Department of Environment and Resource Management

Toward Q2 Carbon Target 2011—2012 Target Delivery Plan

Cut by one third Queenslanders' carbon footprint with reduced car and electricity use

Tomorrow's Queensland: strong, green, smart, healthy and fair

Toward Q2 Tomorrow's Queensland | Queensland Government

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Part 1: Outline of the target

Target: Cut by one-third Queenslanders' carbon footprint with reduced car and electricity use

Definition of target

- The Q2 carbon target is determined from average Queensland household greenhouse gas emissions (carbon dioxide equivalent), including emissions from electricity use, fuel consumption, and waste to landfill.
- The target provides a representative sample of key components of household carbon emissions that can be measured and reported by the Queensland Government on an annual basis.

Measurement

- Emissions from electricity use, fuel consumption, and waste to landfill per household in Queensland.

Reporting

- Changes to the average Queensland households' carbon footprint will be reported annually.

Complementary indicators

- Number of requests for ClimateSmart Home Service reported quarterly by Office of Climate Change, Department of Environment and Resource Management.
- Number of customers participating in the Solar Bonus Scheme reported six monthly by Office of Clean Energy, Department of Employment, Economic Development and Innovation.
- Number of solar hot water systems rebated reported quarterly by Office of Clean Energy, Department of Employment, Economic Development and Innovation.
- Number of passenger trips made in SEQ on bus, rail and ferry services reported quarterly by Translink Transit Authority through Department of Transport and Main Roads.

Baseline

- According to data available when Toward Q2 was released on 8 September 2008, the average Queensland household carbon footprint was calculated to be 13.77 tonnes of greenhouse gas emissions (carbon dioxide equivalent) in 2006-07. This comprised: electricity emissions (8.24 tonnes), fuel emissions (4.23 tonnes) and waste-related emissions (1.3 tonnes).

Lead department

- Department of Environment and Resource Management

Contributing departments

- Department of Employment, Economic Development and Innovation
- Department of Local Government and Planning
- Department of Transport and Main Roads

About the target

The risks to Queensland from climate change are high and provide a strong incentive for Queenslanders to take action at the individual, household and community level to reduce their greenhouse gas emissions. The Q2 carbon target for the household sector complements government action across our major sectors – energy, industry, planning and building, primary industries, transport and government – to reduce emissions across the economy.

Indicative modelling suggests the average Queensland household carbon footprint will fall to around 10.09 tonnes in 2020. While current investments and policy programs are expected to reduce household emissions, there is still a forecast gap of 0.92 tonnes between the projected household greenhouse gas emissions and the Q2 carbon target in 2020.

The challenge for the Queensland Government is to develop additional policies and programs that support community action to reduce household carbon emissions. This action will need to be spread across the three Q2 carbon target component areas of reduced car and electricity use, and reducing waste to landfill.

Progress

To cut Queenslanders' carbon footprint by one-third, Queensland households must reduce their average annual greenhouse gas emissions from 13.77 tonnes to 9.18 tonnes by 2020. In 2008-09, average household emissions were 13.20 tonnes which means Queenslanders have achieved approximately 12% of the total reduction required in the first two years.

Progress to date has been driven predominantly by improved emissions intensity of Queensland electricity generation through measures such as the Queensland Gas Scheme, improved vehicle efficiency, and improved appliance and building efficiency.

Strategies

The key strategies driving progress toward the Q2 target outlined in this target delivery plan include new measures to deepen and broaden the engagement of households in reducing greenhouse gas emissions through a package of measures tailored to each household. These include:

- Delivering a refreshed and reinvigorated ClimateSmart Home Service which provides over $400 in value for Queenslanders for only $50. In addition to the most popular elements of the original service (such as the wireless power meter, water saving shower head, compact fluorescent lights and the visit by an electrician) the refreshed service now includes:
  - a stand-by power eliminator, helping households reduce their stand-by power usage
  - adjustments to electric hot water system thermostats, to reduce unnecessary energy use on overheating a household's hot water
  - a voluntary personalised energy efficiency target, to guide households towards achieving a target for reducing their energy use
  - improved post service customer support, helping customers even more to manage their electricity use.
- Continuing the existing the TravelSmart behaviour change program which is being rolled out directly to communities, schools, and workplaces and is aimed at supporting households to choose more sustainable transport options such as walking, cycling and public transport.
- Continuing existing and new sustainable housing measures to deliver emissions reduction benefits for every new house built.
- Delivering urban land use planning and investments – such as busways, cycle paths and train lines – to support increased active and public transport patronage and reduce dependency on private transport.
- Implementing a range of new waste avoidance programs under the Queensland Waste Strategy to convert household organics into beneficial products rather than landfill disposal.
- Supporting national action on pricing carbon dioxide emissions, which, together renewable energy target, should significantly emissions intensity of electricity used in Queensland households.

