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Air New Zealand Limited/Qantas Airways Limited

Proposed Strategic Alliance

20 January 2003

PRICEWATERHOUSECOOPERS

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Dear Sirs

Air New Zealand Limited / Qantas Airways Limited Proposed Strategic Alliance

I Introduction

1. On 25 November 2002, Air New Zealand Limited ("Air New Zealand") announced its intention to enter into a Strategic Alliance Agreement ("the SAA" or the "Alliance") with Qantas Airways Limited ("Qantas"). As a pre-condition of the Alliance, Qantas will acquire a 22.5% 'cornerstone' shareholding in Air New Zealand (together "the Transactions").

2. With Air New Zealand and Qantas ("the Alliance parties") being the major participants in the Australasian aviation market, the proposed Alliance will remove an element of competition. As such, the New Zealand Commerce Commission ("the NZCC") and the Australian Competition and Consumer Commission ("the ACCC") (together "the Authorities") will consider the effect on competition and public benefits of this Alliance.

3. As part of their submissions to the Authorities, the Alliance parties have commissioned Network Economics Consulting Group Pty Limited ("NECG") to undertake an independent economic analysis of the competitive detriments and public benefits of the Alliance.

4. This report provides an independent review (to the extent described below) of the economic analysis prepared by NECG for submission to the Authorities in respect of the Transactions.

Purpose and Use of Report

5. This report has been prepared in accordance with the attached engagement letter dated 29 July 2002 (Appendix 1), solely in relation to the submissions made jointly by Air New Zealand and Qantas to the NZCC and ACCC. This report should be read in conjunction with Appendix 2.

Sources of Information

6. The principal sources of information which we have had access to and relied upon are listed in Appendix 2. In some instances, only limited historical information was available to support the economic analysis inputs utilised by NECG. These are discussed within the body of the report.

Scope

7. In conducting this assignment we have:

   (a) reviewed the methodology applied by NECG and assessed whether it appears reasonable in the circumstances;

   (b) reviewed all material input assumptions to the Cournot Model and other benefit/detriment calculation models ("the Models") (subject to comments in Paragraph 10 below) and established the basis for those assumptions. Where possible we have attempted to cross check the input assumptions utilising alternative verification sources;

   (c) considered the reasonableness of outputs from the Models in light of the input assumptions, including performance of sensitivity analyses; and

   (d) tested the accuracy of the operation of the Models used as far as that is possible.

8. We have specifically, at the time of this report, not considered:

   (a) modelling or assessment of the impacts associated with proposed undertakings that may be provided by the Alliance Parties;

   (b) scenario or sensitivity analysis of the Model outputs performed by NECG. We have undertaken independent sensitivity analysis, which is discussed in more detail within our report;

(c) the basis for the number of additional tourists which are expected to be generated under the Alliance as estimated by Qantas Holidays or the forecast additional promotional expenditure incurred by Qantas Holidays to secure these tourists. We have been advised that these forecasts are subject to independent review and were instructed to accept these numbers; and

(d) the appropriateness of the discount rate applied in estimating the present value of the net benefits, as we doubt that any approval decision will turn on this issue.

9. We note that the outputs from the models which we have reviewed differ from those included in NECG's report dated 8 December 2002, as a consequence of adjustments made to the models subsequent to that date. These adjustments are detailed in NECG's letter to the NZCC, dated 20 January 2003. This report is issued based on the adjusted figures.

10. We were provided with briefings on the operation of the economic model by NECG management. All questions concerning the economic model and analysis were directed in the first instance to NECG economists and analysts, namely Mr Henry Ergas, Ms Alexis Hardin, Mr John Zeitsch, Mr Olivier Renard and Mr Max Reilly. In addition we have also sought and received information and explanations from Air New Zealand and Qantas management. Further our review of the forecast tourism benefits involved discussions with Mr Bob Cain of Tourism Futures International ("TFI").

11. In some cases, historical information on route pricing is not available and in those instances our work was therefore necessarily limited to a reasonableness review of projected pricing without reference to past history. We note that our review was largely completed before United Airlines announced its withdrawal from the Auckland route and accordingly the report does not consider its impact.

12. While we have carried out our standard testing procedures to establish, as far as possible, the integrity of the operation of NECG's models, it is not possible to test a computer model such that it can be guaranteed to be error free.

13. Further, we have only tested one of the five annual models in detail since NECG advises that they are all the result of applying one generic template.

14. Our review has been based on the report and Excel based models described below and the conclusions set out in this report apply solely to these models.

