working together to manage fire across large areas of Aboriginal land in Central Australia.

The CLC, CSIRO and Bushfires NT have completed a joint pilot fire research project in the 40 000 sq km Northern Tanami Indigenous Protected Area of the Territory. This project provided the first measurements of fuel loads and burning efficiency in that region. The pilot project looked at the role the Wulaign Ranger group, based in Lajamanu, might play in the collection of biophysical data necessary to build a fuel/fire model for the Tanami bioregion.

The results will allow scientists to examine the role of strategic fire management in the Tanami in a way that reduces greenhouse gas emissions and provides socioecological benefits from Aboriginal involvement. The partners are now investigating funding sources to expand this promising research.

Expanded research will explore the potential for local Aboriginal people to participate in emerging carbon markets by developing a model for emission reduction, biodiversity protection and cultural enrichment, applicable to the savannas of the central Northern Territory.

The Territory Government provides support to existing savanna burning research, including support for trials of abatement opportunities for prescribed savanna burning. Other support measures include:

- Research into managing fire regimes, building on the existing body of work in this area by Northern Territory scientists in government and local research organisations
- Land managers trained in the application of strategic fire management practices to reduce emissions
- Linking land managers to emerging carbon markets.

Agriculture, forestry and biofuels

Around half of the Territory's total land area is used for pastoral operations – the largest single use of the land in the Territory. Emissions from enteric fermentation in cattle dominate agriculture sector emissions, while agricultural emissions themselves contribute around 18% to the Territory's total.

The forestry industry in the Territory is relatively small and is still developing. The Territory has around 36 000 ha of plantation forest in total, with about 30 000 ha on the Tiwi Islands. Forests have the potential to draw greenhouse gas emissions away from the atmosphere, through a process known as biosequestration.

The government is committed to working with Indigenous, freehold and leasehold land managers to assess the potential impacts for agriculture as an offset under the CPRS. In addition, the government will work with key stakeholders to identify and manage the risks associated with climate change, while maintaining sustainable production yields for the Territory's primary industry sector.

To strengthen the economic and social resilience of the agriculture sector, the Territory Government will work to provide land managers with a range of economically viable land use options that integrate greenhouse gas considerations.

Future land use options include the potential development of an ethical and sustainable Territory-based biofuels industry. The development of this industry presents significant opportunities as a renewable energy source for the Territory.

Land use

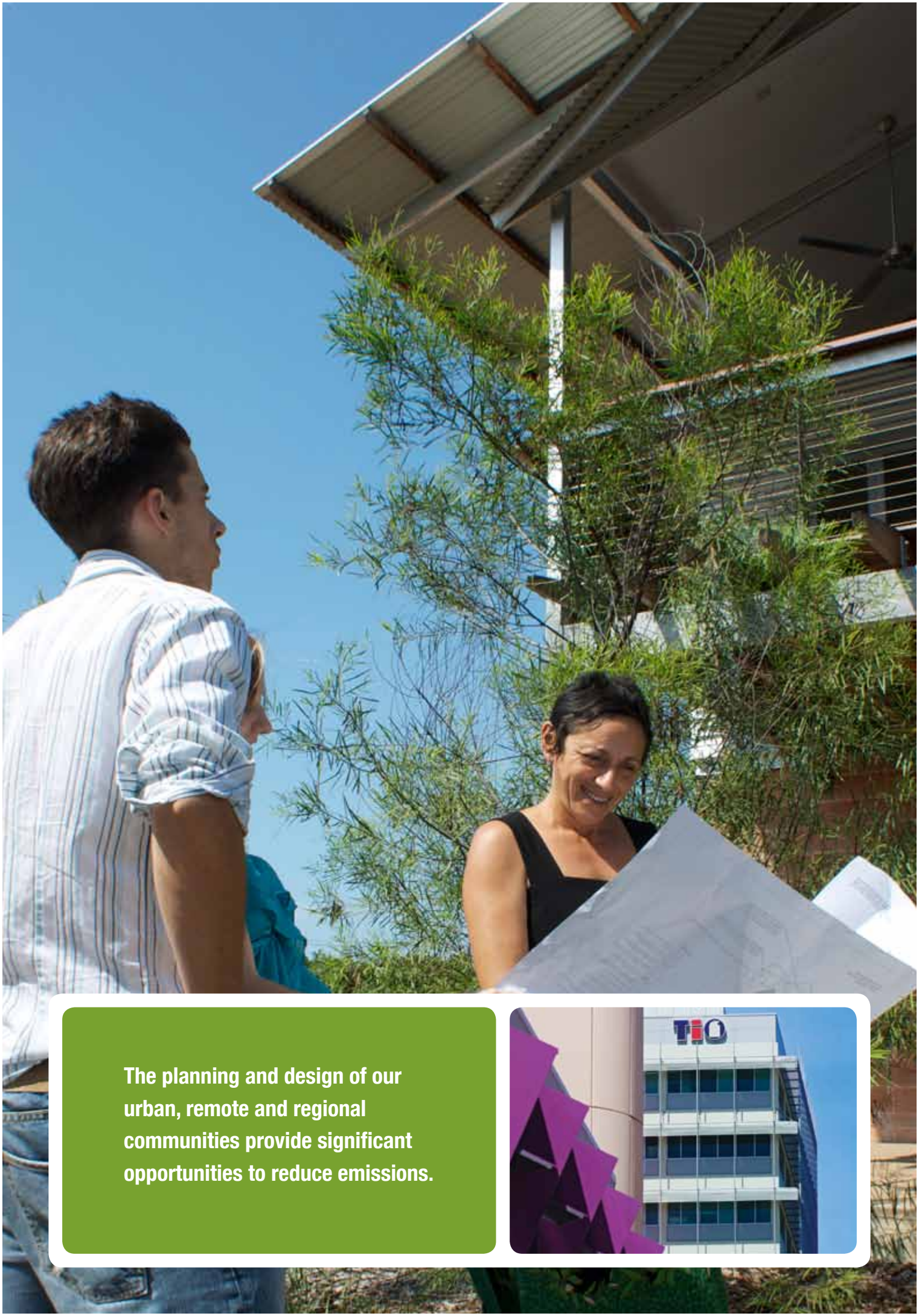
Land use activities can either release emissions or store carbon in sinks. Relevant activities under this sector include:

- Reforestation, (planting vegetation) which is capable of storing carbon underground or in plant matter above and below ground
- Deforestation (land clearing), which removes the trees or vegetation that store carbon.

Emissions from land use and land use change made up approximately 13% of the Territory's emissions in 2007.

The Australian Government has indicated that deforestation will not be included in the CPRS, although emissions from land clearing are counted towards Australia's international targets. Reforestation will be included in the CPRS on a voluntary, opt-in basis which means that interested parties can opt to develop forestry projects that store carbon under the CPRS.

Future economic and environmental opportunities exist in the Territory for reducing emissions from land use activities through other non-forestry activities. These may include management of savanna woodlands, vegetation and soil. These activities will require further research and consideration at the international level before they will count as emissions reductions.



The planning and design of our urban, remote and regional communities provide significant opportunities to reduce emissions.

Building green cities and towns

Goal

To build smart and sustainable cities and towns for the future.

Target 21

Develop sustainable housing and buildings policies and programs for the Territory so that by 2020, six, seven and eight star ratings for energy efficiency will be the norm in the Territory's residential and commercial building stock.

Actions	Outcomes
21.1 Implement the building provisions of the *National Strategy for Energy Efficiency*. 21.2 From 2010, adopt and implement the Building Code of Australia's increasing standards on energy efficiency and sustainability for residential and commercial buildings subject to a cost-benefit analysis and assessment to ensure they will be appropriate for the Territory's climate. 21.3 Phase in mandatory disclosure provisions for energy efficiency at the time of sale or lease of commercial buildings commencing from 2010 and for residential buildings commencing from 2011. 21.4 Implement a strategy for heating, ventilation and air-conditioning (HVAC) high-efficiency systems in commercial buildings.	The energy efficiency standards for all residential and commercial buildings in the Territory significantly improve in both the short-term and the long-term as new technologies and performance standards are developed and become available. Territory homes and businesses benefit from improved energy efficiency and reduced operating costs. A take up of world-class sustainable and energy efficient building practices in the Territory's housing market. By 2015, examples of sustainable building options suitable to the Territory will be available to builders and buyers.

21.5 Government will work with private developers so new developments and subdivisions have display homes showcasing the very best sustainable and energy efficient building standards.	
21.6 Government will consider the energy efficiency outcomes of lot orientation when designing new subdivisions.	Improved energy efficiency of housing in new subdivisions as well as the performance of solar hot water systems and solar photovoltaic energy systems.

