

## **PART B**

# **COMMON REPORTING FORMAT AND APPENDIX TABLES (UNFCCC ACCOUNTING)**



**TABLE 1 ENERGY**

TABLE 1 SECTORAL REPORT FOR ENERGY

(Sheet 1 of 2)

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC	SO <sub>2</sub>
	(Gg)						
Total Energy	340,141.90	1,227.91	17.49	1,613.25	4,381.06	787.61	751.03
A. Fuel Combustion Activities (Sectoral Approach)	333,679.70	98.99	17.41	1,611.29	4,372.10	579.59	751.03
1. Energy Industries	198,870.90	9.18	2.02	671.27	74.39	8.76	578.74
a. Public Electricity and Heat Production	181,005.35	7.80	1.92	562.37	54.45	6.62	544.98
b. Petroleum Refining	6,806.21	0.09	0.05	46.64	5.71	0.09	24.00
c. Manufacture of Solid Fuels and Other Energy Industries	11,059.35	1.30	0.05	62.27	14.22	2.05	9.76
2. Manufacturing Industries and Construction	43,248.67	2.29	0.72	381.26	273.04	15.52	106.24
a. Iron and Steel	2,683.28	0.08	0.01	33.38	9.15	0.52	10.87
b. Non-Ferrous Metals	14,608.12	0.33	0.10	100.03	17.82	0.63	63.32
c. Chemicals	6,261.17	0.19	0.03	51.21	24.95	1.57	2.26
d. Pulp, Paper and Print	2,230.73	0.13	0.09	6.70	15.34	0.31	4.13
e. Food Processing, Beverages and Tobacco	3,403.26	0.89	0.39	14.09	146.37	1.60	7.10
f. Other (please specify) ■■■	14,062.10	0.67	0.10	175.87	59.41	10.90	18.54
All Other Manufacturing	1,431.02	0.08	0.01	7.41	14.56	1.59	0.51
Construction	3,526.18	0.28	0.03	49.73	19.23	5.32	2.88
Non-metallic Mineral Products	4,864.88	0.12	0.03	62.13	15.00	0.86	8.51
Mining (non-energy)	4,240.03	0.19	0.03	56.60	10.61	3.13	6.64
3. Transport	74,086.56	31.25	14.41	458.84	3,226.91	458.56	59.66
a. Civil Aviation	5,779.89	0.24	0.18	19.09	97.44	3.24	1.09
b. Road Transportation	64,886.97	28.42	14.15	380.31	2,988.31	430.19	43.20
c. Railways	1,818.22	0.08	0.05	40.32	5.32	1.87	3.07
d. Navigation	1,559.92	2.50	0.03	18.90	131.38	22.57	12.29
e. Other Transportation (please specify) ■■■	41.56	0.02	0.00	0.24	4.45	0.69	0.01
Recreational Vehicles	41.56	0.02	0.00	0.24	4.45	0.69	0.01

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub> (Gg)	CO	NMVOC	SO <sub>2</sub>		
<b>4. Other Sectors</b>	<b>16,042.85</b>	<b>56.20</b>	<b>0.23</b>	<b>93.20</b>	<b>789.58</b>	<b>95.84</b>	<b>5.86</b>		
a. Commercial/Institutional	3,992.81	0.08	0.02	4.87	2.50	0.21	1.80		
b. Residential	7,750.53	55.60	0.17	7.96	757.83	85.62	0.55		
c. Agriculture/Forestry/Fisheries	4,299.52	0.53	0.04	80.37	29.25	10.01	3.50		
<b>5. Other (please specify)</b>	<b>1,430.71</b>	<b>0.06</b>	<b>0.02</b>	<b>6.71</b>	<b>8.19</b>	<b>0.90</b>	<b>0.54</b>		
a. Stationary	644.20	NE	NE	NE	NE	NE	NE		
Lubricants	644.20	NE	NE	NE	NE	NE	NE		
b. Mobile	786.51	0.06	0.02	6.71	8.19	0.90	0.54		
Military Transport	786.51	0.06	0.02	6.71	8.19	0.90	0.54		
<b>B. Fugitive Emissions from Fuels</b>	<b>6,462.20</b>	<b>1,128.92</b>	<b>0.08</b>	<b>1.96</b>	<b>8.96</b>	<b>208.01</b>	<b>NE</b>		
<b>I. Solid Fuels</b>	<b>NE</b>	<b>831.25</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>		
a. Coal Mining	NE	831.25	NE	NE	NE	NE	NE		
b. Solid Fuel Transformation	NA	IE	NA	NA	NA	NA	NA		
c. Other (please specify)	NA	NA	NA	NA	NA	NA	NA		
NA	NA	NA	NA	NA	NA	NA	NA		
<b>2. Oil and Natural Gas</b>	<b>6,462.20</b>	<b>297.67</b>	<b>0.08</b>	<b>1.96</b>	<b>8.96</b>	<b>208.01</b>	<b>NE</b>		
a. Oil	433.29	5.71	0.01	0.68	1.51	115.60	NE		
b. Natural Gas	9.73	169.56				29.54	NE		
c. Venting and Flaring	6,019.19	122.40	0.07	1.29	7.46	62.87	NE		
Venting	3,580.07	92.40				50.01	NE		
Flaring	2,439.12	30.00	0.07	1.29	7.46	12.86	NE		
d. Other (please specify)	NA	NA	NA	NE	NE	NE	NE		
NA	NA	NA	NA	NA	NA	NA	NA		
<b>Memo Items:</b>									
<b>International Bunkers</b>	<b>11,100.74</b>	<b>0.13</b>	<b>0.33</b>	<b>113.98</b>	<b>15.61</b>	<b>9.30</b>	<b>52.66</b>		
Aviation	8,567.30	0.01	0.26	45.61	13.63	7.16	1.61		
Marine	2,533.44	0.12	0.07	68.37	1.98	2.14	51.05		
<b>Multilateral Operations</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>		
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>17,600.23</b>								

**TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY**  
 Fuel Combustion Activities—Sectoral Approach (Sheet 1 of 4)

Australia  
 2002  
 Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS <sup>(2)</sup>			EMISSIONS		
	Consumption (TJ)	<sup>(1)</sup>	CO <sub>2</sub> (t/TJ)	CH <sub>4</sub> (kg/TJ)	N <sub>2</sub> O (kg/TJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)
<b>I.A. Fuel Combustion</b>		4,719,502.02	GCV					
Liquid Fuels		1,551,286.52	GCV	66.70	21.95	333,679.70	98.99	17.41
Solid Fuels		2,013,596.97	GCV	90.14	0.92	103,468.64	34.05	14.68
Gaseous Fuels		950,872.90	GCV	51.22	7.30	181,511.64	1.86	2.00
Biomass		203,745.64	GCV	86.38	275.53	48,699.42	6.94	0.10
Other Fuels		NA	GCV	NA	NA	17,600.23	56.14	0.62
<b>I.A.1. Energy Industries</b>		2,407,885.83	GCV					
Liquid Fuels		142,866.23	GCV	68.44	1.95	198,870.90	9.18	2.02
Solid Fuels		1,853,500.95	GCV	90.87	0.81	9,777.69	0.28	0.09
Gaseous Fuels		402,984.55	GCV	51.27	13.81	168,431.60	1.50	1.89
Biomass		8,534.10	GCV	56.23	215.93	20,661.61	5.57	0.04
Other Fuels		NA	GCV	NA	NA	479.85	1.84	0.00
<b>a. Public Electricity and Heat Production</b>								
Liquid Fuels		2,097,873.91	GCV	69.38	3.72	181,005.35	7.80	1.92
Solid Fuels		31,754.60	GCV	91.21	0.81	2,203.14	0.12	0.02
Gaseous Fuels		1,835,168.03	GCV	51.36	19.59	167,377.82	1.48	1.88
Biomass		222,417.18	GCV	56.23	215.93	11,424.39	4.36	0.02
Other Fuels		8,534.10	GCV	NA	NA	479.85	1.84	0.00
<b>b. Petroleum Refining</b>								
Liquid Fuels		104,873.79	GCV	67.91	0.83	6,806.21	0.09	0.05
Solid Fuels		86,007.18	GCV	NA	NA	5,841.09	0.07	0.05
Gaseous Fuels		18,866.61	GCV	51.15	1.06	NA	NA	NA
Biomass		NA	GCV	NA	NA	965.12	0.02	0.00
Other Fuels		NA	GCV	NA	NA	NA	NA	NA
<b>c. Manufacture of Solid Fuels and Other Energy Industries</b>								
Liquid Fuels		205,138.13	GCV	69.05	3.53	11,059.35	1.30	0.05
Solid Fuels		25,104.45	GCV	57.48	1.01	1,733.46	0.09	0.02
Gaseous Fuels		18,332.92	GCV	51.16	7.35	1,053.79	0.02	0.01
Biomass		161,700.76	GCV	NA	NA	8,272.10	1.19	0.02
Other Fuels		NA	GCV	NA	NA	NA	NA	NA

<sup>(1)</sup> Gross calorific values (GCV).

<sup>(2)</sup> Accurate estimation of CH<sub>4</sub> and N<sub>2</sub>O emissions depends on combustion conditions, technology, and emission control policy, as well as fuel characteristics. Therefore, caution should be used when comparing the implied emission factors.

<sup>(3)</sup> Carbon dioxide emissions from biomass are reported under Memo Items. The content of the cells is not included in the totals.

**TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY**  
Fuel Combustion Activities—Sectoral Approach (Sheet 2 of 4)

**ENERGY**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS <sup>(2)</sup>				EMISSIONS			
	Consumption (TJ)	(1)	CO <sub>2</sub> (t/TJ)	CH <sub>4</sub> (kg/TJ)	N <sub>2</sub> O (kg/TJ)		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	
<b>I.A.2 Manufacturing Industries and Construction</b>										
Liquid Fuels	812,271.88	GCV	67.59	4.35	0.63		43,248.67	2.29	0.72	
Solid Fuels	183,107.53	GCV	81.07	1.19	0.68		12,376.62	0.80	0.12	
Gaseous Fuels	151,286.89	GCV	51.16	1.08	0.10		12,264.30	0.18	0.10	
Biomass	363,732.19	GCV	94.21	8.06	4.10 <sup>(3)</sup>		18,607.75	0.39	0.04	
Other Fuels	114,145.28	GCV	NA	NA	NA		10,753.24	0.92	0.47	
a. Iron and Steel	56,827.39	GCV	60.92	18.24	0.46		2,683.28	0.08	0.01	
Liquid Fuels	1,372.14	GCV	42.96	1.07	0.18		83.59	0.03	0.00	
Solid Fuels	28,941.14	GCV	51.15	0.94	0.09		1,243.37	0.03	0.01	
Gaseous Fuels	26,514.12	GCV	NA	NA	NA <sup>(3)</sup>		1,356.33	0.02	0.00	
Biomass	NA	GCV	NA	NA	NA		NA	NA	NA	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
b. Non-Ferrous Metals	225,900.21	GCV	71.89	2.87	0.75		14,608.12	0.33	0.10	
Liquid Fuels	36,335.31	GCV	90.88	1.24	0.80		2,612.02	0.10	0.03	
Solid Fuels	60,851.43	GCV	51.15	1.10	0.10		5,530.22	0.08	0.05	
Gaseous Fuels	126,398.27	GCV	92.12	4.20	4.10 <sup>(3)</sup>		6,465.89	0.14	0.01	
Biomass	2,315.20	GCV	NA	NA	NA		213.28	0.01	0.01	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
c. Chemicals	108,833.62	GCV	61.12	3.30	0.60		6,261.17	0.19	0.03	
Liquid Fuels	32,401.94	GCV	96.11	1.18	0.80		1,980.49	0.11	0.02	
Solid Fuels	8,225.17	GCV	51.17	1.10	0.10		790.51	0.01	0.01	
Gaseous Fuels	68,206.51	GCV	NA	NA	NA <sup>(3)</sup>		3,490.17	0.08	0.01	
Biomass	NA	GCV	NA	NA	NA		NA	NA	NA	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
d. Pulp, Paper and Print	56,928.54	GCV	66.95	2.62	0.60		2,230.73	0.13	0.09	
Liquid Fuels	2,986.32	GCV	88.20	1.30	0.80		199.94	0.01	0.00	
Solid Fuels	7,765.30	GCV	51.15	1.19	0.10		684.90	0.01	0.01	
Gaseous Fuels	26,310.01	GCV	92.12	4.20	4.10 <sup>(3)</sup>		1,345.88	0.03	0.00	
Biomass	19,866.91	GCV	NA	NA	NA		1,830.14	0.08	0.08	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
e. Food Processing, Beverages and Tobacco	143,605.63	GCV	63.10	1.24	0.60		3,403.26	0.89	0.39	
Liquid Fuels	6,343.28	GCV	90.60	1.30	0.80		400.27	0.01	0.00	
Solid Fuels	16,222.30	GCV	51.15	1.14	0.10		1,469.82	0.02	0.01	
Gaseous Fuels	29,971.06	GCV	94.74	9.04	4.10 <sup>(3)</sup>		1,533.17	0.03	0.00	
Biomass	91,069.00	GCV	NA	NA	NA		8,627.45	0.82	0.37	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
f. Other (please specify )	220,176.49	GCV	68.49	5.26	0.60		14,062.10	0.67	0.10	
Liquid Fuels	103,668.54	GCV	86.93	1.13	0.77		7,100.31	0.55	0.06	
Solid Fuels	29,281.56	GCV	51.15	1.04	0.10		2,545.48	0.03	0.02	
Gaseous Fuels	86,332.22	GCV	92.12	4.20	4.10 <sup>(3)</sup>		4,416.31	0.09	0.01	
Biomass	894.16	GCV	NA	NA	NA		82.37	0.00	0.00	
Other Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	

**ENERGY**

**TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY**  
 Fuel Combustion Activities—Sectoral Approach (Sheet 3 of 4)

