



11 April 2008

Professor Ross Garnaut
Garnaut Climate Change Review
Level 2, 1 Treasury Place
MELBOURNE VIC 3002

Sent by email: contactus@garnautreview.org.au.

Dear Professor Garnaut

RE: Garnaut Climate Change Review Transport Issues Paper No. 5

In response to your invitation to make a submission to the Garnaut Climate Change Review on Transport Issues Paper No. 5, the Qantas Group is pleased to outline its approach to minimising its climate change impact and put forward suggestions on Government policies that would accelerate the reduction in aviation carbon emissions.

Aviation is fundamental to the Australian way of life. It is a transport mode that safely and affordably connects our citizens to each other and to the world. Australia is reliant on air transport to support business including the tourism industry, as well as to deliver time sensitive freight. Tourism creates jobs for half a million Australians and last year contributed \$74 billion to the country.

While public demand for aviation continues to grow, as a producer of greenhouse gases, we acknowledge that aviation must play its part in reducing its greenhouse emissions. Environmental responsibility is at the top of the aviation industry's agenda and we are already on a path to a lower emissions future. More can be done, and all parts of our industry, airlines, airports, air navigation services providers, and manufacturers are contributing to the effort. The Australian Government will also have an important role to play by developing a regulatory framework that addresses the issue of climate change without undermining Australia's economic development or international competitiveness.

The Qantas Group is committed to growing its operations in an environmentally sustainable manner and is seeking to manage its environmental footprint in all areas of the Group's operations – inflight and on the ground. The Group has set challenging environmental improvement targets for delivery by June 2011. This includes a goal to significantly improve fuel efficiency, resulting in sizeable carbon emissions savings.

The Qantas Group is also taking this opportunity to put forward for your consideration enhancements to Government policies that would accelerate the reduction of aviation emissions by encouraging airlines to invest in the cleanest available technology. These policies include:

- Supporting improved infrastructure including Air Traffic Management;



- Recognising trade-offs between different environmental priorities such as noise versus carbon emissions;
- Increasing tax incentives to support research and development into low emission aviation fuel types;
- Introducing Tax incentives to deploy the cleanest technology aircraft and engines as soon as they become available;
- Accelerating inclusion of international and renewable energy offsets into Greenhouse Friendly™ ; and
- Confirming the tax deductibility for greenhouse abatement activity.

The Qantas Group supports fair and balanced market-based measures including emissions trading schemes (ETS) that do not increase competitive distortion among airlines and between industries and regions. Schemes should allow the market to find the most efficient and cost effective way to reduce emissions without undermining international competitiveness or creating additional trade barriers.

As an industry we have made continuous efficiency improvements over a long period. This submission proposes several policies that could accelerate further gains. Nevertheless, the next major technological breakthroughs are still some years away and we will need time to adjust when an ETS is introduced, particularly in light of the broader benefits we bring to the national welfare.

Qantas will put forward a separate submission to the Garnaut Review on the design features of an Australian emissions trading scheme, including comments on tax-related matters relevant to an Australian scheme.

The Qantas Group would welcome the opportunity to discuss this submission with the Garnaut Climate Change Review in more detail.

Yours sincerely

Rob Kella
Chief Risk Officer



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Qantas Group Response to the Challenge of Climate Change

**Submission to the Garnaut Climate Change Review
Issues Paper No. 5: Transport, Planning and the Built
Environment**

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Introduction

Australia is more vulnerable to the potential impacts of climate change than many developed nations. We have an abundance of nature-based destinations like the Great Barrier Reef that are profoundly fragile and tourism would lose out if the effects of climate change are as predicted. As a nation, we have a strong interest in effective climate change policies being implemented, not just in Australia, but also on a regional and global level. Since Australia ratified the Kyoto Protocol in December 2007, we have taken a leading role on the world stage in moving the climate change debate forward in a constructive and pragmatic manner.