Part 2: Annual Action Plan 2011–2012

Action	Why	Impact
Phase out electric hot water systems from 2010 in existing homes Implementing the National phase out of electric hot water systems in existing homes through amendments to the Queensland Plumbing and Wastewater Code. This is part of the National Hot Water Strategic Framework and response to the Commonwealth Regulatory Impact Statement (RIS) endorsed by the Ministerial Council on Energy in December 2010. Lead department – DLGP Related service: SDS p. 2- 2-86; SDS p .2-88 More information about the phase out electric hot water systems can be found at www.dlgp.qld.gov.au/	Since January 2010 it has been a requirement that electric resistance hot water systems that need to be replaced in an existing house or townhouse in a gas reticulated area in Queensland must be replaced with a greenhouse efficient system. 75% of hot water systems in Queensland are powered by electricity, and a typical electric hot water system accounts for more than a quarter of a typical Brisbane household's greenhouse gas emissions.	It is estimated that extending the phase out to all houses and townhouses will save up to 24 million tonnes of greenhouse gas emissions by 2030. The Commonwealth RIS predicted an estimated 149,150 hot water systems will be replaced annually in Queensland. Reporting will be based on the number of rebates for hot water systems (available from the Department of Employment, Economic Development and Innovation) plus the number of gas systems installed (figures from industry – availability to be confirmed) minus the number of new houses built within a reporting period. Reporting will occur biannually (January and June) as part of normal government estimates and the budgetary process.
Solar Hot Water Rebate The scheme provides rebates for the installation of solar hot water systems and heat pumps to households which replace an electric hot water system. In 2011-12, over 20,000 rebates are expected to be paid to Queensland households. Lead department – DEEDI Related service: SDS p. 2-76 More information about the solar hot water rebate can be found at www.qld.gov.au/solar	The Solar Hot Water Rebate supports increased uptake of clean, green energy efficient technology by householders and contributes to driving the development of the renewable energy industry.	Each solar hot water system may result in greenhouse gas savings of up to 2 tonnes per year or approximately 30 tonnes over the life of the system. If the revised target of 40,000 solar hot water systems are installed under this scheme, it is estimated that up to 1.2 million tonnes of greenhouse gas emissions could be saved over the life of the systems. As at end June 2011, over 19,500 households received a rebate, resulting in approximately 585,000 tonnes of greenhouse gas emissions potentially saved over the life of the systems.
ClimateSmart Home Service As at the end of June 2011, over 272,000 Queensland households have signed up to ClimateSmart Home Service. From July 2011 the service has been refreshed and reinvigorated with new products and services, with householders enjoying a service worth over $400, for only $50 which, in addition, to the most popular elements of the original service such as the wireless power meter, water saving shower head, compact fluorescent lights and the visit by an electrician, now includes: a stand-by power eliminator, helping households reduce their stand-by power usage; • adjustments to electric hot water system thermostats, to reduce unnecessary energy use on overheating a household's hot water; • a voluntary personalised energy efficiency target, to guide households towards achieving a target for reducing their energy use; and • improved post service customer support, helping customers even more to manage their electricity use. Lead department – DERM Related service: SDS p. 3-118 More information about the ClimateSmart Home Service can be found at www.climatesmarthome.com/	The revised package will deepen and broaden the engagement of households in reducing their greenhouse gas emissions by integrating energy efficiency programs into a package of measures tailored to each household.	Over the four year life of the program, approximately 430,000 Queensland households could achieve an estimated combined saving of 4.7 million tonnes of greenhouse gas emissions over the life of the products installed during the service.