Australia  
 2002  
 Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS <sup>(a)</sup>				EMISSIONS			
	Consumption	(t)	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	
	(TJ)		(t/TJ)	(kg/TJ)	(kg/TJ)		(Gg)	(Gg)	(Gg)	
<b>1.A.3 Transport</b>	<b>1,117,346.73</b>	<b>GCV</b>					<b>74,086.56</b>	<b>31.25</b>	<b>14.41</b>	
Gasoline	707,247.37	GCV	65.77	34.14	19.23		46,512.49	24.14	13.60	
Diesel	322,132.50	GCV	69.07	7.70	1.98		22,249.41	2.48	0.64	
Natural Gas	5,623.00	GCV	51.40	128.61	1.00		289.02	0.72	0.01	
Solid Fuels	5,022.80	GCV	89.10	32.00	1.00		447.53	0.16	0.01	
Biomass	0.00	GCV	0.00	0.00	0.00 <sup>(b)</sup>		0.00	0.00	0.00	
Other Fuels	77,321.07	GCV	59.34	48.42	2.08		4,588.11	3.74	0.16	
a. Civil Aviation	83,852.71	GCV					5,779.89	0.24	0.18	
Aviation Gasoline	3,684.39	GCV	67.32	57.00	0.90		248.03	0.21	0.00	
Jet Kerosene	80,168.32	GCV	69.00	0.38	2.20		5,531.85	0.03	0.18	
b. Road Transportation	985,355.44	GCV					64,886.97	28.42	14.15	
Gasoline	623,394.65	GCV	65.34	38.34	21.53		40,732.61	23.90	13.42	
Diesel Oil	285,431.39	GCV	69.00	8.23	1.98		19,695.62	2.35	0.57	
Natural Gas	5,623.00	GCV	51.40	128.61	1.00		289.02	0.72	0.01	
Biomass	NA	GCV	NA	NA	NA <sup>(b)</sup>		NA	NA	NA	
Other Fuels (please specify)	70,906.40	GCV					4,169.72	1.44	0.16	
LPG	70,906.40	GCV	58.81	20.32	2.19		4,169.72	1.44	0.16	
c. Railways	26,349.90	GCV					1,818.22	0.08	0.05	
Solid Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
Liquid Fuels	26,349.90	GCV	69.00	3.00	2.00		1,818.22	0.08	0.05	
Other Fuels (please specify)	NA	GCV					NA	NA	NA	
Natural Gas	NA	GCV	NA	NA	NA		NA	NA	NA	
d. Navigation	21,152.56	GCV					1,559.92	2.50	0.03	
Coal	5,022.80	GCV	89.10	32.00	1.00		447.53	0.16	0.01	
Residual Oil	6,119.40	GCV	72.86	3.00	2.00		445.88	0.02	0.01	
Gas/Diesel Oil	3,595.70	GCV	69.00	4.18	2.00		248.11	0.02	0.01	
Other Fuels (please specify)	6,414.67	GCV					418.39	2.30	0.01	
Gasoline	6,361.17	GCV	65.34	360.00	0.90		415.64	2.29	0.01	
Natural Gas	53.50	GCV	51.40	243.00	1.00		2.75	0.01	0.00	
e. Other Transportation	636.12	GCV					41.56	0.02	0.00	
Liquid Fuels	636.12	GCV	65.34	30.00	0.90		41.56	0.02	0.00	
Solid Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	
Gaseous Fuels	NA	GCV	NA	NA	NA		NA	NA	NA	



**TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY**  
Fuel Combustion Activities—Sectoral Approach (Sheet 4 of 4)

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	AGGREGATE ACTIVITY DATA		IMPLIED EMISSION FACTORS <sup>(2)</sup>			EMISSIONS			
	Consumption	<sup>(1)</sup>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	
	(TJ)		(t/TJ)	(kg/TJ)	(kg/TJ)	(Gg)	(Gg)	(Gg)	
<b>I.A.4 Other Sectors</b>									
Liquid Fuels	361,821.69	GCV				16,042.85	56.20	0.23	
Solid Fuels	98,435.93	GCV	66.37	25.86	0.62	6,533.61	2.55	0.06	
Gaseous Fuels	3,786.32	GCV	97.25	6.02	0.80	368.21	0.02	0.00	
Biomass	178,533.17	GCV	51.20	1.46	0.11	9,141.04	0.26	0.02	
Other Fuels	81,066.26	GCV	78.54	658.41	1.82 <sup>(3)</sup>	6,367.14	53.37	0.15	
a. Commercial/Institutional	NA	GCV	NA	NA	NA	NA	NA	NA	
Liquid Fuels	72,020.46	GCV				3,992.81	0.08	0.02	
Solid Fuels	15,919.40	GCV	61.37	0.77	0.60	976.98	0.01	0.01	
Gaseous Fuels	3,614.10	GCV	97.18	1.30	0.80	351.22	0.00	0.00	
Biomass	52,051.57	GCV	51.19	1.11	0.15	2,664.61	0.06	0.01	
Other Fuels	435.38	GCV	91.93	3.70	4.10 <sup>(3)</sup>	40.02	0.00	0.00	
b. Residential	NA	GCV	NA	NA	NA	NA	NA	NA	
Liquid Fuels	227,337.41	GCV				7,750.53	55.60	0.17	
Solid Fuels	20,072.71	GCV	62.68	99.85	0.68	1,258.14	2.00	0.01	
Gaseous Fuels	172.22	GCV	98.63	105.00	0.80	16.99	0.02	0.00	
Biomass	126,461.60	GCV	51.20	1.60	0.10	6,475.41	0.20	0.01	
Other Fuels	80,630.88	GCV	78.47	661.95	1.80 <sup>(3)</sup>	6,327.12	53.37	0.15	
c. Agriculture/Forestry/Fisheries	NA	GCV	NA	NA	NA	NA	NA	NA	
Liquid Fuels	62,463.82	GCV				4,299.52	0.53	0.04	
Solid Fuels	62,443.82	GCV	68.84	8.48	0.60	4,298.49	0.53	0.04	
Gaseous Fuels	NA	GCV	NA	NA	NA	NA	NA	NA	
Biomass	20.00	GCV	51.15	1.10	0.10	1.02	0.00	0.00	
Other Fuels	NA	GCV	NA	NA	NA	NA	NA	NA	
<b>I.A.5 Other (Not elsewhere specified) <sup>(4)</sup></b>									
Liquid Fuels	20,175.89	GCV				1,430.71	0.06	0.02	
Solid Fuels	20,175.89	GCV	70.91	2.86	1.09	1,430.71	0.06	0.02	
Gaseous Fuels	NA	GCV	NA	NA	NA	NA	NA	NA	
Biomass	NA	GCV	NA	NA	NA	NA	NA	NA	
Other Fuels	NA	GCV	NA	NA	NA	NA	NA	NA	

<sup>(4)</sup> Military fuel use is included under this category.

**Documentation Box:**

1A1c Manufacturing of Solid Fuels and Other Energy Industries includes a derived gas, coke oven gas, which is allocated to solid fuels. The carbon dioxide emission factor used for coke oven gas was 37.0 Gg/PJ (oxidation factor of 99.5%) and for black coal was 91.8 Gg/PJ (oxidation factor of 98.0%).

1A2f Other includes: Mining (non-energy minerals); Non-metallic mineral products; All other Manufacturing; and Construction.

1A5 Lubricants and Military transport emissions.

TABLE 1.A(b) SECTORAL BACKGROUND DATA FOR ENERGY

CO<sub>2</sub> from Fuel Combustion Activities—Reference Approach (IPCC Worksheet 1-1)  
(Sheet 1 of 1)Australia  
2002  
Submission 2004

FUEL TYPES	Unit	Production	Imports	Exports	International bunkers	Stock change	Apparent consumption	Conversion factor <sup>(1)</sup>	(t)	Apparent consumption (TJ)	Carbon emission factor (t C/TJ)	Carbon content (Gg C)	Carbon stored (Gg C)	Net carbon emissions (Gg C)	Fraction of carbon oxidized	Actual CO <sub>2</sub> emissions (Gg CO <sub>2</sub> )
Liquid Fossil	PJ	1,335.70	1,056.33	885.96		-16.58	1,522.66	1,000.00	GCV	1,522,655.95	18.60	28,321.40	0.00	28,321.40	0.99	102,806.68
Primary Fuels	PJ	NO	NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Orimulsion	PJ	NO	NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Natural Gas Liquids	PJ	122.22	15.58	84.45		-4.44	57.78	1,000.00	GCV	57,782.74	16.20	936.08	0.00	936.08	0.99	3,397.97
Secondary Fuels	PJ		49.12	42.96	0.00	-0.78	6.94	1,000.00	GCV	6,939.02	18.03	125.09	0.00	125.09	0.99	454.08
Gasoline	PJ		8.27	20.20	54.48	1.21	-67.62	1,000.00	GCV	-67,616.16	19.01	-1,285.32	0.00	-1,285.32	0.99	-4,665.72
Jet Kerosene	PJ		0.00	0.07	0.00	-0.05	-0.02	1,000.00	GCV	-23.04	19.01	-0.44	0.00	-0.44	0.99	-1.59
Other Kerosene	PJ		NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Shale Oil	PJ		49.42	36.52	3.08	-0.45	10.26	1,000.00	GCV	10,263.20	19.01	195.09	NA	195.09	0.99	708.19
Gas / Diesel Oil	PJ		24.91	11.63	19.00	-3.01	-2.71	1,000.00	GCV	-2,712.23	20.10	-54.51	0.00	-54.51	0.99	-197.88
Residual Fuel Oil	PJ		NA	NA		NA	0.00	NA	GCV	0.00	16.20	0.00	NA	0.00	NA	0.00
LPG	PJ		0.00	0.00		0.00	0.00	1,000.00	GCV	0.00	15.41	0.00	231.60	-231.60	1.00	-849.19
Ethane	PJ		0.00	0.00		0.00	0.00	1,000.00	GCV	0.00	17.98	0.00	NA	0.00	1.00	0.00
Naphtha	PJ		1.58	0.08		0.25	1.24	1,000.00	GCV	1,244.07	22.01	27.38	631.66	-604.28	1.00	-2,215.69
Bitumen	PJ		2.13	6.31	0.00	-1.28	-2.90	1,000.00	GCV	-2,901.88	20.10	-58.33	262.08	-320.41	1.00	-1,174.83
Lubricants	PJ		9.19	0.00		0.00	9.19	1,000.00	GCV	9,191.00	22.01	202.29	202.29	0.00	1.00	0.00
Petroleum Coke	PJ		NA	NA		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Refinery Feedstocks	PJ		3.42	8.37		-4.26	-0.69	1,000.00	GCV	-693.04	18.60	-12.89	568.00	-580.89	1.00	-2,129.94
Other Oil	PJ		NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Liquid Fossil Totals										1,534,129.63		28,395.84		26,500.21		96,132.08
Solid Fossil	PJ	7,180.90	0.00	5,760.50	0.00	0.00	1,420.40	1,000.00	GCV	1,420,400.00	24.70	35,078.63	0.00	35,078.63	1.00	128,621.64
Anthracite	PJ	NO	NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Coking Coal	PJ	NO	NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
Other Bit. Coal	PJ	7,180.90	0.00	5,760.50	0.00	0.00	1,420.40	1,000.00	GCV	1,420,400.00	24.70	35,078.63	0.00	35,078.63	1.00	128,621.64
Sub-bit. Coal	PJ	NA	NA	NA		NA	0.00	NA	GCV	0.00	NA	0.00	NA	0.00	NA	0.00
Lignite	PJ	652.10	0.00	0.00		0.00	652.10	1,000.00	GCV	652,100.00	25.25	16,466.68	0.00	16,466.68	1.00	60,377.83
Oil Shale	PJ	0.00	0.00	0.00		0.00	0.00	1,000.00	GCV	0.00	NA	0.00	NA	0.00	NA	0.00
Peat	PJ	NO	NO	NO		NA	0.00	NA	GCV	0.00	NA	0.00	NO	0.00	NA	0.00
BK&P Patent Fuel	PJ	NO	0.00	0.02		0.00	-0.02	1,000.00	GCV	-20.00	28.64	-0.57	0.00	0.00	0.99	-2.08
Coke Oven/Gas Coke	PJ		0.00	0.00		0.00	0.00	1,000.00	GCV	0.00	32.59	0.00	0.00	0.00	0.99	0.00
Secondary Fuels	PJ									2,072,480.00		51,544.74	2,608.20	48,936.54		179,434.00
Solid Fuel Totals										2,072,480.00		51,544.74	2,608.20	48,936.54		179,434.00
Gaseous Fossil	PJ	1,414.30	0.00	413.44		0.00	1,000.86	1,000.00	GCV	1,000,860.00	14.05	14,065.25	469.62	13,595.63	1.00	49,601.40
Natural Gas (Dry)	PJ	1,414.30	0.00	413.44		0.00	1,000.86	1,000.00	GCV	1,000,860.00	14.05	14,065.25	469.62	13,595.63	1.00	49,601.40
Biomass total										4,607,469.63		94,005.84	3,077.82	89,032.39		325,167.49
Solid Biomass	NA	196.07	0.00	0.00		0.00	196.07	1,000.00	GCV	203,745.64		5,209.26	0.00	5,209.26		18,724.53
Liquid Biomass	NA	0.00	0.00	0.00		0.00	0.00	1,000.00	GCV	196,070.54	26.02	5,101.40	0.00	5,101.40	0.98	18,331.03
Gas Biomass	NA	7.68	NA	NA		NA	7.68	1,000.00	GCV	7,675.10	14.05	107.86	0.00	107.86	0.995	393.51

<sup>(1)</sup> Gross calorific values (GCV)

Australia  
2002  
Submission 2004

FUEL TYPES	Reference approach		National approach <sup>(1)</sup>		Difference	
	Energy consumption (PJ)	CO <sub>2</sub> emissions (Gg)	Energy consumption (PJ)	CO <sub>2</sub> emissions (Gg)	Energy consumption (%)	CO <sub>2</sub> emissions (%)
Liquid Fuels (excluding international bunkers)	1,534.13	96,132.08	1,551.29	103,468.64	-1.11	-7.09
Solid Fuels (excluding international bunkers)	2,072.48	179,434.00	2,013.60	181,511.64	2.92	-1.14
Gaseous Fuels	1,000.86	49,601.40	950.87	48,699.42	5.26	1.85
Other <sup>(2)</sup>	NA	NA	NA	NA	NA	NA
<b>Total <sup>(1)</sup></b>	<b>4,607.47</b>	<b>325,167.49</b>	<b>4,515.76</b>	<b>333,679.70</b>	<b>2.03</b>	<b>-2.55</b>

<sup>(1)</sup> "National approach" is used to indicate the approach (if different from the Reference approach) followed by the Party to estimate its CO<sub>2</sub> emissions from fuel combustion reported in the national greenhouse gas Inventory.

<sup>(2)</sup> Emissions from biomass are not included.

**Note:** In addition to estimating CO<sub>2</sub> emissions from fuel combustion by sector, Parties should also estimate these emissions using the IPCC Reference Approach as found in the IPCC Guidelines, Worksheet 1-1 (Volume 2, Workbook). The Reference Approach is to assist in verifying the sectoral data. Parties should also complete the above tables to compare the alternative estimates, and if the emission estimates lie more than 2 percent apart, should explain the source of this difference in the documentation box provided.