Target 22

Develop Weddell as a world-class green city and a model for the future.

Actions	Outcomes
22.1 Ensure all Weddell homes are environmentally sustainable and use tropical design principles.	Weddell becomes a showcase for green living in a tropical environment.
22.2 Ensure Weddell has strong public transport links.	
22.3 Ensure Weddell features lots of public space and parklands.	

Target 23

Plan and implement an integrated public transport system that sees a 20% increase in the use of cycling, walking and public transport across the Territory by 2020.

Actions	Outcomes
23.1 Strengthen the links between transport and land use through integrated transport and land-use planning principles for new developments and subdivisions.	Sustainable, integrated and well-designed communities are designed and built in the Territory.
23.2 All new planning developments will include best-practice sustainable transport options.	
23.3 Improve the frequency and accessibility of bus services between Darwin, Casuarina and Palmerston, particularly between interchanges.	An increased uptake of public transport and less reliance on individual and motorised transport will lead to reduced per capita emissions from passenger transport.
23.4 Actively promote the use of alternative transport, including cycling and walking, through: • the installation of bike storage facilities at high demand public bus interchanges • provision of an extensive cycle path network • provision of facilities such as showers, secure bike storage and lockers in government owned and leased buildings • a trial of bike racks on buses in the Darwin region.	Lower greenhouse emissions. A healthier community.
23.5 Develop options for integrated, public transport services to regional and remote areas as part of the *Working Future* framework.	Increased access to transport options in regional and remote areas and an integrated, sustainable transport framework for the Territory's regional centres. Improved education, health and social outcomes through access to key services. Enhanced business and tourism opportunities.

Sustainable homes and commercial buildings

Across Australia over the next two years, governments will be implementing standards for new buildings and major renovations of existing buildings which will significantly improve their energy efficiency and sustainability. The new standards set by the Building Code of Australia will cover both residential and commercial buildings and will provide long-term reductions in emissions as well as cost savings through reduced electricity bills.

The Territory is entering an exciting phase in urban, regional and remote development:

- housing developments in the new suburbs of Johnston, Zuccoli, Mitchell and Muirhead
- the new city of Weddell
- the rollout of the largest investment in Indigenous housing infrastructure in Australia through the $672 million Strategic Indigenous Housing Program (SIHIP)
- the transformation of 20 Indigenous communities into Territory Growth Towns, through the *Working Future* framework.

The planning and design of our urban, regional and remote communities provide significant opportunities to reduce emissions through improvements in energy efficiency and the implementation of sustainable design principles.

The new city of Weddell will be designed as a model for cities and towns of the future and will incorporate world-class principles for sustainable tropical design. It will also have integrated broadband and communications infrastructure, smart public transport links and well-designed open community spaces, gardens and parklands.

Transport

An effective transportation network is crucial to the Northern Territory economy because of the distance from major population centres and markets, the low population density and wide geographic dispersion of communities and industry.

The transport sector contributed 9% of total emissions in the Northern Territory in 2007. Transport will be included as a covered sector under the CPRS, meaning that a carbon price will be placed on fuel.

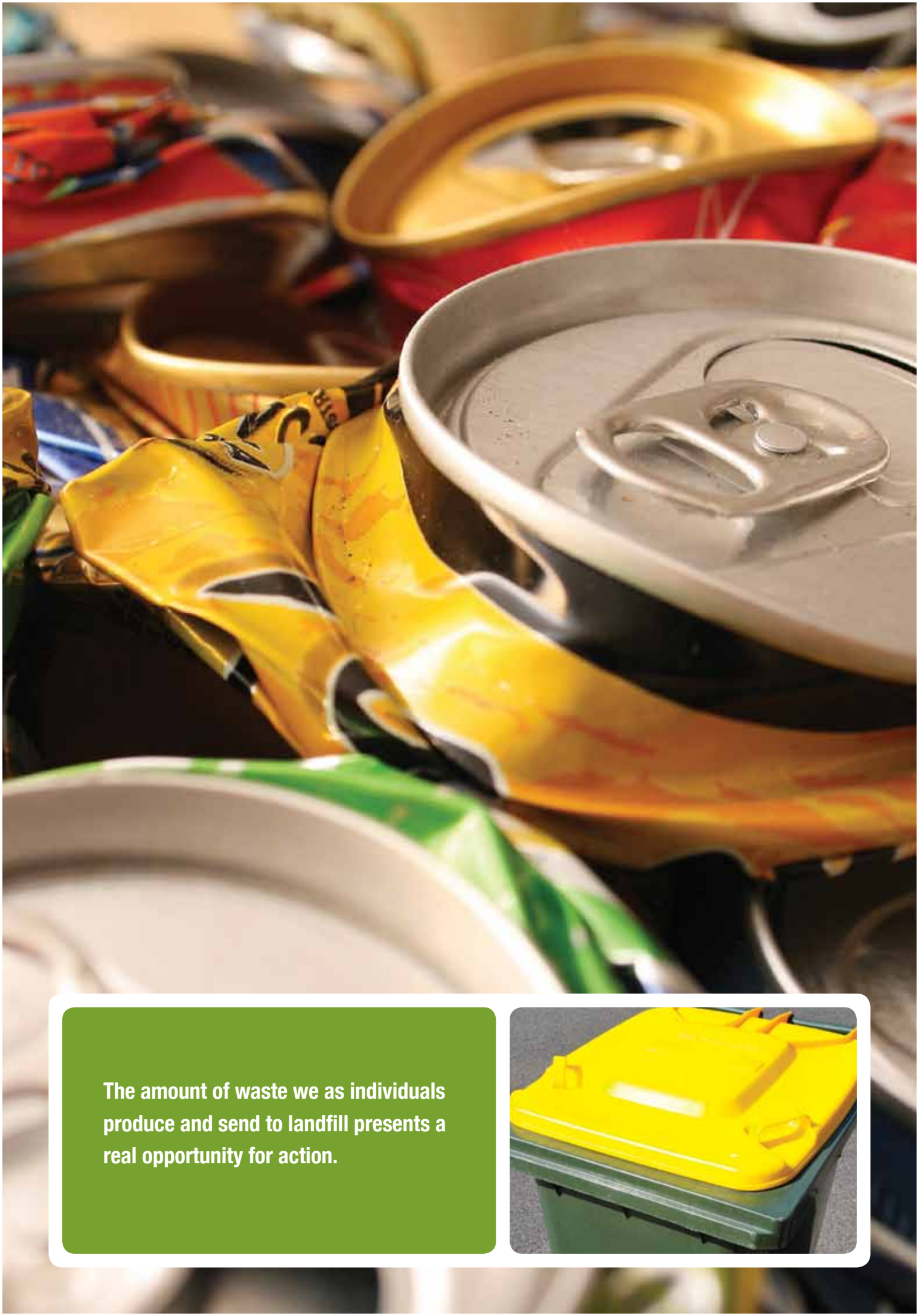
However, the Australian Government will reduce the fuel excise for the first three years of the CPRS on a cent-for-cent basis to offset the impact on the price of fuel. At the end of three years, this assistance will be reviewed. Heavy vehicles will similarly be assisted to adjust to the impact of the CPRS on fuel prices for one year.

Future issues for Territorians arising from the application of the CPRS to the transport sector include:

- increased costs of freighted goods
- possible negative impacts on tourism in the Territory
- requirements for more public transport and efficient fuel
- social issues arising from providing effective, affordable transport services for rural and Indigenous communities.

While the Territory Government will significantly reduce emissions from its own fleet, its broader role is not to drive a reduction of emissions in the transport sector but rather to assist Territorians adjust to these national measures.

The government can do much to encourage more sustainable transport use by Territorians but ultimately it is up to individuals to be part of the change.



The amount of waste we as individuals produce and send to landfill presents a real opportunity for action.

Rethinking waste

Goal

To minimise greenhouse emissions from the waste sector by reducing the amount of waste generated and going to landfill and developing innovative solutions for cost-effective recycling in the Territory.

Target 24

Phase out single-use plastic shopping bags and move to multiple-use shopping bags with a smaller carbon footprint.

Actions	Outcomes
24.1 Introduce and pass new legislation in 2010 banning the supply by retailers to customers of all lightweight single-use plastic bags in the Territory, with phase out arrangements.	Single use plastic bags are no longer supplied by retailers in the Territory. Greenhouse emissions from making and transporting single-use plastic bags are reduced. Wildlife, particularly marine life, is not endangered by plastic bags from the Territory.