Overall Conclusions

15. Subject to the specific matters raised in the body of the report and based solely on the work we have carried out as described in the report, we confirm that:

    (a) nothing has come to our attention to suggest that the Models used are not reliable or appropriate for their purposes;

    (b) nothing has come to our attention to indicate that the inputs applied to the Models are not reasonable for their intended purpose; and accordingly;

    (c) we have no reason to consider that the calculations supporting NECG's conclusions are not reliable.

II Background

16. The economic report and models, prepared by NECG in support of the applications to the Authorities by the Alliance parties consider the net benefits associated with the Alliance during the first five years of operation.

17. NECG considers that the following total benefits and detriments will accrue during the first five years of the Alliance:

	Benefits (NZD)						Detriments (NZD)		Net Benefit
	Cost Savings	Scheduling	Direct Flights	Tourism	Engineering	Freight	Dead Weight Loss	Net Transfer	(NZD)
Year 1	$6	$22	$0	$100	$39	$2	$78	-$14	$105
Year 2	$154	$9	$14	$221	$37	$0	$28	$1	$406
Year 3	$289	$4	$16	$217	$35	$5	$49	-$19	$536
Year 4	$272	$4	$15	$203	$33	$5	$48	-$27	$510
Year 5	$257	$3	$15	$189	$31	$5	$47	-$26	$478
Total	**$978**	**$41**	**$60**	**$931**	**$174**	**$15**	**$250**	**-$84**	**$2,035**

Discrepancies in figures due solely to rounding issues

18. Base assessments (factual and counterfactual, or with and without the Alliance) of:

    (a) price per passenger per route; and

    (b) passenger numbers by route;

    are produced by applying the Cournot model, discussed below.

19. These outputs are then used (with other inputs) to calculate:

    (a) cost savings;

    (b) tourism and detriments (part of net tourism benefit);

    (c) dead weight loss; and

    (d) net transfers.

20. In addition, NECG has estimated gains from:

    (a) better scheduling and direct flights;

    (b) tourism (part);

(c) engineering; and

(d) freight;

by application of such formulae and bases which it considered reasonable for these purposes.

Model Description

21. NECG has developed models which model two scenarios:

(a) the counterfactual, which models expectations for the Australasian aviation market, in the sense that Air New Zealand and Qantas remain independent competitors; and

(b) the factual, which analyses the effect of Air New Zealand and Qantas engaging in the Alliance and thereby reducing market competition.

The Model calculates the Cournot outputs, dead weight loss, net transfer and cost savings.

22. The Models consist of five separate, but generic Microsoft Excel workbooks, each analysing one year of the five year period under both the counterfactual and factual scenarios.

23. The Alliance is anticipated to alter the services provided to a number of the geographic markets served by the Alliance parties. To enable NECG to review the effect of the Alliance on individual sector route groups the Model breaks down the New Zealand and Australian aviation markets as follows:

(a) Tasman;

(b) New Zealand Domestic;

(c) Short Haul Pacific;

(d) Asia;

(e) Atlantic; and

(f) Long Haul Pacific.

24. The sector route groups above are then further broken down to their component city-pairs. One identified benefit of the factual scenario is the introduction of four new city pair routes.

25. NECG has concluded the affected routes exhibit oligopolistic characteristics and accordingly has modelled oligopolistic behaviour under Cournot competition. The Cournot model assumes that competing firms use output rather than price as their main strategic variable.

26. The Cournot model relies on a number of inputs which have been exogenously determined for each of the five financial years considered. The key inputs to the Model are:

    (a) variable unit costs by region and aircraft for each alliance airline;

    (b) elasticity of demand with respect to price and capacity;

    (c) natural demand growth;

    (d) VBA cost differential;

    (e) average passenger revenue and passenger numbers by sector; and

    (f) operating capacities by airline by sector.

27. All modelling was undertaken by NECG in Australian dollars in real 2002 dollar terms with all conversions to New Zealand dollars at a flat rate of A$0.87 to NZ$1. As this report has been prepared for the NZCC, the figures presented are expressed in New Zealand dollars.

28. Benefits/detriments accruing from the Alliance are allocated to the parties in the Model as follows:

Benefit/Detriment	Allocation Basis
Cost Savings	Strategic Alliance Agreement ("SAA")
Scheduling	Origin City of Flight
Direct Flights	50:50 Split
Tourism	Tourist Destination
Engineering	100% New Zealand
Freight	Various Splits – Aircraft Origin
Dead Weight Loss	Passenger Numbers
Wealth Transfers	
- from Consumers to Producers	Passenger Numbers
- from Producers to Consumers	Strategic Alliance Agreement

Note: The SAA provides for cost savings to be split 60% based on capacity and the balance in equal shares.