#### Documentation Box:

Four main reasons there is a difference between the Reference Approach and the National Approach as displayed in the above table and Table 1A(b):

- 1) Partly an artefact caused by deficiencies in the design of Tables 1.A(b) and 1.A(d). The CRF does not allow for the subtraction of the energy content of the fuels whose carbon is sequestered. It only allows for the subtraction of the sequestered carbon and carbon emitted elsewhere, i.e. in other sectors. Therefore, the energy consumption reported using this method for the Reference Approach includes energy which is netted out of the national approach. The energy consumption for the Reference Approach and the National Approach will therefore never balance using the CRF tables in the current format. This explains why the extent of non-reconciliation is different for energy and for CO<sub>2</sub>. If the energy consumption calculated by the Reference Approach is adjusted by netting out the energy content of the quantities of fuel that do not undergo combustion for energy, as calculated in the National Approach, the extent of non-reconciliation for energy and CO<sub>2</sub> is almost the same for all three fuel types.
- 2) The large discrepancy for liquid fuels is caused by the uncertainty of the 2002 Reference Approach figure for Petroleum, which in turn derives from the crude oil density values used to convert reported indigenous production and imports in volumetric units into energy units, as required by the CRF.
- 3) The CRF tables assume that all ethane is sourced from oil refineries, derived from crude oil. In Australia, all ethane supplied to the chemical industry is sourced from gas wells, separated from methane at gas processing plants. It is therefore classed as a gaseous fuel, not a liquid fuel. If an adjustment for this effect is made, the difference in CO<sub>2</sub> estimates falls to 6.0% for liquid fuels and to 0.07% for gaseous fuels.
- 4) The defect described under point (1) also leads to slight discrepancies in both emission factors and oxidation factors between the two approaches for a number of individual fuel types.

Australia  
2002  
Submission 2004

Additional information		Subtracted from energy sector (specify source category)	
CO <sub>2</sub> not emitted			
(Gg CO <sub>2</sub> )			
NA		NA	
960.96		1.A.5. Other	
2,316.09		1.A.5. Other	
248.47		1.A.2.c. Chemicals	
NA		1.A.1.c. Other Energy Industries	
NA		NA	
NA		NA	
NA		NA	
849.19		1.A.2.c. Chemicals	
550.77		1.A.1.c. Manufacture of Solid Fuels and Other Energy Industries	
1,171.17		1.A.2.a. Iron and Steel	
9,314.93		1.A.2.a. Iron and Steel	
1,100.42		1.A.2.c. Chemicals	
335.45		1.A.1.b. Petroleum Refining	
741.71		1.A.2.b. Non-Ferrous Metals	
646.80		1.A.5. Other	

FUEL TYPE	ACTIVITY DATA AND RELATED INFORMATION		IMPLIED EMISSION FACTOR Carbon emission factor (t C/TJ)	ESTIMATE of carbon stored in non-energy use of fuels (Gg C)
	Fuel quantity (TJ)	Fraction of carbon stored		
Naphttha	0.00	NA	NA	NA
Lubricants	21,850.00	0.60	19.99	262.08
Bitumen	28,700.00	1.00	22.01	631.66
Coal Oils and Tars (from Coking Coal)	4,090.00	0.75	22.09	67.76
Natural Gas	0.00	NA	NA	NA
Gas/Diesel Oil	0.00	NA	NA	NA
LPG	0.00	NA	NA	NA
Butane	0.00	NA	NA	NA
Ethane	14,619.90	NA	NA	231.60
Other (please specify)				
Natural gas distribution and leakage	10,712.87	NA	NA	150.21
Natural gas used in reduction of iron ore	22,900.00	NA	NA	319.41
Coke used in reduction of iron ore	79,540.00	NA	NA	2,540.44
Petroleum Products Used as Feedstocks	16,195.56	NA	NA	300.12
Oil Refinery Flaring	4,890.00	0.00	0.00	91.49
Petroleum Coke for Anodes	9,191.00	0.00	0.00	202.29
Solvents	9,800.00	0.75	24.00	176.40

**Documentation box:** A fraction of energy carriers is stored in such products as plastics or asphalt. The non-stored fraction of the carbon in the energy carrier or product is oxidized, resulting in carbon dioxide emissions, either during the use of the energy carriers in the industrial production (e.g. fertilizer production), or during the use of the products (e.g. solvents, lubricants), or in both (e.g. monomers). To report associated emissions use the above table, filling an extra "Additional information" table, as shown below.

Associated CO <sub>2</sub> emissions (Gg)	Allocated under (Specify source category) <sup>(a)</sup>	
	<sup>(a)</sup> e.g. Industrial Processes, Waste Incineration, etc.	
9,314.93	2.C.1. Iron and Steel Production	
1,171.17	2.C.1. Iron and Steel Production	
335.45	1.B.2.a. Oil: iv. Refining / Storage	
741.71	2.C.3. Aluminium Production	
215.60	Waste Incineration	
Not oxidised: emitted as CH <sub>4</sub> and some CO <sub>2</sub>	1.B.2.b. Natural Gas ii. Distribution	

Australia  
2002  
Submission 2004

**Additional information <sup>(a)</sup>**

Description	Value
Amount of CH <sub>4</sub> drained (recovered) and utilized or flared (Gg)	C
Number of active underground mines	47
Number of mines with drainage (recovery) systems	4

<sup>(a)</sup> For underground mines.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA Amount of fuel produced (Mt)	IMPLIED EMISSION FACTOR		EMISSIONS	
		CH <sub>4</sub> (kg/t)	CO <sub>2</sub> (kg/t)	CH <sub>4</sub> (Gg)	CO <sub>2</sub> (Gg)
<b>I. B. 1. a. Coal Mining and Handling</b>					
i. Underground Mines	335.83			831.25	NE
	91.88	5.53	NA	507.77	NE
Mining Activities		5.22	NA	479.97	NE
Post-Mining Activities		0.30	NA	27.81	NE
ii. Surface Mines	243.96	1.33	NA	323.48	NE
Mining Activities		1.33	NA	323.48	NE
Post-Mining Activities		NA	NA	NE	NE
<b>I. B. 1. b. Solid Fuel Transformation</b>	IE	NA	NA	IE	IE
<b>I. B. 1. c. Other (please specify)</b>				NA	NA
NA	NA	NA	NA	NA	NA

**Documentation box:**

Run-of-mine data used  
I.B.1.b. Solid Fuel Transformation is reported in 2.C.1. Iron and Steel Production  
Data on methane recovered, utilised or flared is Confidential

**TABLE 1.B.2 SECTORAL BACKGROUND DATA FOR ENERGY**  
Fugitive Emissions from Oil and Natural Gas (Sheet 1 of 1)

Australia  
2002  
Submission 2004

## Additional information

Description	Value	Unit
Pipelines length (km)	95,558.00	km
Number of oil wells		NA/NA
Number of gas wells		NA/NA
Gas throughput	31,524.00	million m <sup>3</sup>
Oil throughput <sup>(a)</sup>	667,000.00	bbls/day
Other relevant information (specify)		NA/NA
NA		NA/NA

<sup>(a)</sup> barrels per day

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS			
	Description	Unit	Value	CO <sub>2</sub> (kg/unit)	CH <sub>4</sub> (kg/unit)	N <sub>2</sub> O (kg/unit)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)
<b>1. B. 2. a. Oil</b>							433.29	5.71	0.01
i. Exploration	NA	NA	NA	NA	NA		202.48	1.91	0.008
ii. Production	Crude oil and ORF produced	PJ	1,380.10	NA	1,026.37		NA	1.42	
iii. Transport	Quantity shipped	PJ	279.07	NA	745.00		NA	0.21	
iv. Refining/ Storage	Oil refined	PJ	1,798.77	128,314.33	1,211.22		230.81	2.18	0.01
v. Distribution of oil products	Petrol, Diesel and Avgas sales	PJ	1,160.50	NA	NA		NA	NA	
vi. Other	NA	NA	NA	NA	NA		NA	NA	
<b>1. B. 2. b. Natural Gas</b>							9.73	169.56	
Exploration	NA	NA	NA	NA	NA		NA	NA	
i. Production/ Processing	Gas produced	PJ	1,446.87	NA	1,088.21		NE	1.57	
ii. Transmission	Gas transmitted	PJ	756.00	631.64	11,025.83		0.48	8.34	
Distribution	Utility sales	PJ	433.19	21,349.43	368,536.78		9.25	159.65	
iii. Other Leakage	NE	NE	NE	NE	NE		NE	NE	
NA	NA	NA	NA	NA	NA		NA	NA	
<b>1. B. 2. c. Venting</b>							3,580.07	92.40	
i. Oil	NA	NA	NA	NA	NA		NA	NA	
ii. Gas	PJ gas produced	PJ	1,446.87	2,474,361.48	63,859.41		3,580.07	92.40	
iii. Combined	NA	NA	NA	NA	NA		NA	NA	
<b>Flaring</b>							2,439.12	30.00	0.07
i. Oil	IE	IE	IE	NA	NA		IE	IE	IE
ii. Gas	IE	IE	IE	NA	NA		IE	IE	IE
iii. Combined	PJ gas and oil produced	PJ	2,826.97	862,803.86	10,613.68	24.58	2,439.12	30.00	0.07
<b>1.B.2.d. Other (please specify)</b>							NA	NA	NA
NA	NA	NA	NA	NA	NA		NA	NA	NA

Australia  
2002  
Submission 2004

**Additional information**

Fuel consumption	Allocation (percent)	
	Domestic	International
Marine	37.69	62.31
Aviation	40.31	59.69

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA Consumption (TJ)	IMPLIED EMISSION FACTORS			EMISSIONS			
		CO <sub>2</sub> (t/TJ)	CH <sub>4</sub> (kg/TJ)	N <sub>2</sub> O (kg/TJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	
<b>Marine Bunkers</b>	<b>34,967.30</b>				<b>2,533.44</b>	<b>0.12</b>	<b>0.07</b>	
Gasoline	NA	NA	NA	NA	NA	NA	NA	NA
Gas/Diesel Oil	3,733.82	69.00	7.00	2.00	257.64	0.03	0.01	0.01
Residual Fuel Oil	31,233.48	72.86	3.00	2.00	2,275.80	0.09	0.06	0.06
Lubricants	NA	NA	NA	NA	NA	NA	NA	NA
Coal	NA	NA	NA	NA	NA	NA	NA	NA
Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Aviation Bunkers</b>	<b>124,158.30</b>				<b>8,567.30</b>	<b>0.01</b>	<b>0.26</b>	
Jet Kerosene	124,158.30	69.00	0.08	2.13	8,567.30	0.01	0.26	0.26
Gasoline	NA	NA	NA	NA	NA	NA	NA	NA
<b>Multilateral Operations</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>

**Note:** In accordance with the IPCC Guidelines, international aviation and marine bunker fuel emissions from fuel sold to ships or aircraft engaged in international transport should be excluded from national totals and reported separately for informational purposes only.

**Documentation box:** Please explain how the consumption of International Marine and Aviation Bunkers fuels was estimated and separated from the domestic consumption.

Petroleum companies provide international and domestic bunker fuel consumption for maritime and aviation activities. Data on international and domestic fuel consumption are collected separately due to differential excise taxes placed on the fuel.





**TABLE 2 INDUSTRIAL PROCESSES**

Australia  
2002  
Submission 2004

**TABLE 2(I) SECTORAL REPORT FOR INDUSTRIAL PROCESSES**  
(Sheet 1 of 2)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES															
CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(1)</sup>			PFCs <sup>(1)</sup>			SF <sub>6</sub>			NO <sub>x</sub>	CO	NM VOC	SO <sub>2</sub>
			P	A	CO <sub>2</sub> equivalent (Gg)	P	A		P	A					
(Gg)															
Total Industrial Processes	18,297.13	3.08	0.07	NE	2,744.46	NE	1,507.17	NE	0.00		56.61	8.07	71.54	2,052.06	
A. Mineral Products	5,179.52	NA	NA								NE	NE	17.64	NE	NE
1. Cement Production	3,291.17														NE
2. Lime Production	1,078.66														
3. Limestone and Dolomite Use	809.69														
4. Soda Ash Production and Use <sup>(2)</sup>	C														
5. Asphalt Roofing	NO														
6. Road Paving with Asphalt	NE												NO	NO	
7. Other (please specify)	NE	NA	NA								NE	NE	17.64	NE	NE
Glass production	C	NA	NA								NA	NA	NA	NA	NA
Magnesia Production	NE	NA	NA								NA	NA	NA	NA	NA
B. Chemical Industry <sup>(2)</sup>	C	0.36	C	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE	NE
1. Ammonia Production	C		NE								NE	NE	NE	NE	NE
2. Nitric Acid Production			C								NE	NE	NE	NE	NE
3. Adipic Acid Production											NO	NO	NO	NO	
4. Carbide Production	NO	NO											NO	NO	NO
5. Other (please specify)	NE	0.36	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polymers and other chemicals <sup>3</sup>	NE	0.36	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.75	NA	NA
C. Metal Production	13,117.61	2.72	0.07	NA	NA	NA	1,507.17	NA	NE	56.61	8.07	0.10	2,052.06		
1. Iron and Steel Production	10,442.86	2.72	0.07								56.61	8.07	0.10	29.34	
2. Ferroalloys Production	NA	NA									NA	NA	NA	NA	NA
3. Aluminium Production	2,674.75	NA					1,507.17				NE	NE	NE	46.20	
4. SF <sub>6</sub> Used in Aluminium and Magnesium Foundries															
5. Other (please specify)	NE	NE	NE	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE	1,976.52	
Copper, lead, zinc, nickel and silver	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	1,976.52	

<sup>(1)</sup> P = Potential emissions based on Tier 1 approach of the IPCC Guidelines. A = Actual emissions based on Tier 2 approach of the IPCC Guidelines. This only applies in sectors where methods exist for both tiers.

2. Speciated emissions from Soda Ash Production and Use, Magnesia Production, Ammonia Production and Nitric Acid Production are Confidential. These emissions are reported in Summary Table 2 and Table 10s5 as CO<sub>2</sub>-e emission. The total emissions from 2A4 Soda Ash Production and Use, 2A7 Magnesia Production and Use, 2A7 Magnesia Production and Use, 2A7 Magnesia Production and Use are 3748.43 Gg CO<sub>2</sub>-e.