Target 25

Introduce Cash for Containers in 2011.

Actions	Outcomes
25.1 Introduce container deposit legislation in 2010 to establish Cash for Containers, with the deposit scheme to begin in 2011.	Container deposit legislation is in place in the Territory by 2011, as a key strategy in reducing waste in the Territory and boosting recycling efforts. The Territory will be cleaner and greener. Territorians who don't litter will be rewarded, giving community groups a chance to raise funds.

Target 26

Develop recycling options for the Territory.

Actions	Outcomes
26.1 In consultation with the Local Government Association of the Northern Territory and individual councils and shires, conduct research to explore options for recycling where it does not already exist, including a cost-benefit analysis of options for recycling infrastructure, the most efficient methods of transporting recyclable materials from the Territory and options for converting waste into energy or biochar.	Research to be completed by 2010 and an implementation strategy to be developed by 2011.

Target 27

Reduce the amount of waste being taken to our rubbish dumps by 50% by 2020.

Actions	Outcomes
27.1 Encourage better packaging of products by Territory manufacturers and work at a national level to encourage Australian and overseas manufacturers to reduce packaging. 27.2 Encourage a reduction of waste going to landfill from Territory building and development sites. 27.3 Work with all Territorians to reduce the amount of general rubbish we send to landfill.	A reduction in all types of waste being sent to landfills across the Territory.

Managing waste

Greenhouse gases from waste arise from solid waste disposal of organic materials to landfill, incineration and wastewater emissions.

Emissions from waste in the Northern Territory are relatively small, contributing less than 1% of our total emissions in 2007. However, the amount of waste we as individuals produce and send to landfill presents a real opportunity for action, particularly with a growing population.

A lot has already been achieved through the *Rethinking Waste Strategy* and with community-based programs such as the Rethinking Waste in Schools Challenge.

There are a range of approaches to managing emissions from waste including:

- reducing the amount of waste going to landfill in the first place, through actions such as recycling or composting in the garden
- flaring methane
- harnessing emissions to generate power
- transforming organic waste into biochar, a charcoal-like substance derived from burning organic matter that is highly effective in removing carbon from the atmosphere.

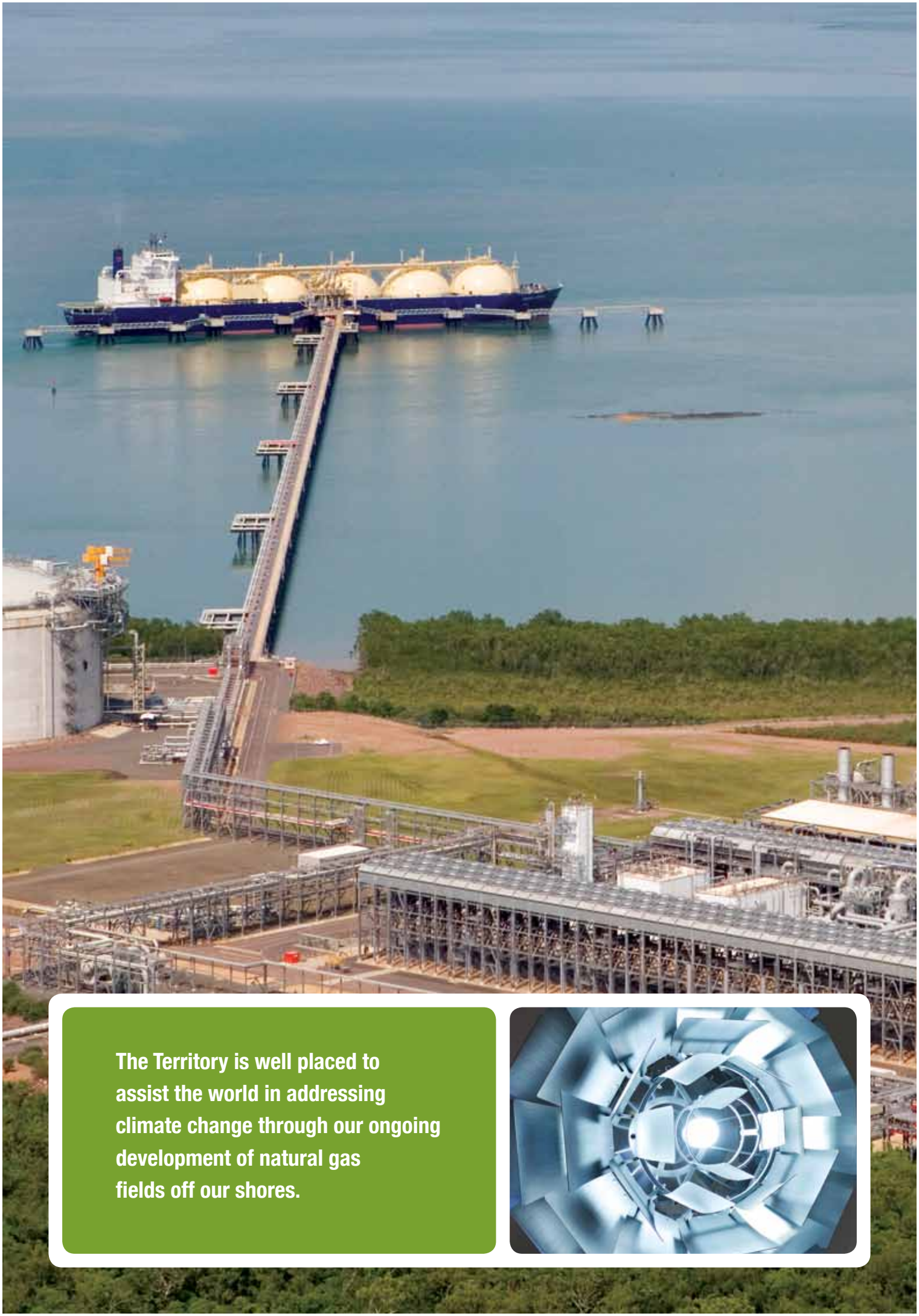
The Shoal Bay waste disposal site is a municipal landfill operated by the Darwin City Council (DCC). The council, working with a private company and the Power and Water Corporation, produces 1100 kW of electric power from methane gas harvested from the landfill waste. The total output of electric power is sold to the Power and Water Corporation. Householders and businesses in the Territory are able to purchase this power via Territory GreenPower, an initiative offered by the Power and Water Corporation, which uses renewable energy certificates (RECs) generated from the Shoal Bay generation plant. The energy produced by the landfill gas generator each year is equivalent to the energy consumed by 1000 homes in Darwin each year.

Because of the large distances between remote, regional and urban centres in the Territory and the need to transport recyclable materials interstate for processing, recycling is difficult and costly. If cost effective, Territory shires and town councils could consider shipping recyclable materials overseas instead of transporting the waste by freight across vast distances to processing centres in the south.

Small and remote communities face specific waste management issues, particularly around the disposal of dangerous wastes and large, bulky items such as whitegoods. The Local Government Association of the Northern Territory has been working with local shires to develop waste management guidelines for remote Territory communities.

Around three billion plastic shopping bags are used in Australia each year, with a significant proportion of this number being sent to landfill. Plastic bags often end up as environmental litter and are a threat to wildlife, particularly marine life.

Lightweight single-use plastic shopping bags will be banned in the Territory. Many Territorians are already using their own bags rather than single-use plastic bags. A number of stores in communities such as Milikapati, Wadeye and Lajamanu have already replaced single-use plastic bags with alternatives. Further, an increasing number of retailers either no longer provide single-use plastic bags or limit their availability.



The Territory is well placed to assist the world in addressing climate change through our ongoing development of natural gas fields off our shores.

Expanding green business and industry

Goal

To help Territory business and industry successfully transition to the green economy of the future and make their contribution to tackling climate change.

Target 28

In partnership with the private sector and Territory research organisations, such as Charles Darwin University and the Alice Springs Solar Centre, the government will encourage the development of leading edge, innovative and commercially-viable energy efficiency applications in business and industry across the Territory.

Actions	Outcomes
28.1 Continue to support the Alice Solar City commercial services program as a key funding partner through to 2013.	Reduction in power usage by Alice Springs businesses and reduced greenhouse gas emissions.
28.2 As new energy-efficiency and small-scale renewable energy products such as solar air-conditioners come onto the market, encourage testing in the Territory for local use.	More innovative building design will reduce greenhouse gas emissions and energy waste.

Target 29

Increase the uptake of free energy audits and energy efficiency upgrades among small-to-medium sized businesses.