Action	Why	Impact
Sustainable Buildings Program Mandating energy efficiency requirements for new and existing residential, commercial and industrial buildings through the Queensland Development Code. Building Codes Queensland is in the process of commissioning research that will use Q2 baselines to identify emissions reductions resulting from 6* housing. This will provide a basis for future reporting on this measure (i.e. number of new homes times the emissions reduction per house). Lead department – DLGP Related service: SDS p. 2-86; SDS p. 2-88 More information about the sustainable buildings program can be found at www.dlgp.qld.gov.au/	Almost one quarter of all greenhouse gas emissions in Australia can be linked to the commercial and residential building sectors. In a business as usual scenario, greenhouse gas emissions are predicted to increase by 78 percent for residential buildings and 154 percent for commercial buildings. Expanding existing energy efficiency measures to commercial and industrial buildings and taking advantage of new technologies for reducing energy use can help Queensland buildings be designed, built and managed more efficiently and so reduce emissions.	Many impacts of the action will be long-term and not able to be reported on during 2011-12. In the short term the following impacts can be reported: • The number of 6-Star houses built in Queensland (Building Approvals ABS Cat. 8731.0 – updated monthly) • Sustainability amendments to Queensland Development Code Reporting will occur biannually (January and June) as part of normal government estimates and the budgetary process.
Solar Bonus Scheme Participating households in Queensland are paid 44 cents per kilowatt-hour for the excess electricity they contribute to the grid from their solar photovoltaic systems. Lead department - DEEDI Related service: SDS p. 2-7; SDS p. 2-12 More information about the solar bonus scheme can be found at www.cleanenergy.qld.gov.au/solar_bonus_scheme.cfm	The Scheme aims to make solar power more affordable for households, encourage energy efficiency, and support the development of the renewable energy industry in Queensland.	Households can reduce emissions by up to 2.25 tonnes per year (for an average 1.5kW system) over the life of the system. These savings are not represented in the modelling as a proportion is already accounted for under reduced emissions intensities attributable to the Renewable Energy Target (RET). As at 30 June 2011, over 96,700 customers have signed up to the Solar Bonus Scheme connecting over 211 megawatts of solar generation capacity.
Regional planning Regional planning plays a key role in helping Queensland meet the challenges associated with managing rapid growth, population change, economic development, and protecting the environment and infrastructure provision across multiple local government areas. It is a core element of Qplan - Queensland's new planning, development and building system. Regional planning provides the ability to collaboratively plan sustainable and dynamic communities through integrated land use and transport planning. There are currently six statutory regional plans: Central West; Far North Queensland; South East Queensland; South West Queensland; North West Queensland and Maranoa-Balonne. Regional Plans are currently being developed for Wide Bay Burnett and Whitsunday, Hinterland and Mackay. Lead department - DLGP More information about regional planning can be found at - www.dlgp.qld.gov.au	Regional Plan policy frameworks support Queensland to reduce emissions from electricity, fuel use and waste. Electricity-related emissions can be minimised through local governments incorporating clean energy and ClimateSmart design policies from Regional Plans into planning schemes, master plans, policies and codes. Fuel use can be reduced through the utilisation of principles focussing on a consolidated settlement pattern and sustainable transport to reduce the number and distance of car trips and increase the trips undertaken by sustainable transport modes. Waste emissions can be minimised by incorporating sustainable waste management principles and policies from Regional Plans into planning schemes that help avoid, reuse and recycle waste and encourage energy recovery from landfills.	Due to the long lead-times associated with this form of development, the benefits are unlikely to be measurable in the short term; however the long-term impacts can be large.