3. Includes emissions from butadiene, carbon black, ethyl benzene, ethylene, ethylene oxide, formaldehyde, HDPE, LDPE, propylene, polystyrene, styrene, polyvinyl chloride, and styrene butadiene rubber.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NM VOC	SO <sub>2</sub>
				P	A	P	A	P	A				
	(Gg)			CO <sub>2</sub> equivalent (Gg)				(Gg)					
D. Other Production	NE									NE	NE	53.80	NE
1. Pulp and Paper											NE	NE	NE
2. Food and Drink	NE											53.80	NE
E. Production of Halocarbons and SF <sub>6</sub>													
1. By-product Emissions					NO		NO		NO				
Production of HCFC-22					NO								
Other					NA		NA		NA				
2. Fugitive Emissions					NO		NO		NO				
3. Other (please specify)					NA		NA		NA				
NA					NA		NA		NA				
F. Consumption of Halocarbons and SF <sub>6</sub>				NE	2,744.46	NE	NE	NE	NE				
1. Refrigeration and Air Conditioning Equipment				NE	2,744.46		NE	NE	NO				
2. Foam Blowing				NE	NE		NE	NE	NO				
3. Fire Extinguishers				NE	NE		NE	NE	NO				
4. Aerosols/ Metered Dose Inhalers				NE	NE		NE	NE	NO				
5. Solvents				NE	NE		NE	NE	NO				
6. Semiconductor Manufacture				NE	NO		NE	NE	NO				
7. Electrical Equipment				NE	NE		NE	NE	NE				
8. Other (please specify)				NA	NA		NA	NA	NA				
NA					NA		NA	NA	NA				
G. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS			
	Production/Consumption quantity		CO <sub>2</sub> (t/t)	CH <sub>4</sub> (t/t)	N <sub>2</sub> O (t/t)	CO <sub>2</sub>		CH <sub>4</sub>	
	Description	(kt)				(Gg)	( <sup>(1)</sup> )	(Gg)	( <sup>(1)</sup> )
<b>A. Mineral Products</b>									
1. Cement Production	Clinker production	6,353.61	0.52			5,179.52	NA	NA	NA
2. Lime Production	Commercial and in-house	1,582.89	0.68			3,291.17	NA		
3. Limestone and Dolomite Use	Used in iron and steel	C				1,078.66	NA		
4. Soda Ash						809.09	NA		
						C	NA		
	Soda ash production	C	C			C	NA		
	Soda ash use	C	C			C	NA		
5. Asphalt Roofing	NO	NO	NO			NO	NO		
6. Road Paving with Asphalt	Bitumen used in spray sealing	326.61	NE			NE	NE		
7. Other (please specify)						NE	NE	NA	NA
Glass Production		NE	NE			NE	NE		
Magnesia Production		C	NE	NA	NA	C	NA	NA	NA
<b>B. Chemical Industry</b>									
1. Ammonia Production	Production	C	C	NA	NE	C	NA	0.36	NA
2. Nitric Acid Production	Production	C				C	NE		NE
3. Adipic Acid Production	NO	NO							NA
4. Carbide Production	NO	NO	NO	NO	NO	NO	NO	NO	NO
Silicon Carbide	NO	NO	NO	NO	NO	NO	NO	NO	
Calcium Carbide	NE	NE	NE	NE	NE	NE	NE	NE	NE
5. Other (please specify)									
Carbon Black		C		NE			NE	C	NE
Ethylene	NE	C	NE	NE	NE	C	NE	C	NE
Dichloroethylene	NE	NE		NE			NE	NE	NE
Styrene	NE	C		NE			NE	NE	NE
Methanol	NE	NE		NE			NE	NE	NE
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

(<sup>(1)</sup>) Adjusted emissions, reduced to account for emission recovery, oxidation, destruction and transformation.

**TABLE 2(I).A-G SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES**

Emissions of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O (Sheet 2 of 2)

**INDUSTRIAL PROCESSES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS			EMISSIONS			
	Production/Consumption quantity		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	
	Description	(kt)	(t/t)	(t/t)	(t/t)	(Gg)	(Gg)	(Gg)	(t)
<b>C. Metal Production</b>									
1. Iron and Steel Production									
Steel	Crude steel (BF/BOS)	C	NA			13,117.61	2.72	NA	0.07
	Crude steel (BF/BOS)	C	NA			10,442.86	2.72	NA	0.07
Pig Iron	Natural gas (PJ)	C	0.00	0.00		1,171.45	0.02	NA	0.002
Sinter	NA	NA	NA	NA		NA	NA	NA	
Coke	Coke (PJ)	C	0.00	0.00		9,271.42	2.70	NA	0.06
Other (please specify)						NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	
2. Ferrous Production	NA	NA	NA	NA	NA	NA	NA	NA	
3. Aluminium Production	Primary aluminium	1,809.00	1.48	NA		2,674.75	NA	NA	
4. SF <sub>6</sub> Used in Aluminium and Magnesium Foundries									
5. Other (please specify)									
Copper, lead, zinc, nickel and silver	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>D. Other Production</b>									
1. Pulp and Paper									
2. Food and Drink	Bread, wine, beer, sugar, meat	NE	NE			NE			
G. Other (please specify)									
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>(1)</sup> Adjusted emissions, reduced to account for emission recovery, oxidation, destruction and transformation.

**Documentation box:**

Data on iron and steel sourced from ABS (2002); data on aluminium production sourced from ABARE (2002); data to derive average emission factors for PFCs for aluminium provided by the Australian Aluminium Council.

Emissions from aluminium are net of alumina sink.

To protect commercial-in-confidence data specified emissions from Soda Ash Production and Use, Magnesia Production, Ammonia Production, and Nitric Acid Production are Confidential. These emissions are reported in Summary Table 2 and Table 10s5 as CO<sub>2</sub>-e emissions. The total emissions from these sources are 3748.43 Gg CO<sub>2</sub>-e.

CO<sub>2</sub> emissions from metallurgical coke production and use are included in the Energy Sector. CH<sub>4</sub> emissions from coke are included in the CH<sub>4</sub> emissions from integrated iron and steel production.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFC-23	HFC-32	HFC-41	HFC-43-10mee	HFC-125	HFC-134	HFC-134a	HFC-152a	HFC-143	HFC-143a	HFC-227ea	HFC-236fa	HFC-245ca	Total HFCs <sup>(1)</sup>	CF <sub>4</sub>	C <sub>2</sub> F <sub>6</sub>	C <sub>3</sub> F <sub>8</sub>	C <sub>4</sub> F <sub>10</sub>	C <sub>4</sub> F <sub>8</sub>	C <sub>5</sub> F <sub>12</sub>	C <sub>6</sub> F <sub>14</sub>	Total PFCs <sup>(1)</sup>	SF <sub>6</sub>
	(t) <sup>(2)</sup>																						
Total Actual Emissions of Halocarbons (by chemical) and SF <sub>6</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		195.87	25.44	NE	NE	NE	NE	NE		NE
C. Metal Production															195.87	25.44	NE	NE	NE	NE	NE		NE
Aluminium Production															195.87	25.44	NE	NE	NE	NE	NE		NE
SF <sub>6</sub> Used in Aluminium Foundries																							NO
SF <sub>6</sub> Used in Magnesium Foundries																							NE
E. Production of Halocarbons and SF <sub>6</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
1. By-product Emissions	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
Production of HCFC-22	NO																						
Other	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
2. Fugitive Emissions	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
3. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA
NA																							
F(a). Consumption of Halocarbons and SF <sub>6</sub> (actual emissions - Tier 2)	NE	NE	NE	NE	104.41	NE	1,610.96	NE	NE	94.18	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
1. Refrigeration and Air Conditioning Equipment	NE	NE	NE	NE	104.41	NE	1,610.96	NE	NE	94.18	NO	NE	NE		NE	NE	NE	NE	NE	NE	NE		NE
2. Foam Blowing	NE	NO	NE	NO	NO	NE	NE	NE	NE	NE	NO	NO	NO		NE	NE	NE	NE	NE	NE	NE		NO
3. Fire Extinguishers	NE	NO	NE	NO	NE	NE	NE	NE	NE	NO	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE		NO
4. Aerosols/Metered Dose Inhalers	NO	NO	NO	NO	NE	NE	NE	NE	NE	NO	NE	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
5. Solvents	NE	NO	NE	NE	NO	NE	NE	NE	NE	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
6. Semiconductor Manufacture	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO		NO
7. Electrical Equipment																							
8. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA
G. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA

<sup>(1)</sup> Although shaded, the columns with HFCs and PFCs totals on sheet 1 are kept for consistency with sheet 2 of the table.<sup>(2)</sup> Note that the units used in this table differ from those used in the rest of the Sectoral report tables, i.e. [t] instead of [Gg].

**TABLE 2(II) SECTORAL REPORT FOR INDUSTRIAL PROCESSES—  
EMISSIONS OF HFCs, PFCs AND SF<sub>6</sub>**  
(Sheet 2 of 2)

**INDUSTRIAL PROCESSES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	F(p). Total Potential Emissions of Halocarbons (by chemical) and SF <sub>6</sub>														Total HFCs	CF <sub>4</sub>	C <sub>2</sub> F <sub>6</sub>	C <sub>3</sub> F <sub>8</sub>	C <sub>4</sub> F <sub>10</sub>	C <sub>4</sub> F <sub>8</sub>	C <sub>5</sub> F <sub>12</sub>	C <sub>6</sub> F <sub>14</sub>	Total PFCs	SF <sub>6</sub>
	(t)																							
	HFC-23	HFC-32	HFC-41	HFC-43-10mee	HFC-125	HFC-134	HFC-134a	HFC-152a	HFC-143	HFC-143a	HFC-227ea	HFC-236fa	HFC-245ca											
Production	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
Import:	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
In bulk	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
In products	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
Export:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
In bulk	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
In products	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
Destroyed amount	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		NE	NE	NE	NE	NE	NE	NE	NE		
GWP values used	11700	650	150	1300	2800	1000	1300	140	300	3800	2900	6300	560		6500	9200	7000	7000	8700	7500	7400		23900	
Total Actual Emissions (Gg CO <sub>2</sub> eq.)	NE	NE	NE	NE	292.34	NE	2,094.24	NE	NE	357.87	NE	NE	NE	2,744.46	1,273.15	234.02	NE	NE	NE	NE	NE	1,507.17	NE	
C. Metal Production															1,273.15	234.02	NO	NO	NO	NO	NO	1,507.17	NE	
E. Production of Halocarbons and SF <sub>6</sub>	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO	
F(a). Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	NE	NE	292.34	NE	2,094.24	NE	NE	357.87	NE	NE	NE	2,744.46	NE	NE	NE	NE	NE	NE	NE	NE	NE	
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ratio of Potential/Actual Emissions from Consumption of Halocarbons and SF <sub>6</sub>																								
Actual Emissions – F(a) (Gg CO <sub>2</sub> eq.)	NE	NE	NE	NE	292.34	NE	2,094.24	NE	NE	357.87	NE	NE	NE	2,744.46	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Potential Emissions – F(p) (7) (Gg CO <sub>2</sub> eq.)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Potential/Actual Emissions Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**INDUSTRIAL  
PROCESSES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS (kg/t)	EMISSIONS	
	Description	(t)		(t)	(1)
<b>C. PFCs and SF<sub>6</sub> from Metal Production</b>					
PFCs from Aluminium Production					
CF <sub>4</sub>	Primary aluminium	1,809,000.00	0.11	195.87	NA
C <sub>2</sub> F <sub>6</sub>	Primary aluminium	1,809,000.00	0.01	25.44	NA
SF <sub>6</sub>				0.00	NA
Aluminium Foundries	(SF <sub>6</sub> consumption)	NO	NO	NO	NO
Magnesium Foundries	(SF <sub>6</sub> consumption)	NE	NE	NE	NA
<b>E. Production of Halocarbons and SF<sub>6</sub></b>					
<b>1. By-product Emissions</b>					
Production of HCFC-22					
HFC-23	NO	NO	NO	NO	NO
Other (specify chemical)					
NA	NA	NA	NA	NA	NA
<b>2. Fugitive Emissions</b>					
HFCs (specify chemical)					
NO	NO	NO	NO	NO	NO
PFCs (specify chemical)					
NO	NO	NO	NO	NO	NO
SF <sub>6</sub>	NO	NO	NO	NO	NO
<b>3. Other (please specify)</b>					
NA	NA	NA	NA	NA	NA

(1) Adjusted emissions, reduced to account for emission recovery, oxidation, destruction and transformation



**TABLE 2(II).F SECTORAL BACKGROUND DATA FOR INDUSTRIAL PROCESSES**

Consumption of Halocarbons and SF<sub>6</sub> (Sheet 1 of 2)

**INDUSTRIAL PROCESSES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA <i>Amount of fluid</i>			IMPLIED EMISSION FACTORS			EMISSIONS		
	Filled in new manufactured products	In operating systems (average annual stocks)	Remained in products at decommissioning	Product manufacturing factor	Product life factor	Disposal loss factor	From manufacturing	From stocks	From disposal
	(t)			(% per annum)			(t)		
<b>1 Refrigeration Air Conditioning Equipment</b>									
Domestic Refrigeration ( <i>Specify chemical</i> )									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Commercial Refrigeration									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Transport Refrigeration									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Industrial Refrigeration									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Stationary Air-Conditioning									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Mobile Air-Conditioning									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
<b>2 Foam Blowing</b>									
Hard Foam									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Soft Foam									
NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA			IMPLIED EMISSION FACTORS			EMISSIONS		
	Filled in new manufactured products	Amount of fluid		Product manufacturing factor	Product life factor	Disposal loss factor	From manufacturing	From stocks	From disposal
		In operating systems (average annual stocks)	Remained in products at decommissioning						
(t)									
(% per annum)									
(t)									
3 Fire Extinguishers	NE	NE	NE	NE	NE	NE	NE	NE	NE
4 Aerosols									
Metered Dose Inhalers	NE	NE	NE	NE	NE	NE	NE	NE	NE
Other	NE	NE	NE	NE	NE	NE	NE	NE	NE
5 Solvents	NE	NE	NE	NE	NE	NE	NE	NE	NE
6 Semiconductors	NO	NO	NO	NO	NO	NO	NO	NO	NO
7 Electric Equipment	NE	NE	NE	NE	NE	NE	NE	NE	NE
8 Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE 3 SOLVENT AND OTHER PRODUCT USE**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>	N <sub>2</sub> O	NMVOC
	(Gg)		
Total Solvent and Other Product Use	NA	NE	141.87
A. Paint Application	NA	NA	63.08
B. Degreasing and Dry Cleaning	NA	NA	35.55
C. Chemical Products, Manufacture and Processing			0.81
D. Other (please specify)	NA	NE	42.42
Domestic and Commercial Aerosol Products	NA	NE	25.53
Other Domestic and Commercial Products	NA	NE	7.86
Consumer Cleaning Products	NA	NE	9.03

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA		IMPLIED EMISSION FACTORS	
	Description	(kt)	CO <sub>2</sub> (t/t)	N <sub>2</sub> O (t/t)
A. Paint Application	Production	270.49	0.00	0.00
B. Degreasing and Dry Cleaning	Population	NA	0.00	0.00
C. Chemical Products, Manufacture and Processing				
D. Other <i>(please specify)</i>				
Domestic and Commercial Aerosol Products	Population	NA	0.00	0.00
Other Domestic and Commercial Products	Population	NA	0.00	0.00
Consumer Cleaning Products	Population	NA	0.00	0.00