Actions	Outcomes
29.1 Widely publicise and promote the business energy efficiency program ecoBiz NT, which shows businesses how to save money by becoming more energy efficient.	More Territory small-to-medium sized businesses will access free energy audits and uptake energy efficiency upgrades in the workplace. Business owners will benefit from energy efficiency improvements, reduced greenhouse gas emissions and reduced energy costs.

Target 30

The Northern Territory will be a leading green tourism destination.

Actions	Outcomes
30.1 Assist tourism operators to improve environmental performance through targeted education programs and advice, and encourage the take up of tourism accreditation programs that focus on environmental best practice. 30.2 Increase the number of tourism businesses that adopt sustainable operating practices, including the integration of carbon offset programs into tourism products. 30.3 Promote the appeal of the Territory as a green destination through the promotion of sustainable initiatives and the green credentials of the tourism industry.	Tourism operators will be well positioned to maximise opportunities through energy efficiency and sustainability measures made available by government. Reduced ongoing operating costs for tourism operators. Enhanced recognition of the Territory's unique nature-based tourism experiences and effective brand positioning of the Territory as a green tourism destination.

Energy efficient business

Like government, Territory business is a contributor to greenhouse gas emissions. Operating on a more energy efficient basis will not only reduce the carbon footprint of our businesses, but will also save money through reduced power and water costs.

Going green: options for Territory businesses

The Territory Government's ecoBiz NT provides businesses with energy, water and waste efficiency information, free audits, ideas to increase efficiency and materials savings and grants for realising opportunities and assessment of achievements. It also provides capacity building and training for tradespeople and those in the energy industry.

The Territory Government has committed $2.1 million towards the ecoBiz NT program over three years. Grants of up of $20 000 (or up to 50% of the project cost) are available to businesses to cover costs associated with implementing their chosen projects. These might include energy efficient air-conditioning upgrades, cold rooms, compressors, lighting and pumps.

In Alice Springs, the Alice Solar City program builds on the ecoBiz NT initiatives to assist Central Australian businesses to become more energy efficient.

Small businesses can access rebates for energy-saving measures of up to 35% to a total of $10 000 (or up to 50% and $20 000 for those businesses who are also ecoBiz NT participants).

Large businesses implementing energy-saving measures can access 35% of capital costs to a cap of $25 000, with grants of up to $50 000 available for more innovative projects.

With the commercial and public sectors presently consuming more than half of Alice Springs' power, the impact of businesses participating in these programs is significant.

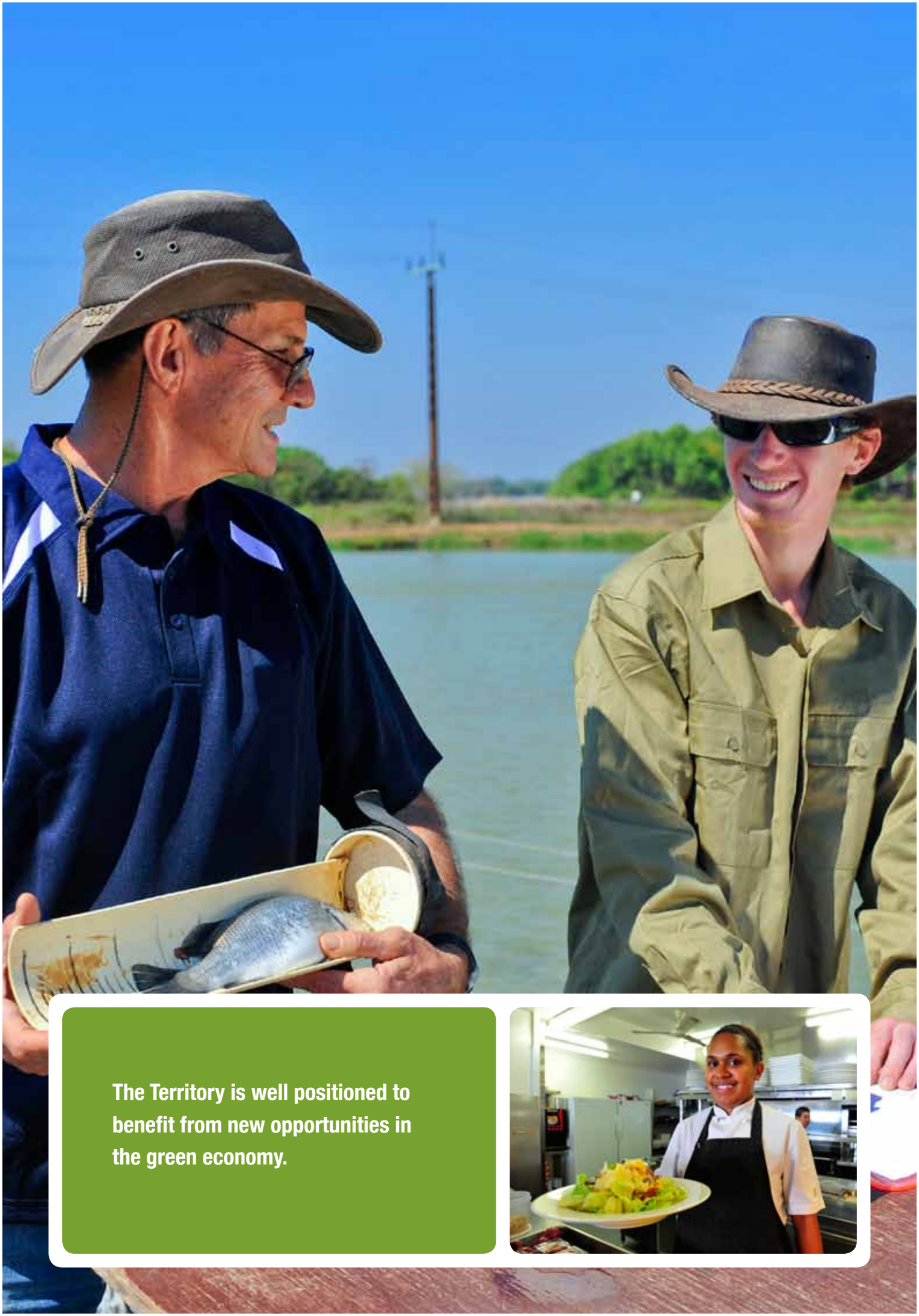
For more information, visit www.ecobiz.nt.gov.au, or www.alicesolarcity.com.au.

Tourism

While concern for the environment and the challenges of climate change has the potential to affect tourism trends and travel behaviour, it also presents the Territory tourism industry with the potential to position itself as a bona fide green tourism destination.

Building on an industry that already depends on nature-based, outdoor attractions and activities, with initiatives such as carbon offset programs and environmentally aware tourism practices, operators can better position themselves to attract the increasingly environmentally-conscious traveller.

Tourism NT has developed tailored information to assist the tourism industry to improve its environmental performance. A dedicated website, Going Green (www.tourismnt.com.au/going_green/), supports tourism enterprises to develop strategies to green their business and maximise the competitive benefits associated with adopting sustainable practices.



The Territory is well positioned to benefit from new opportunities in the green economy.

Developing a green workforce

Goal

Maximise opportunities for the Territory's workforce to participate in and grow the green economy.

Target 31

As part of the future Jobs NT strategy, the Territory's workforce will be equipped with the skills to meet the existing and new needs of the green economy.

Actions	Outcomes
31.1 By early 2011, evaluate green skills gaps in Territory industries to identify employment and training opportunities in the sector and inform the development and delivery of targeted green training and initiatives.	A clear understanding of industry priorities and market opportunities to inform the delivery of targeted green training in the Territory. New business opportunities in the green sector are identified.
31.2 Through partnerships with local industry, the Territory Government will contribute to the development of national sustainability standards for vocational training.	National sustainability standards in vocational training will recognise the particular needs of the Territory's tropical and arid zones and Indigenous employment objectives.
31.3 The Territory Government will participate in the Council of Australian Governments' National Licensing Taskforce to ensure energy efficiency skills are an integral part of trades licensing schemes.	Streamlined regulatory and licensing processes will be in place for green accreditation in new and existing trades and professions.

31.4 A web-based Green Jobs in the Territory toolkit will be developed to provide local businesses and employees with guidance, information and advice on green skills in the Territory. The toolkit will provide information on licensing and accreditation requirements, available training courses and industry's training needs.	Clear advice and communication to employers and employees on green skills information relevant to the Territory.

Target 32

By 2020, 10 000 Territorians will have had training in green skills so they can participate fully in the green economy.