As a visible producer of greenhouse gases, aviation has had a high profile in the climate change debate. Aviation accounts for 2% of global CO₂ emissions and this could grow to 3% by 2050, if there are no substantial technological breakthroughs. Globally, the transport sector accounts for 14% of carbon emissions, with road transport responsible for 76% of this total, air 12%, shipping 10% and rail 2%. In Australia, civil aviation contributes nearly 1% of the country's domestic carbon emissions, which is 6% of the transport footprint.

There is ongoing debate and scientific uncertainty around the warming impact of emissions at high altitude (radiative forcing). There is a good understanding around the greenhouse impacts of CO₂ and water vapour. Nitrogen oxides (NO_x) contribute indirectly by creating ozone in the lower atmosphere. There is significant scientific disagreement concerning the effect of aircraft contrails and associated cirrus cloud formation, as well as the methane-reducing capabilities of NO_x. Many environmental groups believe aviation's impact might be greater than two times that of emissions released on the ground. In Australia, the Tourism and Transport Industry Forum (TTF) has commissioned the CSIRO to produce a paper to better inform discussions. The Qantas Group supports this work.

Globally, 80% of aviation CO₂ emissions are related to flights over 1,500 km for which there is no comparable mode of transport. In Australia, there is no economically realistic alternative to air travel and air freight. A country of our size and geographic dispersion is reliant on air transport to efficiently connect our citizens to each other and to the world. Australia is to most of the world, a long-haul destination. Qantas Group airlines offer services across a network covering 140 destinations in 37 countries – 57 in Australia and 83 in other countries (including those covered by codeshare partners) in Australia, New Zealand Asia and the Pacific, the Americas, Europe and Africa. Many Australian regional communities would be completely isolated and severely disadvantaged without access to the air services that the Qantas Group provides.

Australia is reliant on air transport to support business including the tourism industry, as well as to deliver time sensitive freight. The Qantas Group is the most significant non-government contributor to Australian tourism. Tourism creates jobs for half a million Australians and last year contributed \$74 billion to the country. Qantas' primary focus is on Australian tourism rather than making Australia an ancillary stop on the way to building passenger volumes through another destination.

Environmental responsibility has always been high on the aviation industry's agenda and we are already on a path to a lower emissions future. Over the past 40 years, noise has been cut by 75%, CO₂ intensity has improved by 70% and hydrocarbon and soot emissions have been almost eliminated. Today's modern aircraft consume, on average 3.5 litres per 100



passenger kilometres which is similar to a small compact car but with six times the speed. Next generation aircraft like the B787 are targeting fuel efficiencies below 3.0 litres per 100 passenger kilometres.

The Qantas Group will play its part in lowering carbon emissions. We recognise aviation's contribution to climate change and that we must improve the environmental efficiency of today's operations and work on tomorrow's technologies. Our industry, through the International Air Transport Association (IATA), is targeting 25% emissions improvement by 2020 and has set an aspirational target of zero emissions within 50 years. The industry is also assessing whether carbon neutral growth is realistic in the short term and Qantas is represented in that review.

Governments are critical in building a pathway towards reduced aviation emissions. Investing in infrastructure such as vastly improved air traffic management (ATM) capability could eliminate up to 12% of global aviation emissions. Other tax incentives could accelerate investment in the cleanest available aircraft and development of alternative jet fuels. Improved ATM effectiveness requires complementary measures such as significantly improved airport infrastructure to deliver the benefits emanating from more efficient airspace.

Our industry supports fair and balanced market-based measures including emissions trading schemes (ETS) that do not increase competitive distortion among airlines and between industries and regions. Competitive distortion is already apparent in the aviation industry and in the markets in which Qantas operates – measures designed to reduce emissions should not compound these existing difficulties. Schemes should allow the market to find the most efficient and cost effective way to reduce emissions without undermining international competitiveness or creating additional trade barriers.