# TABLE 4 AGRICULTURE

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub> (Gg)	CO	NMVOG
Total Agriculture		3,672.16	92.03	1,431.62	19,108.81	1,114.68
A. Enteric Fermentation		3,058.55				
1. Cattle		2,300.79				
Dairy Cattle		355.86				
Non-Dairy Cattle		1,944.93				
2. Buffalo		0.58				
3. Sheep		745.07				
4. Goats		1.91				
5. Camels and Llamas		0.09				
6. Horses		3.79				
7. Mules and Asses		0.00				
8. Swine		4.10				
9. Poultry		NE				
10. Other (please specify)		2.21				
Alpaca		0.04				
Deer		1.17				
Ostriches/Emus		0.99				
B. Manure Management		95.51	4.44			NA
1. Cattle		28.58				
Dairy Cattle		27.45				
Non-Dairy Cattle		1.13				
2. Buffalo		NE				
3. Sheep		NE				
4. Goats		NE				
5. Camels and Llamas		NE				
6. Horses		NE				
7. Mules and Asses		NE				
8. Swine		64.72				
9. Poultry		2.21				



Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub> (Gg)	CO	NMVO
<b>B. Manure Management (continued)</b>						
	10. Anaerobic Lagoons		0.07			NA
	11. Liquid Systems		0.00			NA
	12. Solid Storage and Dry Lot		2.68			NA
	13. Other <i>(please specify)</i>		1.68			NA
	Digester		0.00			NE
	Poultry with bedding		1.62			NE
	Poultry without bedding		0.06			NE
<b>C. Rice Cultivation</b>		28.12				NA
	1. Irrigated	28.12				NA
	2. Rainfed	NO				NA
	3. Deep Water	NO				NA
	4. Other <i>(please specify)</i>	NA				NA
	NA	NA				NA
<b>D. Agricultural Soils</b>		NE	62.81			NA
	1. Direct Soil Emissions	NE	25.78			NA
	2. Animal Production	NE	14.19			NA
	3. Indirect Emissions	NE	NE			NA
	4. Other <i>(please specify)</i>	NA	22.84			NA
	Soil Disturbance	NA	22.84			NA
<b>E. Prescribed Burning of Savannas</b>		476.92	24.41	1,410.33	18,600.03	1,085.00
<b>F. Field Burning of Agricultural Residues</b>		13.05	0.37	21.29	508.77	29.68
	1. Cereals	11.87	0.29	16.96	463.10	27.01
	2. Pulse	NO	NO	NO	NO	NA
	3. Tuber and Root	NO	NO	NO	NO	NA
	4. Sugar Cane	1.17	0.07	4.33	45.68	2.66
	5. Other <i>(please specify)</i>	NA	NA	NA	NA	NA
	NA	NA	NA	NA	NA	NA
<b>G. Other <i>(please specify)</i></b>		NA	NA	NA	NA	NA
	NA	NA	NA	NA	NA	NA

TABLE 4.A SECTORAL BACKGROUND DATA FOR AGRICULTURE  
Enteric Fermentation (Sheet 1 of 1)

Additional information (for Tier 2)									
Disaggregated list of animals		Dairy Cattle		Non-Dairy Cattle		Feedlot cattle		Other (specify)	
Indicators:									
Weight	(kg)	456.69		389.03		524.99		NA	
Feeding situation <sup>(c)</sup>		Pasture		Pasture		Stall-fed		NA	
Milk yield	(kg/day)	12.90		NA		NA		NA	
Work	(hrs/day)	NA		NA		NA		NA	
Pregnant	(%)	NA		NA		NA		NA	
Digestibility of feed	(%)	76.55		59.91		80.00		NA	

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION			IMPLIED EMISSION FACTORS	
	Population size (1000 head)	Average daily feed intake (MJ/day)	CH <sub>4</sub> conversion (%)	CH <sub>4</sub> (kg CH <sub>4</sub> /head/yr)	
1. Cattle	NA	NA	NA	NA	
Dairy Cattle	3,172	216.6	7.84	112.19	
Non-Dairy Cattle	24,622	134.7	8.87	78.99	
2. Buffalo	10	NA	NA	55.00	
3. Sheep	108,547	16.9	6.16	6.86	
4. Goats	383	NA	NA	5.00	
5. Camels and Llamas	2	NA	NA	46.00	
6. Horses	211	NA	NA	18.00	
7. Mules and Asses	0	NA	NA	10.00	
8. Swine	2,844	30.8	0.71	1.44	
9. Poultry	89,508	NA	NA	NA	
10. Other (please specify)					
Alpaca	4	NA	NA	10.20	
Deer	110	NA	NA	10.70	
Ostriches/Emus	199	NA	NA	5.00	

Documentation box:

Feed intakes are presented only for those species where it is calculated. For the minor species, a Tier 1 approach was used and no intake calculated.

The intake, liveweight and digestibility values are national means. For example, average intake was calculated as the sum of all intakes by class by season by region divided by the sum of animal numbers. Similarly weight was calculated as the total herd weight divided by the total number of animals. Full disaggregation of data by species by State by season can be found in the Australian Methodology for the estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture. This includes data used for the Inventory calculations that are not requested in this table.

Methane conversion was calculated as daily methane emissions (drawn from Table4s1) converted to energy terms (55.22 MJ/kg) divided by the daily feed intake (which assumes an energy value in feed of 18.4 MJ/kg).

Milk yield is calculated as a national average from industry statistics.

Feedlot cattle data are presented in the additional table as a separate class but these animals are included in the Non-Dairy Cattle class in the main table.

**TABLE 4.B(a) SECTORAL BACKGROUND DATA FOR AGRICULTURE**  
CH<sub>4</sub> Emissions from Manure Management (Sheet 1 of 1)

Australia  
2002  
Submission 2004

**Additional information (for Tier 2)**

Animal category <sup>(a)</sup>	Indicator	Climate region	Animal waste management system				
Dairy Cattle	Allocation(%)	Cool	Anaerobic lagoon	Liquid system	Daily spread	Solid storage and dry lot	Pasture range paddock
			NA	NA	NA	NA	NA
Dairy Cattle	Allocation(%)	Warm	4.9	0.4	1.3	0.0	93.4
			2.5	0.0	5.8	0.0	91.7
Dairy Cattle	MCF <sup>(a)</sup>	Cool	NA	NA	NA	NA	NA
			90.0	35.0	0.5	1.5	1.0
Dairy Cattle	Allocation(%)	Warm	90.0	65.0	1.0	5.0	2.0
			NA	NA	NA	NA	NA
Non-Dairy Cattle	Allocation(%)	Cool	NA	NA	NA	NA	NA
			NA	NA	NA	100.0	NA
Non-Dairy Cattle	Allocation(%)	Warm	NA	NA	NA	100.0	NA
			NA	NA	NA	NA	NA
Non-Dairy Cattle	MCF <sup>(a)</sup>	Cool	NA	NA	NA	NA	NA
			NA	NA	NA	1.5	NA
Non-Dairy Cattle	Allocation(%)	Warm	NA	NA	NA	5.0	NA
			NA	NA	NA	NA	NA
Swine	Allocation(%)	Cool	NA	NA	NA	NA	NA
			70.6	0.0	24.5	4.4	0.0
Swine	Allocation(%)	Warm	92.0	1.5	1.5	5.0	0.0
			NA	NA	NA	NA	NA
Swine	MCF <sup>(a)</sup>	Cool	90.0	35.0	0.5	1.5	10.0
			90.0	65.0	1.0	5.0	10.0

<sup>(a)</sup> MCF = Methane Conversion Factor (IPCC Guidelines, Volume 3, Reference Manual, p. 4.9). In the case of use of other climate region categorization, please replace the entries in the cells with the climate regions for which the MCFs are specified.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION					IMPLIED EMISSION FACTORS CH <sub>4</sub>  (kg CH <sub>4</sub> /head/yr)
	Population size	Allocation by climate region <sup>(1)</sup>			VS <sup>(2)</sup> daily excretion  (kg dm/head/dy)	
		Cool	Temperature	Warm		
	(1000 head)	(%)			(CH <sub>4</sub> m <sup>3</sup> /kg VS)	
1. Cattle	NA	NA	NA	NA	NA	NA
Dairy Cattle	3,172	0.0	91.4	8.6	456.7	0.2
Non-Dairy Cattle - Feedlot	944	0.0	41.1	58.9	525.0	0.2
2. Buffalo	10	0.0	0.0	100.0	NA	NA
3. Sheep	108,547	0.0	92.9	7.1	45.3	NA
4. Goats	383	0.0	71.6	28.4	NA	NA
5. Camels and Llamas	2	0.0	31.8	68.2	NA	NA
6. Horses	211	0.0	57.5	42.5	NA	NA
7. Mules and Asses	0	0.0	0.0	100.0	NA	NA
8. Swine	2,844	0.0	78.1	21.9	60.6	0.5
9. Poultry	89,508	0.0	84.2	15.8	1.1	0.3
						22.75
						0.02

<sup>(1)</sup> Climate regions are defined in terms of annual average temperature as follows: Cool=less than 15°C; Temperature=15°C to 25°C inclusive; and Warm=greater than 25°C (see Table 4.2 of the IPCC Guidelines (Volume 3, Reference Manual, p. 4.8)).

<sup>(2)</sup> VS=Volatile Solids; Bo=maximum methane producing capacity for manure IPCC Guidelines (Volume 3, Reference Manual, p.4.23 and p.4.15).

**Documentation Box:**

Animal mass is calculated as a national average for those species where it is recorded in the Australian inventory approach. For Dairy Cattle, this includes milking cattle as well as other classes in the dairy herd (eg heifers, dairy bulls). These other classes are a small portion of the herd but importantly have very different feeding conditions to Non-Dairy Cattle and hence are here dealt with separately as part of the dairy herd. Animal mass for Non-Dairy Cattle is the weighted average for Feedlot Cattle as free range cattle are not considered to produce methane from manure as explained below.

Volatile solids for Dairy and Feedlot Cattle are calculated from average feed intake (Table4.A) adjusted for digestibility and ash content.

Volatile solids and values for waste management systems for Non-Dairy Cattle refer only to cattle kept in feedlots and are calculated similarly to that for Dairy Cattle. The predominantly free-ranging cattle, sheep and other livestock in Australia are not considered to produce significant methane from manure as it is voided under generally, hot, dry, aerobic conditions with substantial bioturbation.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION							IMPLIED EMISSION FACTORS	
	Population size (1000s)	Nitrogen excretion (kg N/head/yr)	Nitrogen excretion per animal waste management system (kg N/yr)					Emission factor per animal waste management system (kg N <sub>2</sub> O-N/kg N)	
			Anaerobic lagoon	Liquid system	Daily spread	Solid storage and dry lot	Pasture range and paddock	Other	
Non-Dairy Cattle - Free Range	23,677	39.17	NA	NA	NA	NA	927,514,951.28	NA	Anaerobic lagoon
Dairy Cattle	3,172	138.18	20,676,669.94	1,596,490.38	7,166,241.86	NA	408,813,727.41	NA	Liquid system
Sheep	108,547	7.02	NA	NA	NA	NA	762,041,087.44	NA	Solid storage and dry lot
Swine	2,844	12.11	25,921,802.25	112,090.04	6,700,186.21	1,549,512.81	NA	134,158.53	Other
Poultry	89,508	0.68	NA	NA	NA	NA	1,838,977.03	59,460,257.16	
Other (please specify)									
Non-Dairy Cattle-Feedlot	944	88.71	NA	NA	NA	83,777,515.12	NA	NA	
Goats, horses, deer, buffalo, donkeys, mules, emus, ostriches, alpacas, camels	919	NA	NA	NA	NA	NA	14,371,571.03	NA	
<b>Total per AWMS<sup>(1)</sup></b>			<b>46,598,472.18</b>	<b>1,708,580.41</b>	<b>13,866,428.07</b>	<b>85,327,027.93</b>	<b>2,114,580,314.18</b>	<b>59,594,415.68</b>	

<sup>(1)</sup> AWMS = Animal Waste Management System.**Documentation box:**

Non-Dairy cattle are here disaggregated into free-range and feedlot cattle. This is important as both the characteristics of nitrogen excretion differ as does the handling of the waste in terms of the Inventory process. Nitrous oxide emissions from managed manure systems arises only from feedlot cattle. Free-range cattle emissions of nitrous oxide are calculated separately and entered into the workbook on emissions from soils.

Nitrogen excretion rates for the aggregated livestock classes are reported in the Australian Methodology for Estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION			IMPLIED EMISSION FACTOR	EMISSIONS
	Harvested area (10 <sup>-9</sup> m <sup>2</sup> /yr)	Organic amendments added : type	(t/ha)		
<b>1. Irrigated</b>					<b>28.12</b>
Continuously Flooded	1.25	NA	NA	22.50	28.12
Intermittently Flooded	NO	NO	NO	NO	NO
Single Aeration	NO	NO	NO	NO	NO
Multiple Aeration	NO	NO	NO	NO	NO
<b>2. Rainfed</b>					<b>NO</b>
Flood Prone	NO	NO	NO	NO	NO
Drought Prone	NO	NO	NO	NO	NO
<b>3. Deep Water</b>					<b>NO</b>
Water Depth 50-100 cm	NO	NO	NO	NO	NO
Water Depth > 100 cm	NO	NO	NO	NO	NO
<b>4. Other (please specify)</b>					<b>NA</b>
NA	NA	NA	NA	NO	NA
Upland Rice	NO				
Total	1.25				

Australia  
2002  
Submission 2004

### Additional information

Fraction <sup>(a)</sup>	Description	Value
Frac <sub>BIURN</sub>	Fraction of crop residue burned	NA
Frac <sub>CIUEL</sub>	Fraction of livestock N excretion in excrements burned for fuel	NA
Frac <sub>GASF</sub>	Fraction of synthetic fertilizer N applied to soils that volatilizes as NH <sub>3</sub> and NO <sub>x</sub>	NA
Frac <sub>GASM</sub>	Fraction of livestock N excretion that volatilizes as NH <sub>3</sub> and NO <sub>x</sub>	NA
Frac <sub>GRAZ</sub>	Fraction of livestock N excreted and deposited onto soil during grazing	NA
Frac <sub>LEACH</sub>	Fraction of N input to soils that is lost through leaching and runoff	NA
Frac <sub>NCBBF</sub>	Fraction of N in non-N-fixing crop	NA
Frac <sub>NCRO</sub>	Fraction of N in N-fixing crop	NA
Frac <sub>K</sub>	Fraction of crop residue removed from the field as crop	NA

<sup>(a)</sup> Use the fractions as specified in the IPCC Guidelines (Volume 3, Reference Manual, pp. 4.92 - 4.113).