Actions	Outcomes
32.1 The Territory Government will work with the Australian Government and local industry partners on the *National Green Skills Agreement*, which will integrate practical sustainability training elements into all Territory-based vocational training.	From 2010, new apprentices can expect to graduate with a core set of national sustainability skill-sets.
32.2 Work with Charles Darwin University, the Batchelor Institute of Indigenous Tertiary Education and other training providers in the Territory to deliver green training packages in sectors such as building and construction, land management, agriculture and forestry, mining and energy, water, trades, manufacturing and engineering at the vocational and higher education levels.	Territory trainees and students are equipped with the necessary skills to work effectively in a greener world.

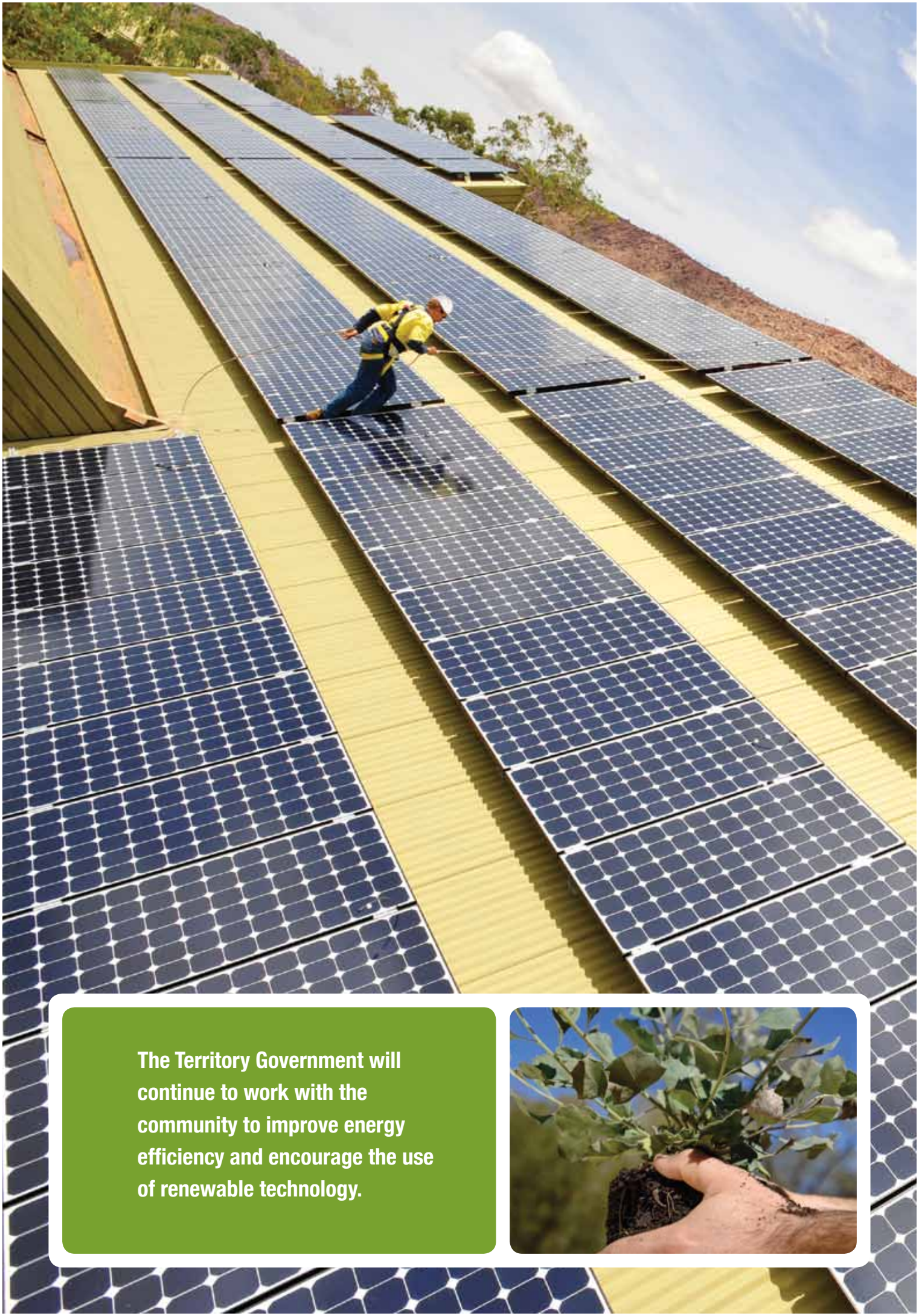
Green skills

Ensuring that Territorians have adequate knowledge, skills and capacity to transition and operate in a green economy is essential. A well-prepared workforce, ready to take advantage of new green jobs at all levels is an integral part of achieving many of the targets in the *Northern Territory Climate Change Policy*.

Many existing jobs will need new green skills. For example, all the trades and professions associated with building – such as architecture, plumbing and engineering – will need additional skills to meet Australia's sustainable building standards.

Territorians providing land management services will need new green skills to deal with carbon offset opportunities. Other targets will require new jobs, such as building energy auditors, to be created.

Identifying the futures skills needed and making sure schools, vocational and higher education provide the necessary skills will require an integrated approach across the Territory Government, training providers, tertiary institutions and employers.



The Territory Government will continue to work with the community to improve energy efficiency and encourage the use of renewable technology.

Promoting green communities

Goal

For Territorians to adopt energy efficient and sustainable practices in their homes, their transport and their lifestyles.

Target 33

Through partnerships with community organisations and governments, raise awareness of climate change issues and provide solutions for practical use in the daily lives of Territorians.

Actions	Outcomes
33.1 Continue to support the work of community-based groups working on climate change issues through financial and in-kind support.	Community groups develop and implement innovative solutions to climate change. Through groups such as the Alice Solar City project and COOLmob, a greater number of Territory households will have energy and water audits carried out on their home and will have energy and water saving plans in place.
33.2 Install solar photovoltaic panels for up to five not-for-profit community organisations in regional and urban centres of the Territory to demonstrate innovations in solar power.	More Territorians install solar photovoltaic panels on their homes and businesses to generate electricity.
33.3 Provide major sponsorship of the Darwin to Adelaide Global Green Challenge.	Heightened community awareness of transport related climate change issues and solutions. Strengthened links between world-class innovation in transport energy efficiency and local research and industry groups.

33.4 Continue to support the Alice Solar City household program and apply the learnings of this pilot as a model of successful community-based sustainability practices to other Territory communities.	Improved awareness and behavioural changes towards sustainable living practices for Territorians Improved energy and water efficiency, reduced energy and water costs, and reduced emissions for Territory householders.

Target 34

Maximise the number of Territorians who access climate change rebates and grants offered by local government, and the Northern Territory and Australian governments.

Actions	Outcomes
34.1 Offer Energy Smart Rebates to Territorians to offset part of the cost of buying and installing small-scale energy efficient hardware, including electric hot water system timers, one-shot boosters for solar hot water systems and pool/spa pump timers.	The use of energy saving devices will become the norm in Territory homes, leading to behavioural changes and energy efficient practices.
34.2 Develop measures to support Territory households to reduce water consumption.	Water usage across the Territory will be reduced by 20% by 2015 and a further 10% by 2020. Emissions from the transportation and heating of water are reduced. Territorians save money on water costs.
34.3 Offer rebates of up to $150 for eligible water-saving products and up to $500 for eligible plumbing services for householders in Alice Springs and Tennant Creek under the NT Waterwise Central Australia Rebate Scheme.	Central Australians will be better equipped to adapt to climate change by becoming more efficient with the water they use. Reduced energy costs and emissions from the heating and transportation of water.

34.4 Offer rainwater tank rebates to Territorians to offset part of the cost of purchasing and installing a rainwater tank system. The item and/or services targeted by the rebate include the rainwater tank, plumbing services and purchase and installation of guttering.	Reduced reliance by Territorians on the reticulated water supply and decreased pressure on ground water and surface water reserves.
34.5 Offer the Solar Hot Water System Retrofit Rebate of up to $1000 where an electric hot water system is replaced by a solar hot water system in a home built in or before 2000.	Assistance is provided for homes which may need additional plumbing or roof structure upgrading before a solar hot water system can be installed. Territorians save money on heating water.
34.6 Ensure Territorians benefit from the Australian Government's Solar Hot Water Rebate scheme. The rebate currently offers $1600 to Territory owner-occupiers, landlords and tenants who replace an electric hot water system with a solar one, or $1000 for installing a heat pump hot water system.	The maximum number of Territory households eligible under the national Solar Hot Water Rebate scheme will install a solar hot water system or heat-pump hot water system. The Territory's solar and heat-pump hot water systems installation industries will grow as a result of increased demand.
34.7 Ensure Territorians benefit from the Australian Government's Home Insulation Rebate Program which currently offers Territory homeowners, landlords and renters up to $1200 to install ceiling insulation that improves the energy efficiency of the home.	The maximum number of Territory households eligible under the national insulation program will have ceiling insulation installed. The Territory's insulation industry will grow as a result of increased demand.
34.8 Ensure Territorians benefit from the Australian Government Solar Credits Program, which boosts financial support to households, businesses and community groups that install small-scale solar photovoltaic, wind and hydro electricity systems.	Territory households, businesses and community groups are aware of the financial assistance available for small-scale renewable energy systems. The Territory's small-scale renewable energy industry will grow as a result of increased demand.