As an industry we have made continuous efficiency improvements over a long period. This submission proposes several policies that could accelerate further gains. Nevertheless, the next major technological breakthroughs are still some years away and we will need time to adjust when an ETS is introduced, particularly in light of the broader benefits we bring to the national welfare. A poorly implemented emissions trading scheme will have profound impacts on the Australian economy.

Qantas will provide a separate submission to the Garnaut Climate Change Review on the design features of an Australian emissions trading scheme, including questions tax-related to under any Australian scheme.



Qantas Group Climate Change Policy

The Qantas Group is committed to growing its operations in an environmentally sustainable manner. Our response to climate change is built on 'four pillars':

1. measurement, target setting and transparency
2. mitigation
3. adapting for the future
4. offsetting.

Qantas has undertaken a detailed life cycle assessment of its operations to establish its carbon emissions footprint. On that basis, the Group has set challenging performance improvement targets for achievement by 2011 including a two million tonne saving of greenhouse gases or a 7.5% improvement in fuel efficiency/revenue tonne kilometre. Work on establishing our 2020 target is well underway.

The Qantas Group is committed to transparent reporting of its environmental performance that allows many different stakeholders to judge our exposure to risks from climate change and our strategies to manage them. This includes reporting on sustainability performance data published for the first time in FY2007 Annual Report and participating in the Carbon Disclosure Project.

In FY2007, the Group reported the following energy and emissions performance data:

Energy consumption	Units	2007	2006	2005
Aviation fuel	000 L	4,680,270	4,561,238	4,392,991
Electricity (Australia)	MWh	241,324	236,858	231,095
Gas (Australia)	Gj	305,803	289,463	292,959
Ground petrol and diesel (Australia)	000 L	7,086	6,998	7,023
Emissions				
CO ₂				
- Aviation	Tonnes	11,499,423	11,206,962	10,793,578
- Ground (Australia)	Tonnes	20,135	19,730	20,109
NO _x ¹				
- Aviation (Qantas)	Tonnes	3,387	3,273	3,294
Aviation efficiency				
CO ₂ per 100 RTKs (Qantas)	Kgs	94.4	97.1	99.1
Fuel per 100 RTKs (Qantas)	L	38.4	39.5	40.3
NO _x per 100 million RTKs (Qantas)	Tonnes	31.6	32.4	34.4

Source: Qantas Airways Ltd, Annual Report FY2007.

1) Calculated for Qantas jet aircraft emissions below 3,000 feet using standard engine certification emissions factors.

Over 95% of Qantas Group emissions come from aircraft fuel consumed as part of normal operations and we have a strong financial incentive to improve fuel efficiency. The Group has a well-established fuel efficiency program which has delivered significant improvements in the performance of our existing fleet. Last financial year, Qantas saved 130,000 tonnes of



carbon dioxide, through fuel conservation alone, equating to the removal of 30,000 cars from Australian roads.

We have been working towards best practice in fuel efficiency for many years. Many initiatives involve improvements to operational procedures and can be as simple as a decision to change the way we wash our aircraft or switching to ground power when an aircraft is at the terminal.

We are also at the forefront in the development and application of technological innovation to improve fuel efficiency. Key initiatives over recent years have included:

- the use of Required Navigation Performance procedures that utilise Global Positioning System (GPS) technology to optimise flight approach and departure tracks. This reduces fuel consumption and emissions and improves safety;
- the development of User Preferred Routes across the Pacific. The airline has been able to efficiently plan aircraft operations along flexible routes that adjust each day to make best use of cruise-elevation wind patterns. These enhanced flight paths have reduced flight times and associated fuel consumption; and
- the introduction of Variable Cost Index Flight Planning to ensure that aircraft are operated at optimal speed, based on daily variations in wind, temperature and weight, to maximise efficiency and reduce fuel burn and emissions.