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION		IMPLIED EMISSION FACTORS		EMISSIONS (Gg N <sub>2</sub> O)
	Description	Value	Unit		
<b>Direct Soil Emissions</b>	<b>N input to soils (kg N/yr)</b>				<b>25.78</b>
Synthetic Fertilizers	Use of synthetic fertilizers (kg N/yr)	1,018,248,000	(kg N <sub>2</sub> O-N/kg N)	0.013	20.00
Animal Wastes Applied to Soils	Nitrogen input from manure applied to soils (kg N/yr)	204,285,040	(kg N <sub>2</sub> O-N/kg N)	0.018	5.78
N-fixing Crops	Dry pulses and soybeans produced (kg dry biomass/yr)		IE (kg N <sub>2</sub> O-N/kg dry biomass)	NA	1E
Crop Residue	Dry production of other crops (kg dry biomass/yr)		IE (kg N <sub>2</sub> O-N/kg dry biomass)	NA	1E
Cultivation of Histosols	Area of cultivated organic soils (ha)		IE (kg N <sub>2</sub> O-N/ha)	NA	1E
<b>Animal Production</b>	<b>N excretion on pasture range and paddock (kg N/yr)</b>	<b>2,114,580,314</b>	<b>(kg N<sub>2</sub>O-N/kg N)</b>	<b>0.004</b>	<b>14.19</b>
<b>Indirect Emissions</b>					<b>NE</b>
Atmospheric Deposition	Volatilized N (NH <sub>3</sub> and NO <sub>x</sub> ) from fertilizers and animal wastes (kg N/yr)		IE (kg N <sub>2</sub> O-N/kg N)	NA	1E
Nitrogen Leaching and Run-off	N from fertilizers and animal wastes that is lost through leaching and run off (kg N/yr)		NE (kg N <sub>2</sub> O-N/kg N)	NA	NE
<b>Other (please specify)</b>					<b>22.84</b>
Soil Disturbance	Area of improved pasture and crops (ha)	50,125,663	(kg N <sub>2</sub> O-N/ha)	0.290	22.84

### Documentation box:

Emissions from soil disturbance are the difference between N<sub>2</sub>O emissions from pasture and cropping systems and the emissions from the natural ecosystem they replaced. The category accounts for N<sub>2</sub>O emissions associated with atmospheric nitrogen deposition, soil cultivation, nitrogen fixation by legume crops, and nitrogen input from crop residues. It does not include indirect emissions from nitrogen leaching. Methodology is detailed in the Australian Methodology for Estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture.

The quantity of nitrogen input from manure applied to soils differs from nitrogen excretion reported in Table 4.B(b) as it has been adjusted to account for nitrogen emitted as N<sub>2</sub>O from the manure management systems.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION					IMPLIED EMISSION FACTORS		EMISSIONS	
	Area of savanna burned (k ha/yr)	Average aboveground biomass density (t dm/ha)	Fraction of savanna burned	Biomass burned (Gg dm)	Nitrogen fraction in biomass	(kg/t dm)		(Gg)	
						CH <sub>4</sub>	N <sub>2</sub> O	CH <sub>4</sub>	N <sub>2</sub> O
(specify ecological zone)								476.92	24.41
NSW	119.16	6.90	1.00	591.99	0.01	2.15	0.11	1.27	0.07
Tas	10.49	9.00	1.00	67.97	0.01	2.15	0.11	0.15	0.01
WA	19,039.51	7.70	1.00	105,555.05	0.01	2.15	0.11	226.59	11.60
SA	106.37	3.00	1.00	229.77	0.01	2.15	0.11	0.49	0.03
Vic	16.85	11.70	1.00	141.95	0.01	2.15	0.11	0.30	0.02
Qld	6,967.67	3.00	1.00	15,050.17	0.01	2.15	0.11	32.31	1.65
NT	24,073.91	5.80	1.00	100,532.64	0.01	2.15	0.11	215.81	11.05
ACT	0.00	11.10	1.00	0.00	0.01	0.00	0.00	0.00	0.00

**Additional information**

	Living	Dead
Fraction of aboveground biomass	NA	NA
Fraction oxidized	NA	0.72
Carbon fraction	NA	0.46

**Documentation box:**

The values reported as "Area of Savanna" are 10-year averages of actual areas of savanna burned. These are calculated using a combination of statistics collected by State fire authorities and fire areas of fire scars measured from satellite imagery. Fuel loads reported are fine fuels susceptible to burning.

Fraction oxidized is the product of the proportion of the fire scar which is actually burned, the proportion of fuel exposed to burning which is actually burned, and the proportion of burned fuel which is actually volatilised.

Australia  
2002  
Submission 2004

AGRICULTURE

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION							IMPLIED EMISSION FACTORS			EMISSIONS	
	Crop production (t)	Residue/ Crop ratio	Dry matter fraction	Fraction burned in fields	Biomass burned (Gg dm)	Nitrogen fraction in biomass of residues		CH <sub>4</sub> (kg/t dm)	N <sub>2</sub> O (kg/t dm)		CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)
<b>1. Cereals</b>											11.87	0.29
Wheat	23,203,706.41	1.50	0.90	0.12	3,458.28	0.0032		1.87	0.04		6.46	0.13
Barley	7,511,615.57	1.50	0.80	0.12	995.14	0.0032		1.87	0.04		1.86	0.04
Maize	399,393.12	1.50	0.80	0.30	138.03	0.0075		1.96	0.09		0.27	0.01
Oats	1,241,738.48	1.50	0.80	0.12	164.51	0.0032		1.87	0.04		0.31	0.01
Rye	NE	1.50	0.80	0.12	NE	0.0032		NE	NE		NE	NE
Rice	1,417,802.77	1.31	0.80	0.82	1,162.11	0.0065		1.96	0.08		2.28	0.09
Other (please specify)											0.71	0.01
Millet	26,127.79	1.50	0.80	0.12	3.46	0.00		1.87	0.04		0.01	0.00
Sorghum	1,977,991.86	1.50	0.80	0.12	262.04	0.00		1.87	0.04		0.49	0.01
Triticale	850,349.85	1.50	0.80	0.12	112.65	0.00		1.87	0.04		0.21	0.00
<b>2. Pulse</b>											NO	NO
Dry bean	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO
Peas	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO
Soybeans	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO
Other (please specify)											NA	NA
NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA
<b>3. Tuber and Root</b>											NO	NO
Potatoes	NO	NO	NO	NO	NO	NO		NO	NO		NO	NO
Other (please specify)											NA	NA
NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA
<b>4. Sugar Cane</b>	32,791,918.20	0.25	0.20	0.40	627.42	0.01		1.87	0.12		1.17	0.07
<b>5. Other (please specify)</b>											NA	NA
NA	NA	NA	NA	NA	NA	NA		NA	NA		NA	NA



**TABLE 5 LAND USE CHANGE AND FORESTRY**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	Net CO <sub>2</sub> emissions/ removals	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO
	(Gg)						
Total Land-Use Change and Forestry	97,636.80	-84,523.61	13,113.19	204.86	2.50	90.43	4,530.30
A. Changes in Forest and Other Woody Biomass Stocks	58,472.93	-80,300.06	-21,827.14				
1. Tropical Forests	NA	NA	NA	NA			
2. Temperate Forests	NA	NA	NA	NA			
3. Boreal Forests	NA	NA	NA	NA			
4. Grasslands/Tundra	NA	NA	NA	NA			
5. Other (please specify)	58,472.93	-80,300.06	-21,827.14				
Harvested Wood	NA	NA	NA	NA			
Managed Native Forest	NA	-57,328.10	-57,328.10				
Plantations	NA	-22,971.96	-22,971.96				
Commercial Harvest	45,538.76	NA	45,538.76				
Fuelwood Consumed	12,934.17	NA	12,934.17				
B. Forest and Grassland Conversion	39,163.87	0.00	39,163.87	126.23	1.04	31.23	2,211.46
1. Tropical Forests	NA	NA	NA	NA	NA	NA	NA
2. Temperate Forests	NA	NA	NA	NA	NA	NA	NA
3. Boreal Forests	NA	NA	NA	NA	NA	NA	NA
4. Grasslands/Tundra	NA	NA	NA	NA	NA	NA	NA
5. Other (please specify)	39,163.87	0.00	39,163.87	126.23	1.04	31.23	2,211.46
a) Above Ground	28,047.28	NA	28,047.28	126.23	1.04	31.23	2,211.46
b) Below Ground <sup>(1)</sup>	11,116.59	NA	11,116.59	NA	NA	NA	NA
C. Abandonment of Managed Lands	NA	NA	NA				
1. Tropical Forests	NA	NA	NA				
2. Temperate Forests	NA	NA	NA				
3. Boreal Forests	NA	NA	NA				
4. Grasslands/Tundra	NA	NA	NA				
5. Other (please specify)	NA	NA	NA				
NA	NA	NA	NA				
D. CO <sub>2</sub> Emissions and Removals from Soil	NE	-4,223.54	-4,223.54				
Cultivation of Mineral Soils	NE	NE	NE				
Cultivation of Organic Soils	NE	NE	NE				
Liming of Agricultural Soils	NE	NE	NE				
Forest Soils	NE	NE	NE				
Other (please specify)	NA	-4,223.54	-4,223.54				
Pasture Improvement and Minimum Tillage	NA	-4,223.54	-4,223.54				
E. Other (please specify)	NA	NA	NA	78.63	1.45	59.21	2,318.85
Prescribed Burning and Wildfire in Forests	NA	NA	NA	78.63	1.45	59.21	2,318.85

<sup>(1)</sup> The reporting of CO<sub>2</sub> emissions from soils, due to Forest and Grassland Conversion (land use change), in 5B differs from the IPCC Guidelines which reports these emissions under 5D

**TABLE 6 WASTE**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
	(Gg)						
Total Waste	16.30	810.38	1.79	NE	NE	3.69	NE
A. Solid Waste Disposal on Land	NE	745.71		NA	NA	3.36	
1. Managed Waste Disposal on Land	NE	745.71		NA	NA	3.36	
2. Unmanaged Waste Disposal Sites	NA	NA		NA	NA	NA	
3. Other (please specify)	NA	NA		NA	NA	NA	
NA	NA	NA		NA	NA	NA	
B. Wastewater Handling		64.67	1.79	NA	NA	0.33	
1. Industrial Wastewater		35.93	NE	NA	NA	0.15	
2. Domestic and Commercial Wastewater		28.74	1.79	NA	NA	0.18	
3. Other (please specify)		NA	NA	NA	NA	NA	
NA		NA	NA	NA	NA	NA	
C. Waste Incineration	16.30	NE	NE	NE	NE	NE	NE
D. Other (please specify)	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA

Australia  
2002  
Submission 2004  
Additional information

Description	Value
Total population (1000s)	19,758.00
Urban population (1000s)	NA
Waste generation rate (kg/capita/day)	2.25
Fraction of MSW disposed to SWDS	1.00
Fraction of DOC in MSW	NA
Fraction of wastes incinerated	NE
Fraction of wastes recycled	NA
CH4 oxidation factor	NA
CH4 fraction in landfill gas	0.50
Number of SWDS recovering CH4	NA
CH4 generation rate constant (k)	NA
Time lag considered (yr)	25.00
Composition of landfilled waste (%)	NA
Paper and paperboard	NA
Food and garden waste	NA
Plastics	NA
Glass	NA
Textiles	NA
Other (specify)	NA
Other – inert	NA
Other – organic	NA
NA	NA

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA AND OTHER RELATED INFORMATION				EMISSIONS <sup>(1)</sup>		
	Annual MSW at the SWDS (Gg)	MCF	DOC degraded (Gg)	CH4 recovery <sup>(2)</sup> (Gg)	CH4 (t/t MSW)	CO2 (t/t MSW)	CO2 (Gg)
1 Managed Waste Disposal on Land	12,921.89	1.00	NA	91.37	0.06	NA	745.71
2 Unmanaged Waste Disposal Sites	NA	NA	NA	NA	0.00	0.00	NA
- deep (>5 m)	NA	NA	NA	NA	0.00	0.00	NA
- shallow (<5 m)	NA	NA	NA	NA	0.00	0.00	NA
3 Other (please specify)	NA	NA	NA	NA	0.00	0.00	NA
NA	NA	NA	NA	NA	0.00	0.00	NA

**TABLE 6.C SECTORAL BACKGROUND DATA FOR WASTE**  
**Waste Incineration**  
(Sheet 1 of 1)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	ACTIVITY DATA Amount of incinerated wastes (Gg)	IMPLIED EMISSION FACTOR			EMISSIONS		
		CO <sub>2</sub> (kg/t waste)	CH <sub>4</sub> (kg/t waste)	N <sub>2</sub> O (kg/t waste)	CO <sub>2</sub> <sup>(3)</sup> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)
Waste Incineration (please specify)	NA				16.30	NE	NE
(biogenic) <sup>(1)</sup>	NA	NA	NA	NA	NA	NA	NA
(plastics and other non-biogenic waste) <sup>(2)</sup>	NA	NA	NA	NA	NA	NA	NA
Solvents	5.61	2,904.00	NA	NA	16.30	NE	NE
NA	NA	NA	NA	NA	NA	NA	NA

MSW – Municipal Solid Waste, SWDS – Solid Waste Disposal Site, MCF – Methane Correction Factor, DOC – Degradable Organic Carbon (IPCC Guidelines (Volume 3, Reference Manual, section 6.2.4)). MSW includes household waste, yard/garden waste, commercial/market waste and organic industrial solid waste. MSW should not include inorganic industrial waste such as construction or demolition materials.

<sup>(1)</sup> Actual emissions (after recovery)

<sup>(2)</sup> CH4 recovered and flared or utilized

<sup>(3)</sup> Under Waste Disposal, CO2 emissions should be reported only when the disposed wastes are combusted at the disposal site which might constitute a management practice.

CO2 emissions from non-biogenic wastes are included in the totals, while the CO2 emissions from biogenic wastes are not included in the totals.