Energy efficient homes and communities

The benefits of home-based energy efficiency measures are easy to see and easy to achieve. Simple things, like changing the air-conditioning setting so rooms are a couple of degrees warmer or using fans instead can make a difference. Saving water also contributes to reduced greenhouse gas emissions, because of the power it takes to heat and transport water in the home. As Territorians currently use around five times more water than other Australian households, saving water is one area where Territory householders can make an immediate impact.

Other energy efficiency measures, such as solar hot water systems or high star-rated appliances, may have a higher up-front cost which might make it difficult for householders to make the purchase, even though they know it will save them money in the long-term.

The Territory Government has been working with the community for some time to improve energy efficiency through a range of programs. The Territory Government is also working through the Council of Australian Governments (COAG) on the *National Strategy for Energy Efficiency*.

Supporting innovation in green technology

The Global Green Challenge has evolved from the World Solar Car Challenge, which the Territory Government has proudly supported for many years. The event involves over 1000 competitors who showcase exciting new technology in energy efficient vehicles as they travel down the Stuart Highway from Darwin to Adelaide.

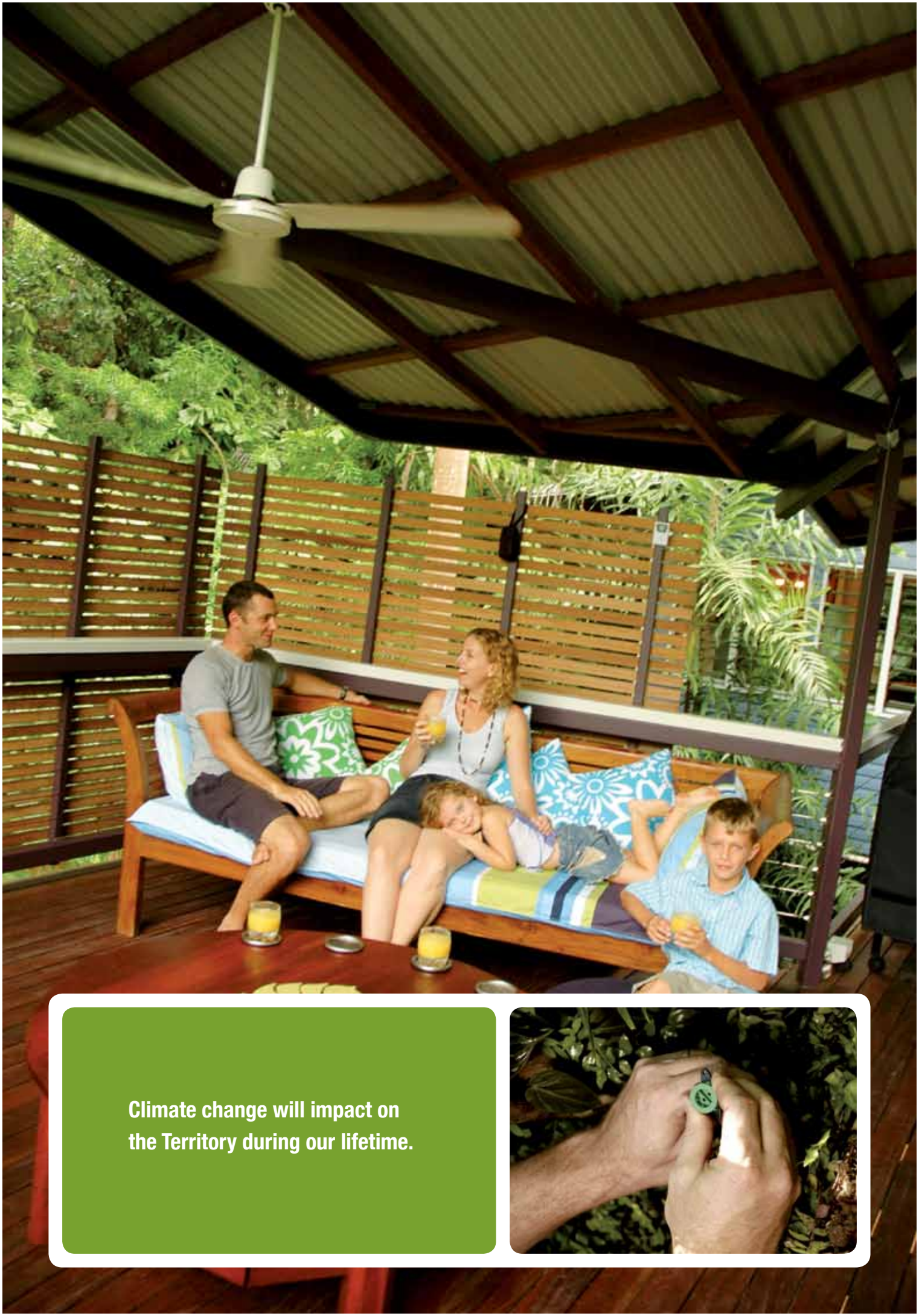
The event, which is held every two years, builds strong links with the automotive industry and the community and communicates engineering and design solutions to transport in a carbon constrained world. The 2009 event was held 24–31 October.

For more information, go to: www.globalgreenchallenge.com.au

Alice Springs – a solar city for the future

In March 2008, Alice Springs was launched as one of Australia's Solar Cities. This $37 million project is designed to explore how solar power, energy efficient technologies and new approaches to electricity supply and pricing could encourage the residents and businesses of Alice Springs to become energy champions and develop a sustainable energy future. The program is proving a great success with numerous households and businesses in Alice Springs participating and receiving financial incentives to carry out energy efficiency measures.

The Territory Government is one of the key consortium members, along with the Australian Government, on the Alice Solar City program. The program encourages Alice Springs residents and businesses to lower their energy use with a range of rebates, advice and financial incentives. Residents can access discounts of 35%–50% for a wide range of energy saving measures.



Climate change will impact on the Territory during our lifetime.

Living with change

Goal

To build the Territory's and Territorians' resilience to climate change and protect the Territory's communities and unique natural environment.

Target 35

By 2011, develop a Territory Climate Change Adaptation Action Plan.

Actions	Outcomes
35.1 Identify, assess and prioritise Northern Territory climate change risks to Territorians, communities, the natural environment and infrastructure and develop strategies to appropriately deal with these risks.	A Northern Territory Climate Change Adaptation Action Plan will be completed by 2011. The Territory will be in a position to deal with the outcomes of climate change that are inevitable. Local governments across the Territory will have incorporated climate change risks into their standard decision-making processes. The Territory will identify and minimise the risks to our people, communities and Territory Growth Towns, key industry sectors, the natural environment and infrastructure arising from climate change.
35.2 Identify, assess and prioritise the health impacts climate change may have on people, communities and the health system in the Territory and develop strategies to appropriately manage these impacts.	The Territory will identify and minimise the risks to Territorians' health and the health system arising from climate change.

35.3 Progress the North Australian Climate Science Initiative; a proposed collaborative partnership between the Territory, Australian, Queensland and West Australian governments on strategies that support climate change adaptation planning and implementation across the Territory and Northern Australia.	Collaborative climate science research projects for Northern Australia in priority climate change areas are carried out to inform the Territory's adaptation response.
35.4 Develop a risk analysis model that identifies the Territory flora and fauna species, environments and sites most susceptible to adverse impacts from climate change.	Identification, prioritisation and management strategies will be in place for vulnerable Territory flora and fauna by 2010.
35.5 Collaborate with research partners across Australia to develop regional climate forecasting tools for land production decision-making.	Robust regional climate change projection tools are in place in Northern Australia by 2011.

Target 36

Take conservation efforts into the 21st century by partnering with landholders to create Territory Eco-link, a 1600 km conservation corridor from the tropics to the desert that will link our national parks and provide the buffer that species need as they adapt to the changing climate.