Calculation of Net Benefits

Cost Savings

29. Five year forecast counterfactual and factual flight schedules were determined on a city pair basis by aircraft type for each route included in the Alliance. Counterfactual schedules were provided to NECG by the Alliance parties on a confidential basis, and to an extent tested by NECG. The factual schedules involve joint co-ordination of flight schedules between Air New Zealand and Qantas. The schedules provided estimate the entire market based on all airlines' capacity for each city pair.

30. Initial capacities, passenger levels, block hours and average fares for each route were then calculated based on June 2002 market statistics provided by Air New Zealand and Qantas.

31. The Cournot competition formula was applied to the counterfactual and factual operating scenarios to estimate passenger and average fares for each city pair.

32. Total variable operating costs under each scenario were calculated based on historical passenger, departure and block hour costs for 2002.

33. The total operating costs under each scenario were then compared to determine cost savings from the Alliance on a route group basis. Any cost saving associated with passenger decreases (i.e. passenger variable costs) as a consequence of price increases were properly eliminated.

Wealth Transfers and Dead Weight Losses

34. Wealth transfers and dead weight losses as a result of price increases and passenger reductions were calculated from the Cournot outputs.

Tourism Benefits

35. Under the proposed alliance substantial tourism benefits within both Australia and New Zealand are forecast. These benefits are additional to forecast market growth. Both airlines expect tourism benefits to be generated from:

    (a) additional tourism from Qantas Holidays' ability to sell Air New Zealand services, and the promotion of New Zealand as a destination individually and in conjunction with Australia;

    (b) improved promotional effectiveness through combined efforts of the airlines sales channels and national tourism bodies; and

    (c) new fares and services offered under the Alliance.

36. The passenger impact of each of the above has been determined as described below and the net tourism benefit/detriment calculated by multiplying passenger changes by average tourists' expenditure. Where tourists no longer undertake travel, the expenditure is added back to the domestic market as a benefit.

    Qantas Holidays' Benefit

37. The number of additional tourists Qantas Holidays estimates will be generated by increased marketing initiatives has been reviewed by TFI. We have relied on their confirmation of this estimate and consider the additional tourist expenditure has been applied appropriately to the additional tourism numbers.

    Improved Promotions

38. NECG has calculated the increase in passenger volumes attributable to the effectiveness of joint marketing activity between Air New Zealand and Qantas. This has been calculated by applying an economic estimation of the effect of promotion expenditure. We have examined this model and are satisfied that the inputs and calculation methodology is reasonable.

39. Again, expenditure estimates have been applied to the forecast tourist increase.

New Fares

40. The change in fares under the Alliance as forecast by the Cournot model will influence total passenger levels. The net benefit/detriment on each city pair basis has been calculated as the lost passenger expenditure from incoming tourists less expenditure diverted back to the domestic markets for those who forego international travel.

41. Our review indicates the Cournot model calculations are reasonable and accordingly, we consider the tourism benefits have also been calculated based on reasonable inputs.

Engineering and Maintenance

42. Qantas has indicated to NECG that under the Alliance it could provide annual exports of engineering and maintenance services to Air New Zealand of around NZ$45 million p.a., representing 80% of its total external maintenance and that these purchases could be as low as 10% (NZ$6 million) if the Alliance does not eventuate.

43. The selection process undertaken by Qantas to select an external supplier involves assessing a range of technical evaluation criteria in addition to commercial evaluation criteria. In particular, Qantas advised that its recent use of Air New Zealand maintenance services is at an historical high, based not only on Air New Zealand's technical competence, but also on the excess capacity that Air New Zealand had at short notice as a result of the failure of Ansett, which coincided with an expansion of Qantas' fleet and a consequent increase in its own maintenance requirements.

44. Qantas has advised that its planning for future requirements will be much more structured. In the absence of the Alliance, based on current labour rate differentials alone, it appears unlikely Air New Zealand would benefit from cost advantages over competing suppliers of engineering and maintenance services. As a result, Qantas has a number of options open to it and has advised that it would direct the bulk of its externally sourced work to suppliers other than Air New Zealand.