<b>Documentation box:</b> All relevant information used in calculation should be provided in the additional information box and in the documentation box. Parties that use country specific models should note this with a brief rationale in the documentation box and fill the relevant cells only. The Australian methodology for solid waste is based on the US Regression model. The MSW value used is a 25-year average for waste. DOC is not calculated separately. Methane potential is assumed to be 79 litres per kilogram (Doorn and Barlaz, 1995; US EPA-600/R-95-019).
---

**TABLE 6.B SECTORAL BACKGROUND DATA FOR WASTE**  
Wastewater Handling (Sheet 1 of 1)

Australia  
2002  
Submission 2004

**Additional information**

GREENHOUSE GAS SOURCE AND SINK CATEGORIES				ACTIVITY DATA AND RELATED INFORMATION <sup>(1)</sup>				IMPLIED EMISSION FACTOR				EMISSIONS <sup>(2)</sup>			
		Total organic product		CH <sub>4</sub> recovered and/or flared		CH <sub>4</sub>		N <sub>2</sub> O		Wastewater		CH <sub>4</sub>		N <sub>2</sub> O	
		Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge	Wastewater	Sludge
		(Gg DC <sup>(1)</sup> /yr)		(Gg)		(kg/kg DC)		(kg/kg DC)		(kg/kg DC)		(Gg)		(Gg)	
Industrial Wastewater	Domestic and Commercial Wastewater	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Other (please specify)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA AND OTHER RELATED INFORMATION		IMPLIED EMISSION FACTOR		EMISSIONS									
		Population (1000s)		Protein consumption (protein in kg/person/yr)		N fraction (kg N/kg protein)		N <sub>2</sub> O (kg N <sub>2</sub> O-N/kg sewage N produced)		N <sub>2</sub> O (Gg)					
N <sub>2</sub> O from human sewage		19,758		36,28		0.16		0.01		1.79					

<sup>(1)</sup> DC – degradable organic component. DC indicators are COD (Chemical Oxygen Demand) for industrial wastewater and BOD (Biochemical Oxygen Demand) for Domestic/Commercial wastewater/sludge (IPCC Guidelines (Volume 3, Reference Manual, pp. 6.14, 6.18)).

<sup>(2)</sup> Actual emissions (after recovery)

Handling systems:	Industrial wastewater treated (%)	Ind. sludge treated (%)	Domestic wastewater treated (%)	Domestic sludge treated (%)	Domestic (%)	Industrial (%)
Aerobic	NA	NA	NA	NA	NA	NA
Anaerobic	NA	NA	NA	NA	NA	NA
Other (specify)	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

**Documentation box:**

The Australian methodology for Wastewater is based on IPCC and Australian default values. The estimate for Wastewater includes both wastewater and sludge. The national population data are disaggregated between the sewer (82%) and unserved (18%) population.

<sup>(1)</sup> DC – degradable organic component. DC indicators are COD (Chemical Oxygen Demand) for industrial wastewater and BOD (Biochemical Oxygen Demand) for Domestic/Commercial wastewater/sludge (IPCC Guidelines (Volume 3. Reference Manual, pp. 6.14, 6.18)).

<sup>(2)</sup> Actual emissions (after recovery)

**Documentation box:**

The Australian methodology for Wastewater is based on IPCC and Australian default values. The estimate for Wastewater includes both wastewater and sludge. Total population data are disaggregated between the sewer (82%) and unsewered (18%) population. Emissions of N<sub>2</sub>O are estimated using the IPCC Default methodology. Protein consumption per capita is sourced from Australian Institute of Health and Welfare (1998)

## **1A SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs		SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)				CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)						
						P	A	P	A	P	A	P	A	P				
Total National Emissions and Removals		371,568.53	0.00	5,918.39	113.87	NE	2,744.46	NE	1,507.17	NE	NE	NE	3,191.91	28,028.24	2,399.69	2,803.09		
1. Energy		340,141.90		1,227.91	17.49								1,613.25	4,381.06	787.61	751.03		
A. Fuel Combustion		325,167.49																
Sectoral Approach		333,679.70		98.99	17.41								1,611.29	4,372.10	579.59	751.03		
1. Energy Industries		198,870.90		9.18	2.02								671.27	74.39	8.76	578.74		
2. Manufacturing Industries and Construction		43,248.67		2.29	0.72								381.26	273.04	15.52	106.24		
3. Transport		74,086.56		31.25	14.41								458.84	3,226.91	458.56	59.66		
4. Other Sectors		16,042.85		56.20	0.23								93.20	789.58	95.84	5.86		
5. Other		1,430.71		0.06	0.02								6.71	8.19	0.90	0.54		
B. Fugitive Emissions from Fuels		6,462.20		1,128.92	0.08								1.96	8.96	208.01	NE		
1. Solid Fuels		NE		831.25	NA								NA	NA	NA	NA		
2. Oil and Natural Gas		6,462.20		297.67	0.08								1.96	8.96	208.01	NE		
2. Industrial Processes <sup>(1)</sup>		18,297.13		3.08	0.07	NE	2,744.46	NE	1,507.17	NE	NE	NE	56.61	8.07	71.54	2,052.06		
A. Mineral Products		5,179.52		NA	NA								NE	NE	17.64	NE		
B. Chemical Industry		C		0.36	C	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE		
C. Metal Production		13,117.61		2.72	0.07				1,507.17				56.61	8.07	0.10	2,052.06		
D. Other Production		NE											NE	NE	53.80	NE		
E. Production of Halocarbons and SF <sub>6</sub>							NO		NO		NO							
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	2,744.46	NE	NE	NE	NE							
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines

(1) Excludes confidential Ammonia Production, Nitric Acid Production, Soda Ash Production and Use and Magnesia Production emissions representing 3748.43 Gg CO<sub>2</sub>-e



Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES																	
CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>	
				P	A	CO <sub>2</sub> equivalent (Gg)	P	A	P	A							
3. Solvent and Other Product Use																	
4. Agriculture																	
A. Enteric Fermentation	NA	NA	3,672.16	92.03									NA	141.87		NA	
B. Manure Management			3,058.55										1,431.62	19,108.81	1,114.68	NA	
C. Rice Cultivation			95.51	4.44											NA		
D. Agricultural Soils			28.12												NA		
E. Prescribed Burning of Savannas	NA	NA	NE	62.81											NA		
F. Field Burning of Agricultural Residues			476.92	24.41									1410.33	18600.03	1,085.00		
G. Other			13.05	0.37									21.29	508.77	29.68		
			NA	NA									NA	NA	NA	NA	
5. Land-Use Change and Forestry																	
A. Changes in Forest and Other Woody Biomass Stocks	13,113.19	0.00	204.86	2.50												NA	
B. Forest and Grassland Conversion	0.00	-21,827.14															
C. Abandonment of Managed Lands	39163.87	0.00	126.23	1.04									31.23	2,211.46	NA		
D. CO <sub>2</sub> Emissions and Removals from Soil	NA	NA															
E. Other	NE	-4,223.54															
6. Waste																	
A. Solid Waste Disposal on Land	NA	NA	78.63	1.45													
B. Wastewater Handling	16.30		810.38	1.79												NA	
C. Waste Incineration	NE		745.71													NE	
D. Other			64.67	1.79													
	16.30		NE	NE													
	NA		NA	NA												NE	
7. Other (please specify)																	
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)										(Gg)							
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>								
					P	A	P	A	P	A												
Memo Items: <sup>(1)</sup>																						
International Bunkers	11,100.74		0.13	0.33															113.98	15.61	9.30	52.66
Aviation	8,567.30		0.01	0.26															45.61	13.63	7.16	1.61
Marine	2,533.44		0.12	0.07															68.37	1.98	2.14	51.05
Multilateral Operations	NE		NE	NE															NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass	17,600.23																					

<sup>(1)</sup> Memo Items are not included in the national totals.

## **1B SHORT SUMMARY REPORT FOR NATIONAL GREENHOUSE GAS INVENTORIES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES																
CO <sub>2</sub> emissions		CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>		
(Gg)					CO <sub>2</sub> equivalent (Gg)					(Gg)						
					P	A	P	A	P	A						
Total National Emissions and Removals					0.00	5,918.39	113.87	NE	NE	NE	1,507.17	NE	NE	28,028.24	2,399.69	2,803.09
1. Energy		340,141.90		1,227.91	17.49							1,613.25	787.61	751.03		
A. Fuel Combustion		325,167.49														
Sectoral Approach		333,679.70		98.99	17.41											
B. Fugitive Emissions from Fuels		6,462.20		1,128.92	0.08							1,611.29	4,372.10	579.59	751.03	
2. Industrial Processes <sup>1</sup>												1.96	8.96	208.01	NE	
3. Solvent and Other Product Use		18,297.13		3.08	0.07	NE	2,744.46	NE	1,507.17	NE	NE	56.61	8.07	71.54	2,052.06	
4. Agriculture		NA			NE							NA	NA	141.87	NA	
5. Land-Use Change and Forestry		13,113.19	NA	3,672.16	92.03							1,431.62	19,108.81	1,114.68	NA	
6. Waste		16.30	0.00	204.86	2.50							90.43	4,530.30	280.30	NA	
7. Other		NA	NA	810.38	1.79							NE	NE	3.69	NE	
Memo Items:					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
International Bankers																
Aviation		11,100.74		0.13	0.33							113.98	15.61	9.30	52.66	
Marine		8,567.30		0.01	0.26							45.61	13.63	7.16	1.61	
Multilateral Operations		2,533.44		0.12	0.07							68.37	1.98	2.14	51.05	
		NE		NE	NE							NE	NE	NE	NE	
CO <sub>2</sub> Emissions from Biomass		17,600.23														

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines

(1) Excludes confidential Ammonia Production, Nitric Acid Production, Soda Ash Production and Use and Magnesia Production emissions representing 3748.43 Gg CO<sub>2</sub>-e

## **2 SUMMARY REPORT FOR CO<sub>2</sub> EQUIVALENT EMISSIONS**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Total
	CO <sub>2</sub> equivalent (Gg)						
<b>Total (Net Emissions)</b>	<b>371,568.53</b>	<b>124,286.16</b>	<b>35,300.40</b>	<b>2,744.46</b>	<b>1,507.17</b>	<b>NE</b>	<b>539,155.14</b>
<b>1. Energy</b>	<b>340,141.90</b>	<b>25,786.11</b>	<b>5,422.25</b>				<b>371,350.26</b>
A. Fuel Combustion (Sectoral Approach)	333,679.70	2,078.79	5,396.26				341,154.75
1. Energy Industries	198,870.90	192.85	627.02				199,690.77
2. Manufacturing Industries and Construction	43,248.67	48.13	223.69				43,520.50
3. Transport	74,086.56	656.31	4,467.02				79,209.89
4. Other Sectors	16,042.85	1,180.29	71.70				17,294.84
5. Other	1,430.71	1.21	6.83				1,438.75
B. Fugitive Emissions from Fuels	6,462.20	23,707.32	25.99				30,195.51
1. Solid Fuels	NE	17,456.28	NE				17,456.28
2. Oil and Natural Gas	6,462.20	6,251.04	25.99				12,739.23
<b>2. Industrial Processes</b>	<b>18,297.13</b>	<b>64.71</b>	<b>20.27</b>	<b>2,744.46</b>	<b>1,507.17</b>	<b>NE</b>	<b>26,382.17</b>
A. Mineral Products	5,179.52	NA	NA				5,179.52
B. Chemical Industry <sup>1</sup>	C	7.65	C	NA	NA	NA	3,748.43
C. Metal Production	13,117.61	57.05	20.27		1,507.17	NE	14,702.11
D. Other Production	NE						NE
E. Production of Halocarbons and SF <sub>6</sub>				NO	NO	NO	NO
F. Consumption of Halocarbons and SF <sub>6</sub>				2,744.46	NE	NE	2,744.46
G. Other	NA	NA	NA	NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NE</b>	<b>NE</b>				<b>NE</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>77,115.28</b>	<b>28,528.50</b>				<b>105,643.77</b>
A. Enteric Fermentation		64,229.55					64,229.55
B. Manure Management		2,005.79	1,375.81				3,381.60
C. Rice Cultivation		590.57					590.57
D. Agricultural Soils	NA	NE	19,471.15				19,471.15
E. Prescribed Burning of Savannas		10,015.40	7,567.32				17,582.73
F. Field Burning of Agricultural Residues		273.96	114.22				388.17
G. Other		NA	NA				NA
<b>5. Land-Use Change and Forestry</b>	<b>13,113.19</b>	<b>4,302.11</b>	<b>773.96</b>				<b>18,189.26</b>
<b>6. Waste</b>	<b>16.30</b>	<b>17,017.95</b>	<b>555.42</b>				<b>17,589.67</b>
A. Solid Waste Disposal on Land	NE	15,659.82					15,659.82
B. Wastewater Handling		1,358.13	555.42				1,913.55
C. Waste Incineration	16.30	NE	NE				16.30
D. Other	NA	NA	NA				NA
<b>7. Other (please specify)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
NA	NA	NA	NA	NA	NA	NA	NA
<b>Memo Items:</b>							
<b>International Bunkers</b>	<b>11,100.74</b>	<b>2.73</b>	<b>103.48</b>				<b>11,206.95</b>
Aviation	8,567.30	0.22	81.80				8,649.31
Marine	2,533.44	2.52	21.68				2,557.64
<b>Multilateral Operations</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>				<b>NE</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>17,600.23</b>						<b>17,600.23</b>

1. Speciated emissions from Soda Ash Production and Use, Ammonia Production, Nitric Acid Production and Magnesia Production are Confidential. These emissions are reported Table 10s5 as CO<sub>2</sub>-e emissions. The total confidential emissions from 2A. Mineral Products and 2B. Chemical Industry shown at 2B are 3748.43 Gg CO<sub>2</sub>-e.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	Net CO <sub>2</sub> emissions / removals	CH <sub>4</sub>	N <sub>2</sub> O	Total emissions
Land-Use Change and Forestry	CO <sub>2</sub> equivalent (Gg)					
A. Changes in Forest and Other Woody Biomass Stocks	58,472.93	-80,300.06	-21,827.14			-21,827.14
B. Forest and Grassland Conversion	39,163.87	0.00	39,163.87	2,650.89	323.36	42,138.12
C. Abandonment of Managed Lands	NA	NA	NA			NA
D. CO <sub>2</sub> Emissions and Removals from Soil	NE	-4,223.54	-4,223.54			-4,223.54
E. Other	NA	NA	NA	1,651.22	450.60	2,101.82
Total CO <sub>2</sub> Equivalent Emissions from Land-Use Change and Forestry	97,636.80	-84,523.61	13,113.19	4,302.11	773.96	18,189.26
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry <sup>(a)</sup>						520,965.88
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry <sup>(a)</sup>						539,155.14

<sup>(a)</sup> The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.