Advanced aviation technologies are critical to a greener aviation future. Under our multi-billion dollar fleet investment program, Qantas is taking advantage of the latest airframe and engine designs. The A380 and B787 are set to deliver improved fuel efficiency and reduced emissions per passenger kilometre.

Although Qantas has been working towards more efficient and sustainable operations for many years, more can be done to mitigate our impact and a group-wide employee environmental improvement program, '**begreen**' was recently launched. Environmental targets have been issued to all business units with staff required to take ownership of the environment in their workplace. The '**begreen**' program is designed to increase employee awareness of environmental issues, especially climate change, and provide them with the tools and strategies needed to reduce their environmental impact.

The Qantas Group is working with many stakeholders in the tourism industry to develop an Industry-wide response to climate change. As part of this strategy, Qantas is also seeking to foster climate change awareness and improved performance in the broader tourism community and has launched a national award and education campaign to reward and recognise businesses that implement environmentally sustainable business practices.

The Qantas Group is also seeking to provide research and development support for 'at risk' destinations, such as the Great Barrier Reef to adapt to the potential impact of climate change through the newly established Qantas Foundation Environmental Sustainability Fund.

Carbon offsetting is another element of the Group's response to climate change. In September 2007, the Qantas Group launched a Carbon Offset Program that allows Qantas and Jetstar passengers to calculate and offset their share of flight emissions when making a



booking. In support of the program, the Qantas Group has also committed to offset the emissions for all staff travelling for business purposes as well as those generated by the Group's ground transport vehicles. All offset contributions go towards Australia-based Greenhouse Friendly™ approved abatement programs that have been independently verified and subsequently authenticated by the Commonwealth Government's Department of Climate Change (previously the Australian Greenhouse Office) and either remove greenhouse gases from the atmosphere or avoid their release in the first place.

Government Policies to Accelerate Reduction in Aviation Emissions

As an industry, aviation is taking a great many practical measures to limit our emissions. All parts of our industry (airlines, airports, air navigation services providers, and manufacturers) are playing their part. Government needs also to play an important part by investment in infrastructure and providing incentives and support for investing in lower emission technology.

These policies will be critical in future if aviation is to incur significant additional costs associated with carbon.

Infrastructure

The Australia domestic aviation industry is currently witnessing above forecast or trend line passenger and airline seat capacity growth. This high growth rate is expected to continue for at least the next two to three years. This growth is contributing significantly to increasing airside and landside congestion at most of the capital city and major regional airports in Australia. The increased congestion is in turn causing increased taxiing times, delayed departure and arrival times for aircraft all of which contribute to increased fuel burn and associated carbon emissions.

Australian Governments and airports have an important role in ensuring that timely and cost effective investment ahead of current and future demand occurs such that additional capacity, taxiways, enhanced terminal infrastructure including gates, departure lounges, screening points, check in facilities and baggage make up areas are available so that delays and consequential emissions are mitigated.

Air Traffic Management

Improvements in air traffic management have the potential to deliver large operational benefits to air transport and Qantas is working with air service providers and air traffic control authorities, in Australia and around the world, to establish new navigational routes, approach paths and airborne holding procedures that will reduce flight times. These improvements promise to significantly improve fuel efficiency and reduce related emissions. To date, Qantas and Air Services Australia have worked together to deliver significant improvements. Air Services Australia will need to deliver significant improvements that will require Government investment in additional resources.



Recognition for Trade-offs Between Different Environmental Priorities

Actions to mitigate one environmental impact may have an adverse effect on other areas and it may require more than one attempt to achieve the optimal balance. For example, the most fuel efficient flight path will decrease carbon dioxide emissions but may increase the number of people exposed to aircraft noise. In some cases, Qantas has taken the decision to operate a fully noise compliant but less fuel efficient flight path in response to local community concerns. Government policy must provide financial (or other) recognition for this trade-off if Qantas is required to pay an additional cost for carbon emissions.