Action	Why	Impact
Integrated Regional Transport Plans Integrated Regional Transport Plans (IRTPs) will continue to be developed by the Department of Transport and Main Roads (TMR). These plans are the guiding transport planning and policy documents that consider land use planning and road, rail and bus networks, bikeways and pedestrian paths to move people and goods. IRTPs support Regional Plans developed by the Department of Local Government and Planning. During 2011-2012, *Connecting South East Queensland 2031 - an Integrated Regional Transport Plan for South East Queensland* will be completed. IRTPs for the following five regions will continue to be developed in 2011-2012, Far North Queensland, Wide Bay Burnett, North West Queensland, North Queensland, and Mackay, Isaac, and Whitsunday. In 2011-2012, IRTPs will be initiated for the following regions, Darling Downs, South West Queensland (including Maranoa and Balonne), Central Queensland, and Central West Queensland. Lead department - TMR More information about the IRTPs can be found at www.tmr.qld.gov.au	The forecast population growth in the state means that transport trips will increase in number and distance. This will increase vehicle greenhouse gas emissions released into the atmosphere. Transport integration along with improved land use as outlined in IRTPs can increase the proportion of trips undertaken by more active transport modes (such as walking and cycling) and public transport and reduce the number and distance of private vehicle trips.	Due to the cost and length of time required to implement significant transport infrastructure in accordance with IRTPs, the full impact of IRTPs will generally only be realised in the long term. As IRTPs are developed in consideration of unique factors relevant to each region such as existing transport networks, population projections, residential areas and activity centres, the impact of IRTPs will vary from region to region. In the short term, the impact of IRTPs can be estimated through the analysis of the following data. • Vehicle kilometres travelled for journey to work – obtained through the Australian Bureau of Statistics (ABS) and based upon Census information (collected every five years). • Journey to work mode share data also obtained through the ABS and based upon Census information. The review of finalised IRTPs occurs in line with both Regional and Queensland Infrastructure Plans every five years.
Delivering high quality walking and cycling infrastructure Throughout 2011-2012 TMR will continue to make significant investment in delivering high quality active transport (walking and cycling) infrastructure. This investment will provide a connected network of cycle and pedestrian facilities that encourages increased use of sustainable modes of travel. For example, construction will continue on the Veloway 1 (V1) Cycleway, which will complete a missing link between Holland Park and Stones Corner in South East Queensland. Once complete, cyclists will be able to travel on a dedicated off-road path from Brisbane City to the Gateway Motorway off-ramp at Eight Mile Plains. In addition, TMR will be providing cycle facilities along David Low Way from Petrie Creek Road to the Maroochy River, Bli Bli and Williams Street to Emu Mountain Road, Coolum Beach. Lead department - TMR More information about active transport infrastructure can be found at www.tmr.qld.gov.au	Increased use of active transport can make an important contribution to reducing transport-related greenhouse gas emissions, by replacing some emissions intensive private vehicle trips.	TMR is currently developing a methodology for measuring both the costs and benefits of delivering active transport facilities in transport infrastructure projects. One of the benefits to be measured using the methodology is greenhouse gas emissions reduction. The methodology will allow the assessment of facilities both before and after construction. This methodology will be completed in 2011-2012.

Action	Why	Impact
Investing in public transport infrastructure and services TMR will continue major investment in public transport infrastructure and services across South East Queensland in 2011-2012. This critical investment will ensure the provision of a more efficient and accessible public transport network, which results in more Queenslanders choosing sustainable transport options. Key passenger transport projects to be progressed or completed include the following: continued delivery of the Eastern Busway; progress on the delivery of the Gold Coast Rapid Transit; and advancement of the Moreton Bay Rail Link. Lead department - TMR Further information about the major infrastructure projects detailed above can be can be found at www.tmr.qld.gov.au, whilst more information about passenger transport services is available from www.translink.com.au. Information about the Gold Coast Rapid Transit project can be found at http://goldcoastrapidtransit.qld.gov.au/.	Increased use of sustainable modes of travel such as active transport, carpooling and public transport can make an important contribution to reducing transport-related greenhouse gas emissions by replacing some emissions intensive private vehicle trips.	The impact of delivering public transport infrastructure and services can be estimated (in South East Queensland) through the analysis of the number of passenger trips by bus, rail and ferry as calculated by the TransLink Transit Authority. Upon completion of the second stage of the Eastern Busway, a 1.5 hour a week reduction of travel time for regular commuters between Buranda and Coorparoo is estimated. Every full bus of 60 passengers will take 40 cars off the road (an average of 1.5 persons per car). It is anticipated the Gold Coast Rapid Transit system will generate a number benefits for the city including: • reducing local greenhouse gas emissions by 114 000 tonnes over the first 10 years of operation; • reducing the number of private vehicle trips by up to 10 per cent; and • providing a frequent, affordable and reliable alternative to car travel. At this time, infrastructure in the Moreton Bay region is heavily geared towards cars. More than half (54%) the region's population departs the area everyday to travel to work with the vast majority (83%) using a private vehicle for their journey. Preliminary modelling indicates that in 2016 when the Moreton Bay rail link opens it will be used for approximately 10,000 passenger boardings per day. This will result in a significant decrease in the number of trips per day made by car and a corresponding reduction in the level of greenhouse gas emissions.

