21 July 2009

Senator Mathias Cormann
Chairman
Select Committee on Fuel and Energy
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Senator Cormann

Re: Inquiry into Fuel and Energy

Thank you for your letter of 1 July inviting Qantas to submit on the expanded terms of reference of the Senate Select Committee Inquiry into Fuel and Energy.

We note that the Committee will consider energy security as part of the next stage of its inquiry. In our initial submission to the Committee in September 2008, we provided some detailed material in relation to the domestic supply of aviation jet fuel and proposals to improve the current situation. While these issues are ongoing, in this submission we would like to focus on the role of sustainable aviation fuel, particularly biofuels, in the airline industry and the important developments in that area since our initial submission and appearance at the public hearings in November 2008.

As outlined in our initial submission, the long-term sustainability of the aviation sector is dependent upon the development of commercially viable sustainable aviation fuels that generate lower carbon emissions over the 'life cycle'. Qantas maintains that, in partnership with the aviation industry, the Australian Government has an important role to play in accelerating the local development of sustainable aviation fuels.

A number of factors, such as the volatile price of fossil fuels, environmental issues and concerns about energy security, have intensified the focus on the development of sustainable aviation fuel, with industry research and development demonstrating that a 'drop in' sustainable aviation fuel is technically possible.

The aviation industry has been actively engaged in the development of sustainable aviation fuel. In September 2008 a cross-industry team of airlines

Qantas Airways Limited
ABN 16 009 661 901
Sir Fergus McMaster Building 203 Coward Street Mascot New South Wales 2020 Australia
Telephone 61 (2) 9691 3636 Facsimile 61 (2) 9691 4005

The aviation industry has been actively engaged in the development of sustainable aviation fuel. In September 2008 a cross-industry team of airlines and aircraft manufacturers agreed to progress its certification and is working together in a number of regional and international fora to accelerate development. In June 2007, the International Air Transport Association (IATA) announced a target to use 10% alternative fuels by 2017 and while the unique technical requirements of sustainable aviation fuels mean the target is ambitious, industry is committed to working towards this.

Since our initial submission, there has been a series of successful test flights, with fuels being trialled from such diverse biomass sources as jatropha, camellina and algae. These test flights comprised several commercial aircraft engine types, including Rolls-Royce and Pratt & Whitney, using blends of up to 50% petroleum-based Jet A/Jet A-1 fuel and 50% sustainable aviation fuels.

In June 2009, Boeing released a study evaluating the technical performance on three of these demonstration flights, *'Evaluation of Bio-Derived Synthetic Paraffinic Kerosene' (Bio-SPK)* (refer to Appendix for Executive Summary). The study shows that the blends used in the test flight program met or exceeded all technical parameters for commercial jet aviation fuel and had no adverse effects on the engines or their components (refer to Tables 1 and 2 in Appendix for summarised results).

Boeing's study also concluded that test fuels had higher energy density by mass than typical petroleum-derived jet fuel - which potentially could lower fuel consumption per kilometre. Two of the test flights reported improvements in fuel burn of approximately 1% and these positive results have provided further impetus for the aviation industry to accelerate the commercialisation of sustainable aviation fuel.

While there have been positive developments in sustainable aviation fuels, airlines in Europe have been warned that the potential contamination of jet fuel by a component of biodiesel, that can impact the thermal stability of jet fuel, is an issue. This component - Fatty Acid Methyl Esters (FAME) – is surface active and through the shared use of supply infrastructure, can impact the thermal stability of jet fuel. While engine problems related to inadequate fuel thermal stability typically become evident only after hundreds of thousands of hours of operation, they can be very costly. It is therefore imperative that planning for appropriate infrastructure segregation and dedicated pipelines in Australia is undertaken to avoid contamination and subsequent supply issues.

Qantas has provided a number of recommendations to the White Paper being developed by the Department of Resources, Energy and Tourism and other policy reviews[1], on the role of the Australian Government in accelerating the development of sustainable aviation fuel. These recommendations include:

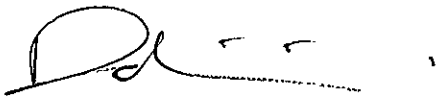
[1] Carbon Pollution Reduction Scheme, the review of Australia's future tax system (Henry Review) and Review of the National Innovation System

- engagement in more extensive dialogue with industry in relation to public private partnerships;
- provision of incentives for traditional fuel suppliers to invest in alternative fuels;
- facilitating research and development (R&D) activities and supporting investment in more fuel efficient fleet by:
  - increasing the deduction of R&D expenditure from its current level of 125% and/or increasing it for only 'green technologies'; and
  - introducing an investment and development allowance, including for aircraft, or allowing depreciation for amounts greater than 100% of the expenditure (say 125%).
- encouraging commercialisation by co-funding early stage development projects and fast-tracking regulatory approvals; and
- evaluating the role of a sustainable fuel target for the economy to drive investment.

Qantas' submission to the Energy White Paper process, lodged in June 2009, is attached for further information.

We would be pleased to provide any further information if it would be of assistance.

Yours sincerely



DAVID EPSTEIN
Group Executive
Government and Corporate Affairs

APPENDIX

Table 1: Key Fuel Property Comparisons: Blends

Property		Jet A/ JetA-1	ANZ Jatropha	CAL Jatropha/ Algae	JAL Jatropha/ Algae/Camelina
Freeze Point (°C)	Max	-40 Jet A -47 JetA-1	-62.5	-61.0	-55.5
Thermal Stability JFTOT (2.5 hrs @ control temp °C)	Min	260	300	300	300
Viscosity (-20 °C mm2/s)	Max	8.0	3.606	3.817	4.305
Contaminants Existent gum (mg/100mL)	Max	7	1.0	<1	<1
Net Heat of Combustion (MJ/kg)	Min	42.8	43.6	43.7	43.5

Source: Summary BIO-SPK Results presented by Boeing, Paris Air Show, 2009

Table 2: Key Fuel Property Comparisons: 100% Bio-SPK

Property		Jet A/ JetA-1	ANZ Jatropha	CAL Jatropha/ Algae	JAL Jatropha/ Algae/Camelina
Freeze Point (°C)	Max	-40 Jet A -47 JetA-1	-57.0	-54.5	-63.5
Thermal Stability JFTOT (2.5 hrs @ control temp °C)	Min	260	340	340	300
Viscosity (-20 °C mm2/s)	Max	8.0	3.663	3.510	3.353
Contaminants Existent gum (mg/100mL)	Max	7	<1	<1	<1
Metals (ppm)	Max	0.1 per metal	<0.1	<0.1	<0.1
Net Heat of Combustion (MJ/kg)	Min	42.8	44.3	44.2	44.2

Source: Summary BIO-SPK Results presented by Boeing, Paris Air Show, 2009