Increasing Tax Incentives to Support Research and Development into New Fuel Types

It is essential that technology is developed to provide alternative fuels that are both commercially viable for air transport and environmentally sustainable. The Government could assist by providing the necessary incentives for research and development to all participants, including fuel supply organisations to speed up the lead times to bring new refining capacity on-line.

While a commercially viable alternative to jet fuel is still considered to be at least a decade away, Qantas is working with airframe and engine manufacturers to produce more efficient and environmentally friendly aircraft over the long term and to encourage the fuel supply industry to support research and development. Significant issues exist for aviation with both synthetic and bio fuels. Manufacturing processes for current synthetic fuels emit large quantities of carbon dioxide and the fuel itself can have less than optimal lubricating properties when compared to standard jet fuel. This can adversely impact fuel lines and seals. The focus on safety also means that the lead times for fuel or additive development are long (~10 years). Bio fuels have poor thermal stability (they can freeze at around zero degrees centigrade) and have lower energy output. They also require large amounts of arable land and water for their production and have the potential to impact on the price of standard food crops, which have to compete for that land.

Many industry participants are pessimistic about the potential for implementing alternative fuels. The long useful life and high capital cost of aircraft means that without government support, kerosene will be the preferred jet fuel for next 30 years. Local alternative fuel solutions common in ground transportation fuels are only applicable to General Aviation. Hydrogen-based fuel would need completely new aircraft and infrastructure, and given the extremely poor energy output per volume, it is not likely to be viable for commercial aviation.

In the long-term, alternative fuels promise to deliver the greatest environmental benefits over the supply chain for aviation, however, significant technology breakthroughs are required and the government will need to provide substantial support to many participants at all stages in the research and development process. The Government could assist by increasing the deduction for Research and Development expenditure from its current level of 125% and lowering certain threshold(s) to test. For example, exploitation for the benefit of the Australian economy should not necessarily be a factor.



Tax Incentives to Deploy the Cleanest Technology Aircraft and Engines As Soon As They Become Available

Transformational advances in aircraft and engine technologies are required to dramatically reduce emissions and this will require massive capital investment. An expanded accelerated 'Green' depreciation regime, reducing the effective life of an aircraft would encourage rapid deployment of emerging and breakthrough technologies as soon as they become available. The Tourism and Transport Forum supports the proposition that a reduction in effective life of an aircraft will encourage airlines to invest in new aircraft sooner and therefore more quickly purchase newer, environmentally efficient aircraft and engine technologies.

The Government could also provide support by introducing an investment allowance or allowing depreciation for amounts greater than 100% of the expenditure (say 125%) to accelerate investment in the cleanest in the cleanest available technology.

Accelerating Inclusion of International and Renewable Energy Offsets into Greenhouse Friendly™

Carbon offsetting is an element of the Qantas approach to climate change. To enhance customer confidence in our program, Qantas has committed to provide its customers with Australian Government approved Greenhouse Friendly™ carbon abatement. Customers from all major regions (especially New Zealand) have requested that Qantas provide accredited offsets in their home markets. Similarly, customers have expressed a strong interest in the inclusion of renewable energy projects within the Qantas program. The Government could enhance the attractiveness of the Qantas program by accelerating the inclusion of International and Renewable Energy offsets within the Greenhouse Friendly™ program

Confirmation of Tax Deductibility For Greenhouse Abatement Activity

The Tax Department could assist by confirming the deductibility for expenditure incurred more generally in abatement of greenhouse gas emission.

Taxation issues will be addressed in more detail in the Qantas Group response to the Garnaut Review Emissions Trading Discussion Paper.

Conclusion

Aviation is already changing to meet the challenges and opportunities of climate change. We are working smarter – making our aircraft more efficient, adopting the best new technologies, and refining our operating procedures. We will continue to work with the community and government to reduce our environmental impact.

Yours sincerely

A handwritten signature in purple ink, appearing to read "Rob Kella".

Rob Kella
Chief Risk Officer