

Air New Zealand

Greenhouse Gas Inventory Summary

Introduction

This document summarises the annual greenhouse gas (GHG) emissions inventory report for the Air New Zealand group of companies for the period 1 July 2014 to 30 June 2015. Air New Zealand's reporting process and emissions classifications are consistent with international protocols and standards. This reporting has been written in accordance with *The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard, Revised Edition* ('Greenhouse Gas Protocol').

Organisational Boundary

The organisational boundary encompasses companies under the operational control of Air New Zealand as shown below. The companies highlighted in grey are not covered in the scope of this inventory.

List of all legal entities or facilities over which Air New Zealand has equity share, financial control or operational control	% equity share in legal entity	Does reporting company have financial control? (yes/no)	Does reporting company have operational control? (yes/no)
ADP (New Zealand) Limited	100%	Yes	Yes
Air Nelson Limited	100%	Yes	Yes
Air New Zealand Regional Maintenance Limited	100%	Yes	Yes
Air New Zealand Travel Business Limited	100%	Yes	Yes
Eagle Air Maintenance Limited	100%	Yes	Yes
Eagle Airways Limited	100%	Yes	Yes
Mount Cook Airline Limited	100%	Yes	Yes
Teal Insurance Limited	100%	Yes	Yes
MANTS Analytics Group Limited	50%	No	No
ANNZES Engines Christchurch Limited	49%	No	No
Pacific Leisure Group Limited	50%	No	No

Air New Zealand applies an operational control approach allowing the company to focus on those emissions sources over which we have control and can therefore implement management actions, consistent with Air New Zealand's corporate responsibility objectives.

Operational Boundary

Air New Zealand has chosen to report only Scope 1 and 2 emissions, given that emissions from the use of aviation jet fuel are the most significant emissions source in the organisation's value chain and are under Air New Zealand's ability to manage and influence. No Scope 3 emissions are reported for the Air New Zealand group of companies.

Baseline Year

The base year is 1 July 2010 to 30 June 2011.

Methodologies and uncertainties

Air New Zealand used Microsoft Excel spreadsheets to calculate GHG emissions. Emissions for Scope 1 and 2 have been quantified using the calculation method based on activity data multiplied by GHG emissions factors. Emissions factors have been sourced from the following standards.

Fuel	Emission Factor	Unit	Reference
Jet fuel	2.525	tCO2e/kl	Climate Change (Liquid Fossil Fuels) Regulations 2008 (SR 2008/356) (as at 04 March 2015)
Sub-bituminous coal	90.48	tCO2e/TJ	Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 (SR 2009/285) (as at 04 March 2015)
Liquefied petroleum gas (LPG)	3.003	tCO2e/t	Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 (SR 2009/285) (as at 04 March 2015)
Natural gas	53.64	tCO2e/TJ	Climate Change (Stationary Energy and Industrial Processes) Regulations 2009 (SR 2009/285) (as at 04 March 2015)
Electricity	0.138	kgCO2e/kWh	Guidance for Voluntary, Corporate Greenhouse Gas Reporting – 2015
Diesel (automotive)	2.685	kgCO2e/l	Climate Change (Liquid Fossil Fuels) Regulations 2008 (SR 2008/356) (as at 04 March 2015)
Regular Petrol	2.31	kgCO2e/l	Climate Change (Liquid Fossil Fuels) Regulations 2008 (SR 2008/356) (as at 04 March 2015)
Premium Petrol	2.367	kgCO2e/l	Climate Change (Liquid Fossil Fuels) Regulations 2008 (SR 2008/356) (as at 04 March 2015)
Wood pellets	0.0143	kgCO2e/kg	2015 Voluntary Corporate GHG Reporting Guidance (MfE)

To minimise uncertainties in the accuracy of this inventory, data has been sourced wherever possible from a verifiable source as detailed in the inclusions table.

Verification of GHG Inventory

This report has been verified by Deloitte, a third party independent assurance provider. A reasonable level of assurance has been given over the assertions and quantifications included here.

Deloitte is also the financial auditor of Air New Zealand on behalf of the Office of the Auditor-General.

Table 1: Greenhouse gas emissions inventory summary for Air New Zealand

Scope	Category	FY2011 CO2-e Emissions (Tonnes)	FY2015 CO2-e Emissions (Tonnes)
1	Jet fuel - Aviation Domestic	530,404	532,212
	- Aviation International	2,418,347	2,532,601
	LPG (NZ)	3,610	3,405
	Natural Gas (NZ)	2,520	2,302
	Ground Diesel (NZ)	977	2,892
	Ground Bio Diesel (NZ)	1,194	0
	Premium Petrol (NZ)	45	5