Actions	Outcomes
36.1 Provide staff and resources immediately to establish Eco-link.	By 2020, the Territory will have Australia's largest portion of connected ecosystems over a significant amount of the Territory's landmass. Reduction in the number of species lost to climate change by ensuring that native plants and animals can relocate to areas with more favourable climatic conditions. Options will be developed to manage the impacts on our ecology as a result of climate change.
36.2 Negotiate with landholders to establish and promote conservation management of lands in the six key corridor links.	

Target 37

The Territory will be a low land-clearing jurisdiction, protecting the 'carbon bank' in our landscape. The rate of clearing will be contained. The government will introduce native vegetation management legislation to protect Territory vegetation.

Actions	Outcomes
37.1 In consultation with stakeholders, develop mechanisms for implementing a land clearing target during 2010 through new native vegetation management legislation.	Options for orderly development are retained while managing greenhouse gas emissions.
37.2 Introduce new native vegetation management legislation in 2011, incorporating regional native vegetation plans, and requiring consideration of greenhouse gas impacts in land use change decisions.	Land use and regional development planning for the Territory will encompass climate change amongst its sustainability considerations.

Target 38

Provide leadership across Northern Australia through continued sustainable water use planning and allocations in the Top End and Central Australia, ensuring water resources are proactively managed to respond to climate change impacts.

Actions	Outcomes
38.1 In consultation with stakeholders, develop a framework for better managing water resources under the additional stresses and uncertainties created by climate change.	Resilience of the Territory's river systems and surrounding landscapes to the impacts of climate change will be strengthened.
38.2 Review the *Water Act.*	Water allocation and planning for the Territory will include climate change considerations. Mechanisms will be in place to deal with new or changed pressures on rivers and catchments from which surface or groundwater are extracted.
38.3 Continue to roll out regional water allocations where water resource extraction has reached a significant portion of likely sustainable yields, giving priority to areas of high conservation value or cultural significance.	Sustainable water use protecting environmentally and culturally significant sites. Greater certainty for potential investors in water dependant developments. Security of drinking water supplies.
38.4 Ensure the Territory's water planning processes continue to address climate variability by using the best science to determine sustainable yields and appropriate security levels in water entitlements.	Accounting for risks due to climate change is explicit in setting security of entitlements. Risks and security of entitlements are well understood by investors and the wider community. Water allocations are conservative and effective in protecting water dependent systems over the long term.

Target 39

Establish community water plans for Territory Growth Towns and remote communities for the sustainable management of water supplies

Actions	Outcomes
39.1 Undertake water supply system risks assessments for Territory Growth Towns and remote communities. 39.2 Publish an Annual Drinking Water Quality Report. 39.3 Publish an Annual Sustainable Water Management Report.	Community water planning supports the best practice management of water resources for Territory Growth Towns and remote communities including response to extraction, recharge and climate change. Community engagement in the development of the water plans will incorporate local needs and aspirations and provide a framework for the efficient use of water.

Target 40

By 2013, develop, test and select new methods to rehabilitate damaged wetlands and protect the Mary River freshwater wetlands and their carbon stores from the risks of rising sea levels.

Actions	Outcomes
40.1 Review experience in the use of submerged barrages in the Mary River and compare results with international experience.	Selection of optimal methods and sites to maximise cost effectiveness.
40.2 Produce river bed profiles using the latest technology such as side-scanning sonar to locate suitable sites for submerged barrages.	
40.3 Establish additional trials of submerged barrages based on reviews and new data.	Highly developed capacity to prevent loss of floodplain wetlands to saline intrusion.
40.4 Develop long-term proposals for effective interventions on the Mary River and elsewhere, including Kakadu National Park and the Arafura Swamp, to protect biodiversity and cultural and recreational values, and maintain or enhance carbon stores.	Effective protection of the Mary River and other critical sites to maintain carbon stores, fisheries and biodiversity values.

Adapting to climate change

Some degree of climate change is now inevitable. In addition to reducing future harm, we also need to live with the inevitable changes. ‘Adaptation’ describes actions taken to reduce the adverse consequences of climate change and appropriately manage risk. Adaptive actions are intended to increase our capacity to respond to climate change risks, increase our resilience, and therefore reduce impacts.

Like the rest of Australia, the Northern Territory’s economy, key industry sectors, environment and communities are vulnerable to the impacts of climate change. Climate change is expected to lead to an increased demand for water and a reduction in yields from existing and proposed water sources where hotter, drier conditions are anticipated. This will be a challenge in Central Australia where water is already a precious resource, particularly for Territory pastoralists.

As sea levels rise, climate change will also impact on coastal floodplains and their rich biodiversity. Native plant and animal species will be susceptible and subject to heightened ecosystem threats, such as fire and weeds. For some plants and animals the Territory may no longer provide a suitable habitat and their numbers will fall, or they will move away from places that have been their traditional habitats.

Our ability to conserve biodiversity and environments will be enhanced if we can:

- understand ecological requirements
- anticipate the impacts of climate change
- maintain large interconnected natural areas
- minimise other threats.

Many adaptation measures can be put in place to prepare for climate change impacts. They include:

- altering agricultural practices and crop varieties
- monitoring and planning for disease and health impacts
- significantly improving the efficient use of water, both to conserve water and also to reduce the amount of electricity used to pump water from its source
- ensuring essential services infrastructure is capable of withstanding rising temperatures and extreme weather events.

Planning processes for asset development and maintenance, particularly buildings, will also need to take into account the impacts of climate change.

Maintaining the connectivity of natural landscapes through projects such as Territory Eco-link is one response that will enable ecosystems to adapt.

Adapting to climate change is a complex process. The best adaptation decisions will be efficient investments that increase our options and ability to deal with a wide range of climatic conditions.

Climate change research

The Territory Government has recognised the need for further research to anticipate, plan and respond to the impacts of climate change. Following consultation with research partners and stakeholders across the Territory and Australia, the priority climate change research themes to 2015 will be:

- adaptation
- living and working green
- transforming to a carbon-constrained economy.

The Territory Government will continue active partnerships with the Australian Government, industry and research institutions including Charles Darwin University, Desert Knowledge Australia and the Desert Knowledge Australia Solar Centre, to find real solutions to adapting to climate change.

Successful partnerships have already involved national research projects investigating climate change impacts on Darwin, Kakadu National Park and other Territory ecosystems.

The Northern Territory's existing expertise and capacity to deal with extreme weather events gives us an advantage in preparing for the adverse affects of climate change. There are, for example, regulatory requirements already in place to build houses and infrastructure that will withstand tropical cyclones in the Top End.

We must increase our capacity to respond to climate change.

Glossary

Adaptation	Describes an adjustment in natural or human social or economic systems in response to actual or expected climate change that moderates harm or exploits beneficial opportunities.
Afforestation	The planting of new forests on lands not recently forested. Under the Kyoto Protocol, afforestation is defined as the direct human-induced conversion to forested land that has not contained a forest for at least 50 years.
Article 3.4 Kyoto Protocol	Article 3.4 of the Kyoto Protocol provides optional activities that countries may elect to count towards their national emissions inventory. Additional primary sources are carbon sequestration in soil and crops, revegetation, grazing land management and forest management (plantation forests established prior to 1990 and native forests under management). At present, the Australian Government has elected not to include Article 3.4 activities in its national greenhouse accounts, determining that the risks to meeting Australia's Kyoto emissions target from accounting for Article 3.4 outweigh likely benefits. However, there is ongoing debate by member countries, including Australia, about the inclusion of Article 3.4 activities in the next iteration of the Kyoto Protocol, currently under development.
Baseline	A projected level of future emissions against which reductions by project activities could be determined, or emissions that would occur without policy intervention.
Baseload power	A steady supply of power over a constant time, as opposed to peak load power, which provides for higher demand at particular times.
Biochar	A type of charcoal produced from heating natural organic materials such as crop or municipal waste in an oxygen limited environment, through a process known as pyrolysis. The production of biochar yields bio-energy in the form of synthesis gas, which can then be used to produce heat or power. It is also used to improve soil fertility in agricultural practices, by improving the soil's ability to sequester carbon.
Biodiversity	Is a whole chain of life for a particular ecosystem; including the plants, animals and micro-organisms, and their genes.
Biosequestration	The absorption of greenhouse gases from the atmosphere by living organisms such as plants or algae. Biosequestration may take place through a range of processes including forestry programs, vegetation planting, or algal growth programs.