45. With the Alliance, Qantas and Air New Zealand consider that there will be a sound commercial basis for developing a closer relationship in respect of engineering and maintenance services. In particular, the Alliance presents a number of opportunities to achieve efficiencies through the ability to share maintenance workload planning , job scoping, manpower planning for more productive use of time, and in particular lower overtime costs. Taken together, Qantas considers that this provides the necessary incentive for committing engineering and maintenance services to Air New Zealand.

46. In the longer term, we would expect Qantas to place its external maintenance work with the most net cost efficient provider which is able to meet Qantas' required technical standards. Clearly, Qantas' share of the profits accruing to the Alliance from placing the work with Air New Zealand would be deducted in arriving at the net costs, in Qantas' assessment of the commercial impact of using Air New Zealand.

Scheduling and New Direct Flight Savings

47. In this analysis the benefits under the Alliance flight schedules including improved flight scheduling, enhanced flight connectivity and new direct flights have been assessed.

48. Modelling has been undertaken to estimate the time savings as a result of improved wait times, more optimal departure times and elimination of certain multi sector flights through introduction of direct flights. These time improvements are measured as the difference between the counterfactual and factual schedules for given city pairs.

49. Estimates of the value of passenger time split between business and leisure travellers are then applied to the time benefits. We consider that the methods adopted by NECG to calculate these benefits are reasonable.

Freight Benefits

50. NECG has estimated the benefits of new efficient freight services. As the amounts involved are small relative to other benefits, we have not considered this benefit in any detail.

III Application of Cournot Model

51. NECG has adopted an Oligopoly model under Cournot competition to undertake economic modelling of the Alliance. This assumes that the firms use output rather than price as their main strategic variable. NECG notes that, *"This assumption is widely used in the aviation industry and has found empirical support in the literature."*

Rationale for use of Cournot Model

52. The Cournot Model is a well-established economic model used for analysing oligopolistic industries.

53. The markets under consideration have properties that lead to it being characterised as an oligopoly. More specifically, the following standard oligopolistic assumptions are fulfilled to varying extents:

    (a) limited entry possible;

    (b) a limited number of firms;

    (c) interdependence between firms; and

    (d) price setting ability.

54. In the current context, there exist three main models of oligopolistic competition:

    (a) Cournot competition – where the firms' strategic variable is quantity.

    (b) Bertrand competition – where the firms' strategic variable is price.

    (c) Stackelberg – where one firm can lead on quantity setting.

55. Of these three models we concur with NECG's view that, the Cournot competition model best reflects the nature of the relevant markets because the operation's key strategic decision is quantity (or capacity).

56. We note that under the factual scenario the Alliance, with up to 100% share on a number of routes may exhibit some characteristics of a dominant firm, but facing a competitive fringe, as described by NECG. We are satisfied with NECG's reasoning that it would not be appropriate to use a dominant firm model in this instance on both theoretical and practical grounds.

IV Model Inputs

57. We review below each of the key inputs and assumptions critical to the net public benefits calculated by NECG under the Alliance.

Variable Costs

58. A significant portion of the Alliance net benefits result from cost savings derived through rationalisation of competing flight schedules and more effective utilisation of a combined fleet of aircraft. These cost savings represent the total variable and aircraft capital cost differentials between the counterfactual and factual scenarios.

59. Operating costs have been sourced from the 2002 financial records of each airline and then allocated to one of three cost drivers, namely passengers, block hours or departures according to the nature of each cost. The historical unit cost for each driver was then calculated by sector route group and by aircraft type.

60. Forecast variable costs under each of the scenarios are then calculated based on the passenger numbers as derived from the Cournot equations, flight schedules as provided by the Alliance parties and block hour estimates for each city pair.

61. Aircraft capital costs were calculated based on the aircraft fleet requirements under each scenario. The annual capital cost of each aircraft is calculated as the sum of straight line depreciation plus a cost of capital charge of 8%. Aircraft values were determined by NECG using Avitas aircraft value schedules and fleet information as provided by the Alliance parties. To the extent that the 8% allowance covers borrowing costs then it is likely to be reasonable. To the extent that it is intended to reflect a cost of capital charge, it is likely to be understated and therefore also understate cost savings.

62. As part of our review of unit costs we have:

    (a) compared unit costs applied to historical information for 2001 by aircraft by sector group where available;

    (b) compared unit costs between Air New Zealand and Qantas for consistent allocation;

    (c) reviewed the allocation of costs to cost drivers;

    (d) considered the impact of September 11 2001 on full year 2002 results; and