	Regular Petrol (NZ)	39	25
	Coal (NZ)	2,246	0
	Wood Pellets (CH ₄ and N ₂ O)	20	13
	TOTAL SCOPE 1	2,959,402	3,073,455
2	Electricity (NZ)	7,246	5,543
	TOTAL SCOPE 2	7,246	5,543
Total	TOTAL CO₂-e Emissions	2,966,648	3,078,998
Biomass	Wood Pellets (CO ₂)	1,423	880

Table 2: 2015 Greenhouse gas emissions by greenhouse gas

	Units	Volume	Emission Factor (t CO ₂ -e/unit)				Emissions (t CO ₂ -e/unit)						
			Total	CO ₂	CH ₄	N ₂ O	Total	CO ₂	CH ₄	N ₂ O			
Scope 1 Emissions													
Aviation Fuel - Total	000 litres	1,213,787	2.53	2.50	0.00	0.02	3,064,813	3,035,682	1,213.79	27,917.11			
LPG (NZ)	Tonnes	1,134	3.00	3.00	0.00	0.01	3,405	3,404	0.16	1.04			
Natural Gas (NZ)	GJ	42,912	0.05	0.05	0.00	0.00	2,302	2,300	1.14	1.20			
Ground Diesel (NZ)	000 litres	1,077	2.69	2.68	0.00	0.00	2,892	2,886	0.02	4.70			
Ground Bio Diesel (NZ)	000 litres	-	2.68	2.67	0.00	0.00	-	-	-	-			
Premium Petrol (NZ)	000 litres	2.00	2.37	2.34	0.01	0.02	5	5	0.03	0.03			
Regular Petrol (NZ)	000 litres	11.00	2.31	2.28	0.01	0.02	25	25	0.15	0.17			
Wood pellets (CH ₄ and N ₂ O)	Tonnes	877	0.01	-	0.00	0.01	13	-	3.01	9.56			
							3,073,455	3,044,302	1,218	27,934			
Scope 2 Emissions													
Electricity	kWh	4,0165,943	0.000138				5,543						
Total Emissions							3,078,985.02	3,044,302.15	1,215.28	27,924.24			
Biomass Emissions: Wood pellets (CO ₂)	Tonnes	877.00	1.00	1.00	-	-	880	-	-	-			

*Air New Zealand does not have emissions of SF₆, PFCs, or NF₃. Emissions from HFCs have been excluded as *de minimus* (see exclusions table).

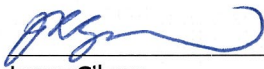
Inclusions

Scope	Category	GHG Emissions Source	Data Source	Methodology, data quality, uncertainty (qualitative)
1	Aviation Fuel	Fuel used to operate aircraft domestic and international	Records from supplier invoices.	Accurate records of fuel purchased.
	LPG (NZ)	Fuel used for heating	Records from supplier invoices.	Accurate records of fuel purchased.
	Natural Gas (NZ)	Fuel used for heating	Records from supplier invoices.	Accurate records of fuel purchased.
	Ground Diesel (NZ)	Fuel for ground vehicle fleet	Records from supplier invoices.	Records of fuel purchased. (Some uncertainty as noted in exclusions below.)
	Ground Bio Diesel (NZ)	Fuel for ground vehicle fleet	Records from supplier invoices.	(N/A in current reporting period, however included in base year.)
	Diesel (NZ)	Fuel for ground vehicle fleet	Records from supplier (fuel card) invoices.	Records of fuel purchased. (Some uncertainty as noted in exclusions below.)
	Premium Petrol (NZ)	Fuel for ground vehicle fleet	Records from supplier (fuel card) invoices.	Records of fuel purchased. (Some uncertainty as noted in exclusions below.)
	Regular Petrol (NZ)	Fuel for ground vehicle fleet	Records from supplier (fuel card) invoices.	Records of fuel purchased. (Some uncertainty as noted in exclusions below.)
	Coal	Not used during relevant reporting period.	No invoices held for relevant reporting period.	(N/A in current reporting period, however included in base year.)
2	Electricity	Electricity used in offices and facilities in New Zealand	Records from supplier invoices	Accurate records of electricity purchased.
Biomass Emissions	Wood Pellets	Fuel used for heating	Records from supplier invoices.	Records of wood pellets purchased from different suppliers.

Exclusions

The following exclusions are **estimated to be** less than 5% of Air New Zealand's total GHG emissions.

Scope	Category	GHG Emissions Source	Reason for Exclusion
1	Ground Fuel - Petrol, Diesel and Bio-Diesel (NZ)	Transport vehicles – petrol and diesel purchased on credit cards (rather than on fuel cards).	Difficult to obtain the data, estimated to be <i>de minimus</i> .
1	Ground Fuel - Petrol, Diesel and Bio-Diesel (NZ)	Regional airport ground vehicles.	Estimated to be <i>de minimus</i> .
1	Fugitive Emissions	Fugitive emissions from air-conditioning systems.	Difficult to obtain the data, estimated to be <i>de minimus</i> .



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