Carbon	Carbon is used in this policy, in general, to refer to the six major greenhouse gases.
Carbon abatement	The reduction of greenhouse gas emissions, or removal of greenhouse gas from the atmosphere by sinks.
Carbon capture and storage (CCS)	CCS refers to the technology used to capture and store greenhouse gas emissions from energy production or industrial processes. Captured emissions have the potential to be stored in a variety of geological or ocean sites, including rock formations (see geosequestration).
Carbon mitigation	Carbon mitigation is a term used to define actions and/or measures use to curb carbon production and/or emissions.
Carbon offsets	Represent reductions in greenhouse gases relative to a business-as-usual baseline. They are tradable and often used to negate (or offset) all or part of another entity's emissions. An offset takes place through a project that indirectly reduces greenhouse gas emissions at one source by investing in greenhouse gas emissions reductions elsewhere, such as forestry plantations that store carbon. Carbon credits are used by purchasers to offset greenhouse gas emissions liabilities from their own activities.
Carbon permit	A basic unit of compliance and trade in the Carbon Pollution Reduction Scheme.
Carbon Pollution Reduction Scheme (CPRS)	The Australian Government's proposed national emissions trading scheme as at December 2009. www.climatechange.gov.au/government/initiatives/cprs.aspx
Carbon sequestration	The long-term storage of carbon dioxide in forests, soils, oceans or underground in depleted oil and gas reservoirs, coal seams, or saline aquifers.
Carbon sink	A reservoir which removes and stores carbon from the air, hence lowering the amount of carbon dioxide in the atmosphere. A sink can be natural or man-made and can store carbon for an indefinite period of time.
Carbon source	The actual cause of release of greenhouse gases, for example the burning of coal, oil, gas or biomass.

Charles Darwin University/ Northern Territory Government Partnership Agreement	The partnership between the Charles Darwin University and the Territory Government provides for the economic and social development of the Northern Territory, with government agencies and the wider community contributing to education, research, policy development and program delivery. www.cdu.edu.au/government
Climate change	Used to describe global warming arising from atmospheric emissions created by human activity.
Climate Change Action Fund (CCAF)	Proposed by the Australian Government to assist businesses, the community and households transition to a low carbon economy. It is part of the Carbon Pollution Reduction Scheme. www.climatechange.gov.au/government/initiatives/cc-action-fund.aspx
Cogeneration	Cogeneration is a high-efficiency energy system that produces both electricity (or mechanical power) and heat from a single fuel source. This system has economic and environmental benefits because it turns wasted heat into a useful energy source. The greater efficiency achieved means carbon dioxide emissions are cut by up to two-thirds when compared with conventional coal-fired power stations.
Combined cycle gas turbine (CCGT)	A CCGT is a gas turbine with an exhaust that is used to heat a boiler, allowing generators to be driven by both a gas turbine and a steam turbine.
Ecosystems	Ecosystems are a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Energy efficiency	Energy efficiency is the process of reducing energy or demand requirements without reducing the end-use run-on benefits.
Fugitive emissions	Fugitive emissions are produced during energy sector processes, but are not attributable to energy use or direct energy production processes. Included in this category are emissions from coal mining/handling and oil/gas production, processing and transportation.
Geosequestration	A technology that stores liquid carbon dioxide in deep underground rock structures.

Geothermal	Geothermal is a heat which comes from the interior of the earth, which can be converted to energy.
Gigawatt hour (GWh)	A unit of energy equal to 1 billion watts. Energy in gigawatt hours is the product of power in gigawatts multiplied by time in hours.
Greenhouse gas (GHG)	An atmospheric gas responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2), hydrofluorocarbons (HFCs), perfluorocarbon (PFCs) and sulphur hexafluoride (SF_6).
Green Star	An Australian office building environmental rating scheme developed and administered by the Australian Green Building Council. www.gbca.org.au/green-star/
Kyoto Protocol	An international treaty created under the United Nations Framework Convention on Climate Change (UNFCCC) in 1997. It entered into force in 2005. Among other things, the Kyoto Protocol sets binding targets for the reduction of greenhouse gases by developed countries. It includes individual reduction targets for Annex 1 countries to be met within the first commitment period of 2008–12. Australia ratified the Kyoto Protocol in 2007.
Land clearing (or deforestation)	The clearing of forested land to an alternative, non-forest use.
Mandatory disclosure	Mandatory disclosure describes the laws and regulations which dictate that certain types of information that must be disclosed.
Mitigation	A human intervention to reduce the sources or enhance the sinks for greenhouse gases.
NABERS	National Australian Built Environment Rating System (NABERS) is a performance-based rating system that measures an existing building's overall environmental performance during operation. www.nabers.com.au/
NatHERS	The National House Energy Rating Scheme (NatHERS) is based on the allocation of star ratings to houses according to how well they are designed to minimise the need for energy use to maintain comfort (such as whitegoods are currently Star Rated and labelled). www.nt.gov.au/infrastructure/bss/strategies/nathers.shtml

NAILSMA	The North Australian Indigenous Land and Sea Management Alliance (NAILSMA) is an organisation working with traditional owners to further develop fire management projects across four projects areas of the Northern Territory, Queensland and Western Australia.
Reforestation	Reforestation describes the natural or man-made regeneration of (new) vegetation on land which has not contained vegetation for whatever reason. Under the proposed Carbon Pollution Reduction Scheme (CPRS), there is a specific definition for reforestation projects. In line with international accounting guidelines, the Australian Government has defined an eligible reforestation project under the CPRS as that which is established by direct, human induced methods, has the potential height of at least two metres and crown cover of at least 20%, occupies an area of land of 0.2 hectares or more, and is on land that, as of 31 December 1989, was clear of forest.
Renewable energy	Energy that comes from renewable sources and that has an unlimited supply, such as the sun, wind, tides and geothermal.
Renewable energy certificates	An electronic form of currency initiated by the Australian Government's *Renewable Energy (Electricity) Act*, 2000. A renewable energy certificate or REC is obtained for every one megawatt-hour (1000 kilowatt-hours) of electricity produced by an approved renewable generator. Owners of eligible solar systems can sell their RECs to partially offset the cost of installing this renewable energy technology. www.orer.gov.au/recs/
Renewable energy target	The expanded Renewable Energy Target (RET) scheme has been established to encourage additional generation of electricity from renewable energy sources to meet the commitment to achieving a 20% share of renewables in Australia's electricity supply in 2020. The RET legislation: • places a legal liability on wholesale purchasers of electricity to proportionally contribute to an additional 45 000 gigawatt hours (GWh) of renewable energy per year by 2020. • sets the framework for both the supply and demand of renewable energy certificates (RECs) via a REC market.

Savanna burning	Is the single largest source of greenhouse gas emissions in the Northern Territory, producing 33% of all Territory emissions in 2007. Savanna burning occurs for a variety of reasons, including improved pasture production, fuel reduction, preventative burns to reduce wildfires, to protect life and property and customary Indigenous burning. Under international guidelines, greenhouse gas emissions from burning of savannas are treated as agricultural emissions, and are therefore reported under the agriculture sector in Australia's National Greenhouse Gas Inventory. www.climatechange.gov.au/climate-change/emissions/progress.aspx
Solar photovoltaic system	A renewable energy system that uses energy particles generated from sunlight to produce voltage in solar cells which is converted to power for domestic and commercial use.
Solar thermal	Solar thermal technology harnesses the sun's energy to produce thermal energy, creating high temperature steam or low temperature heat.
Stationary energy emissions	Emissions from fuel consumption for electricity generation, fuels consumed in manufacturing, construction and commercial sectors and other sources such as domestic heating.
WALFA	The West Arnhem Land Fire Abatement Project (WALFA) is a partnership between traditional owners and Indigenous ranger groups, ConocoPhillips, the Territory Government and the Northern Land Council to implement strategic fire management in the Top End to offset greenhouse gas emissions from the LNG plant at Wickham Point.

Adapted from: http://www.climatechange.gov.au/en/publications/cprs/white-paper/~/media/publications/white-paper/V2Glossary-pdf.ashx

Additional notes

1. The conversion rate of the number of cars removed from the road per tonne of carbon dioxide equivalent used throughout this policy is based on a petrol-powered sedan with an average manufacturer-rated fuel consumption of 9 litres per 100 km travelling 15 000 km per year and producing an average of 3.24 tonnes of carbon dioxide. This approximate estimation is for illustrative purposes; it is in line with Australian Design Regulation 81/02 and sustainable transport data provided by the Australian Government Department of Environment, Water, Heritage and the Arts.
2. ecoBiz NT © The State of Queensland (Environmental Protection Agency) 2008.
3. Photos on page 38 courtesy of Peter Cooke and Terry Mahney.

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