Action	Why	Impact
TravelSmart During 2011-2012 TMR will continue to deliver the TravelSmart travel behaviour change program. This program will be delivered across South East Queensland and comprises three projects - TravelSmart Communities, TravelSmart Workplaces and TravelSmart Schools. TravelSmart is a voluntary travel behaviour change program aimed at encouraging people to reduce private vehicle use in favour of more sustainable transport options including walking, cycling, carpooling and public transport. Increased use of sustainable transport can assist in the management of traffic congestion on Queensland roads, which in turn reduces transport-related greenhouse gas emissions. The delivery of the TravelSmart program aligns with the Queensland Government's role in managing transport-related impacts on the natural and built environments, as well as improving the health and well-being of Queenslanders. Lead department - TMR More information about TravelSmart can be found at www.travelsmart.qld.gov.au.	Increased use of sustainable modes of travel such as active transport (walking and cycling), carpooling and public transport can make a contribution to reducing transport-related greenhouse gas emissions, by replacing some emissions intensive private vehicle trips.	Success of the TravelSmart program is determined through an evaluation process undertaken at the end of each delivered project. This can involve an analysis of results from online surveys and the South East Queensland Household Travel Survey. The number of people replacing single-occupant car use with walking, cycling and public transport is examined. **TravelSmart Communities** An independent evaluation of the TravelSmart Communities project will be available in March 2012. **TravelSmart Schools** The impact of the TravelSmart Schools project will be assessed through the surveying of parents and children of participating schools about their travel behaviour at the beginning, during and end of the school year. **TravelSmart Workplaces** The impact of the TravelSmart Workplaces project will be assessed through the surveying of staff from participating workplaces about their travel behaviour at the beginning, during and end of the project
Managed Motorways (intelligent transport systems) In 2011-2012 TMR will continue to rollout Managed Motorways infrastructure across major road networks in South East Queensland. Managed Motorways is a smart infrastructure application that uses innovative computer-based intelligent transport system tools, combined with state-of-the-art communications and control systems to provide integrated operations across the motorway network. Managed Motorways aims to improve traffic flow, reduce traffic congestion and increase motorway efficiency and productivity. Throughout 2011-2012, Managed Motorways will be delivered across the following motorways in South East Queensland: Western Freeway; Pacific Motorway; Ipswich Motorway; and Houghton Highway. Lead department – TMR More information about Managed Motorways can be found at www.goingplaces.qld.gov.au	Managed Motorways infrastructure is a key element in keeping Queensland traffic flowing, which can reduce transport-related greenhouse gas emissions, as fuel consumption is decreased when vehicles operate at consistently higher speeds.	To measure the impact of Managed Motorways in 2011-2012, TMR will measure the travel speed and travel time along various stretches of motorway, before and after the implementation of ITS. This action relates to the Service Standard of measuring road transport-related greenhouse gas emissions (carbon dioxide equivalent tonnes per capita), which assists to assess the effectiveness of strategies to combat potential increases in emissions.

Action	Why	Impact
Waste Reduction and Recycling Strategy Queensland's Waste Reduction and Recycling Strategy 2010-2020 will provide support to local governments and householders in reducing emissions through measures such as diverting organic waste from landfill. The strategy also introduces a waste levy that will fund a range of waste avoidance programs to be rolled out in the third quarter of 2011 including: • Market Development for Recycled Materials to ensure that a fit for purpose recycled organics end market develops; and • Infrastructure Grants - to complement the Market Development Grants to ensure sufficient infrastructure to provide a certainty of supply for recycled organics for proposed markets. Lead department - DERM Related service: SDS p. 3-118 More information about the Waste Strategy can be found at www.derm.qld.gov.au/waste	Diverting organic waste from landfill, landfill gas flaring and gas-to-energy projects can be cost-effective greenhouse gas abatement as a tonne of methane has 21 times the impact of a tonne of CO_2 in the atmosphere.	The relative benefits of the different approaches to reducing emissions from waste will vary between local government areas. In some local government areas landfill gas flaring or landfill gas-to-energy projects will be the most effective approach to reducing emissions. By comparison, other local government areas will benefit from offering green waste and food waste collection services. These measures will assist in meeting the 2014 Municipal Solid Waste and Construction and Demolition Waste targets, which require the recovery of approximately 600,000 tonnes of organic material per annum and deliver emissions savings of approximately the same amount.


www.towardsQ2.qld.gov.au
www.climatechange.qld.gov.au