### **3 SUMMARY REPORT FOR METHODS AND EMISSION FACTORS USED**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		HFCs		PFCs		SF <sub>6</sub>	
	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>
<b>1. Energy</b>												
A. Fuel Combustion	T1, T2	CS	T1, T2	CS	T1, T2	DCS						
1. Energy Industries	T2	CS	T2	CS	T2	CS						
2. Manufacturing Industries and Construction	T2	CS	T2	CS	T2	CS						
3. Transport	T1, T2	CS	T1, T2	CS	T1, T2	D, CS						
4. Other Sectors	T1, T2	CS	T1, T2	CS	T1, T2	CS						
5. Other	T1, T2	CS	T1	CS	T1	CS						
B. Fugitive Emissions from Fuels	T2	CS	T2	CS	T2	CS						
1. Solid Fuels	NE	NE	T2	CS	NE	NE						
2. Oil and Natural Gas	T2	CS	T2	CS	T2	CS						
<b>2. Industrial Processes</b>												
A. Mineral Products	T2	CS	T2	CS	T1	D	NE	NA	T1c	CS	T2	CS
B. Chemical Industry	T1	CS, D	T1	CS, D	T1	D	NE	NA	NA	NA	NA	NA
C. Metal Production	T2	CS	T2	CS	T2	CS			T1c	CS	T2	CS
D. Other Production	NE	NA										
E. Production of Halocarbons and SF <sub>6</sub>							NA	NA	NA	NA	NA	NA
F. Consumption of Halocarbons and SF <sub>6</sub>							T2	CS	NE	NA	NE	NA
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

<sup>(1)</sup> Use the following notation keys to specify the method applied: D (IPCC default), RA (Reference Approach), T1 (IPCC Tier 1), T1a, T1b, T1c (IPCC Tier 1a, Tier 1b and Tier 1c, respectively), T2 (IPCC Tier 2), T3 (IPCC Tier 3), C (CORINAIR), CS (Country Specific), M (Model). If using more than one method, enumerate the relevant methods. Explanations of any modifications to the default IPCC methods, as well as information on the proper use of methods per source category where more than one method is indicated, and explanations on the country specific methods, should be provided in the documentation box of the relevant Sectoral background data table.

<sup>(2)</sup> Use the following notation keys to specify the emission factor used: D (IPCC default), C (CORINAIR), CS (Country Specific), PS (Plant Specific), M (Model). Where a mix of emission factors has been used, use different notations in one and the same cells with further explanation in the documentation box of the relevant Sectoral background data table.



Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		HFCs		PFCs		SF <sub>6</sub>	
	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>	Method applied <sup>(1)</sup>	Emission factor <sup>(2)</sup>
3. Solvent and Other Product Use	NE	NE	NE	NE	NE	NE						
4. Agriculture	NE	NE	CS	CS,D	CS	CS,D						
A. Enteric Fermentation			CS	CS	CS	CS						
B. Manure Management			CS	CS,D	CS	D						
C. Rice Cultivation			CS	CS,D								
D. Agricultural Soils	NA	NA	NA	NA	CS	CS						
E. Prescribed Burning of Savannas			CS	CS	CS	CS						
F. Field Burning of Agricultural Residues			CS	CS	CS	CS						
G. Other	NA	NA	NA	NA	NA	NA						
5. Land-Use Change and Forestry	CS	CS	CS	CS	CS	CS						
A. Changes in Forest and Other Woody Biomass Stocks	CS	CS										
B. Forest and Grassland Conversion	CS	CS	CS	CS	CS	CS						
C. Abandonment of Managed Lands	CS	CS										
D. CO <sub>2</sub> Emissions and Removals from Soil	CS	CS	CS	CS	CS	CS						
E. Other	CS	CS	CS	CS	CS	CS						
6. Waste	T2	CS	T2	M,D	T1	D						
A. Solid Waste Disposal on Land	NA	NA	T2	M								
B. Wastewater Handling			T2	D	T1	D						
C. Waste Incineration	T2	CS	NE	NA	NE	NA						
D. Other	NA	NA	NA	NA	NA	NA						
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



**TABLE 7 OVERVIEW TABLE FOR NATIONAL GREENHOUSE GAS INVENTORIES**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>		CO		NMVOC		SO <sub>2</sub>	
	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
<b>Total National Emissions and Removals</b>																				
<b>1 Energy</b>																				
A. Fuel Combustion Activities	PART	H-L	PART	M-L	PART	M-L							PART	M-L	PART	M-L	PART	M-L	ALL	H
Reference Approach		H																		
Sectoral Approach	ALL	H	PART	L	PART	L							PART	L	PART	L	PART	L	ALL	H
1. Energy Industries	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
2. Manufacturing Industries and Construction	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
3. Transport	ALL	H	ALL	M	ALL	M							ALL	M	ALL	M	ALL	M	ALL	H
4. Other Sectors	ALL	H	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	ALL	H
5. Other	ALL	H	PART	L	PART	L							PART	L	PART	L	PART	L	PART	L
B. Fugitive Emissions from Fuels	PART	L	PART	M	PART	L							ALL	L	ALL	L	ALL	L	ALL	NA
1. Solid Fuels	NE	NE	PART	M	NE	NE														
2. Oil and Natural Gas	PART	L	PART	M	ALL	L							ALL	L	ALL	L	ALL	L	ALL	NA
<b>2 Industrial Processes</b>	PART	M	PART	L	PART	L							NE	NA	NE	NA	PART	M	PART	M
A. Mineral Products	ALL	M	NE	NA	NE	NA							NE	NA	NE	NA	PART	M	NE	NA
B. Chemical Industry	PART	M	PART	M	PART	M							NE	NA	NE	NA	PART	M	NE	NA
C. Metal Production	PART	H	ALL	L	PART	L							NE	NA	NE	NA	NE	NA	PART	M
D. Other Production	NE	NA											NE	NA	NE	NA	NE	NA	NE	NA
E. Production of Halocarbons and SF <sub>6</sub>													NA	NA	NA					

Note: To fill in the table use the notation key as given in the IPCC Guidelines (Volume 1. Reporting Instructions, Tables. 37)

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>		CO		NMVOC		SO <sub>2</sub>	
	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
<b>2 Industrial Processes (continued)</b>																				
F. Consumption of Halocarbons and SF <sub>6</sub>																				
Potential																				
Actual																				
G. Other																				
3 Solvent and Other Product Use																				
A. Agriculture																				
A. Enteric Fermentation																				
B. Manure Management																				
C. Rice Cultivation																				
D. Agricultural Soils																				
E. Prescribed Burning of Savannas																				
F. Field Burning of Agricultural Residues																				
G. Other																				
5 Land-Use Change and Forestry																				
A. Changes in Forest and Other Woody Biomass Stocks																				
B. Forest and Grassland Conversion																				

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>		CO		NMVOC		SO <sub>2</sub>	
		Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality	Estimate	Quality
<b>5 Land-Use Change and Forestry (continued)</b>																					
C. Abandonment of Managed Lands		NE	NA																		
D. CO <sub>2</sub> Emissions and Removals from Soil		PART	L																		
E. Other		ALL	M	ALL	L	ALL	L							ALL	L	ALL	L	ALL	L	NA	NA
<b>6 Waste</b>		PART	L	ALL	L	PART	L							NE	NA	NE	NA	ALL	L	NE	NA
A. Solid Waste Disposal on Land		NA	NA	ALL	L											NA	NA	ALL	L		
B. Wastewater Handling				ALL	L	PART	L							NA	NA	NA	NA	ALL	L		
C. Waste Incineration		PART	L	NA	NA	NE	NA							NE	NA	NE	NA	NE	NA	NE	NA
D. Other		NA	NA	NA	NA	NA	NA							NA	NA	NA	NA	NA	NA	NA	NA
<b>7 Other (please specify)</b>		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Memo Items:</b>																					
<b>International Bankers</b>		ALL	H	ALL	M	ALL	M							ALL	M	ALL	M	ALL	M	ALL	H
Aviation		ALL	H	ALL	M	ALL	M							ALL	M	ALL	M	ALL	M	ALL	H
Marine		ALL	H	ALL	M	ALL	M							ALL	M	ALL	M	ALL	M	ALL	H
<b>Multilateral Operations</b>		NE	NE	NE	NE	NE	NE							NE	NE	NE	NE	NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass		ALL	M																		

**TABLE 8 RECALCULATION**

Australia  
2002  
Submission 2004

year:

1990

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>	<b>363,230.98</b>	<b>363,239.20</b>	<b>0.00</b>	<b>121,900.36</b>	<b>121,938.20</b>	<b>0.03</b>	<b>23,894.67</b>	<b>23,900.36</b>	<b>0.02</b>
<b>1. Energy</b>	<b>258,622.51</b>	<b>258,622.51</b>	<b>0.00</b>	<b>25,155.07</b>	<b>25,155.07</b>	<b>0.00</b>	<b>2,465.51</b>	<b>2,465.51</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	252,659.80	252,659.80	0.00	2,389.20	2,389.20	0.00	2,429.84	2,429.84	0.00
1.A.1. Energy Industries	141,805.68	141,805.68	0.00	39.88	39.88	0.00	438.33	438.33	0.00
1.A.2. Manufacturing Industries and Construction	37,384.55	37,384.55	0.00	32.46	32.46	0.00	211.26	211.26	0.00
1.A.3. Transport	59,726.89	59,726.89	0.00	551.33	551.33	0.00	1,701.64	1,701.64	0.00
1.A.4. Other Sectors	12,485.74	12,485.74	0.00	1,764.58	1,764.58	0.00	74.88	74.88	0.00
1.A.5. Other	1,256.94	1,256.94	0.00	0.95	0.95	0.00	3.74	3.74	0.00
1.B. Fugitive Emissions from Fuels	5,962.71	5,962.71	0.00	22,765.87	22,765.87	0.00	35.67	35.67	0.00
1.B.1. Solid Fuel	NE	NE	0.00	15,816.36	15,816.36	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5,962.71	5,962.71	0.00	6,949.51	6,949.51	0.00	35.67	35.67	0.00
<b>2. Industrial Processes</b>	<b>19,238.10</b>	<b>19,234.74</b>	<b>-0.02</b>	<b>59.93</b>	<b>69.12</b>	<b>15.33</b>	<b>26.78</b>	<b>26.78</b>	<b>-0.03</b>
2.A. Mineral Products <sup>(1)</sup>	4,763.45	4,763.45	0.00	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	C	NE	9.19	0.00	C	C	C
2.C. Metal Production	14,474.64	14,471.28	-0.02	59.93	59.93	0.00	26.78	26.78	-0.03
2.D. Other Production	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>75,158.34</b>	<b>75,186.99</b>	<b>0.04</b>	<b>19,916.03</b>	<b>19,921.73</b>	<b>0.03</b>
4.A. Enteric Fermentation	NA	NA	0.00	67,468.47	67,497.11	0.04	527.43	527.50	0.01
4.B. Manure Management	NA	NA	0.00	1,508.17	1,508.17	0.00	NE	NE	0.00
4.C. Rice Cultivation	NA	NA	0.00	490.50	490.50	0.00	15,140.27	15,145.90	0.04
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	4,160.95	4,160.95	0.00
4.E. Prescribed Burning of Savannas	NA	NA	0.00	5,507.04	5,507.04	0.00	87.38	87.38	0.00
4.F. Field Burning of Agricultural Residues	NA	NA	0.00	184.17	184.17	0.00	NA	NA	0.00
4.G. Other	NA	NA	0.00	NA	NA	0.00	1,003.77	1,003.77	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>85,370.37</b>	<b>85,370.37</b>	<b>0.00</b>	<b>6,723.70</b>	<b>6,723.70</b>	<b>0.00</b>	<b>1,003.77</b>	<b>1,003.77</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-24,598.42	-24,598.42	0.00	NE	NE	0.00	NE	NE	0.00
5.B. Forest and Grassland Conversion	114,192.33	114,192.33	0.00	5,506.96	5,506.96	0.00	671.74	671.74	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NE	NE	0.00	NE	NE	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NE	NE	0.00	NE	NE	0.00
5.E. Other	NA	NA	0.00	1,216.73	1,216.73	0.00	332.03	332.03	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".



Australia  
2002  
Submission 2004

year: 1990

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
6. Waste	NE	11.58	0.00	14,803.33	14,803.33	0.00	482.57	482.57	0.00
	NE	NE	0.00	13,623.32	13,623.32	0.00			
				1,180.01	1,180.01	0.00	482.57	482.57	0.00
	NE	11.58	0.00	NE	NE	0.00	NE	NE	0.00
	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Memo Items:									
International Bankers	6,400.97	6,400.97	0.00	2.63	2.63	0.00	57.81	57.81	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	16,514.85	16,514.85	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFC's		Difference (%)	PFC's		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
Total Actual Emissions	1,126.27	1,126.27	0.00	3,938.28	3,938.28	0.00	NE	NE	0.00
2.C.3. Aluminium Production				3,938.28	3,938.28	0.00	NA	NA	0.00
Production of Halocarbons and SF <sub>6</sub>	1,126.27	1,126.27	0.00	NO	NO	0.00	NO	NO	0.00
Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Potential Emissions from Consumption of HFC's/PFC's and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>(1)</sup>	1,732.00	1,741.00	0.52						
			Previous submission	Latest submission		Difference			
			CO <sub>2</sub> equivalent (Gg)			(%)			
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			515,822.56			515,883.32			
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			422,724.72			422,785.48			
						0.01			

Australia  
2002  
Submission 2004

year: 1991

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>	<b>341,284.72</b>	<b>341,292.60</b>	<b>0.00</b>	<b>121,251.08</b>	<b>121,284.23</b>	<b>0.03</b>	<b>24,264.32</b>	<b>24,268.65</b>	<b>0.02</b>
<b>1. Energy</b>	<b>260,716.76</b>	<b>260,716.76</b>	<b>0.00</b>	<b>24,653.62</b>	<b>24,653.62</b>	<b>0.00</b>	<b>2,745.01</b>	<b>2,745.01</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	254,971.64	254,971.64	0.00	2,421.93	2,421.93	0.00	2,711.57	2,711.57	0.00
1.A.1. Energy Industries	145,296.14	145,296.14	0.00	40.30	40.30	0.00	456.17	456.17	0.00
1.A.2. Manufacturing Industries and Construction	36,829.60	36,829.60	0.00	31.89	31.89	0.00	205.38	205.38	0.00
1.A.3. Transport	59,076.56	59,076.56	0.00	540.59	540.59	0.00	1,969.71	1,969.71	0.00
1.A.4. Other Sectors	12,558.60	12,558.60	0.00	1,808.30	1,808.30	0.00	76.32	76.32	0.00
1.A.5. Other	1,210.75	1,210.75	0.00	0.84	0.84	0.00	3.99	3.99	0.00
1.B. Fugitive Emissions from Fuels	5,745.12	5,745.12	0.00	22,231.69	22,231.69	0.00	33.44	33.44	0.00
1.B.1. Solid fuel	NE	NE	0.00	15,979.04	15,979.04	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5,745.12	5,745.12	0.00	6,252.65	6,252.65	0.00	33.44	33.44	0.00
<b>2. Industrial Processes</b>	<b>18,882.92</b>	<b>18,879.21</b>	<b>-0.02</b>	<b>55.21</b>	<b>63.69</b>	<b>15.35</b>	<b>26.64</b>	<b>26.63</b>	<b>-0.03</b>
2.A. Mineral Products <sup>(1)</sup>	4,477.14	4,477.14	0.00	NE	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	8.48	0.00	C	C	0.00
2.C. Metal Production	14,405.78	14,402.08	-0.03	55.21	55.21	0.00	26.64	26.63	-0.03
2.D. Other Production	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>75,381.67</b>	<b>75,406.35</b>	<b>0.03</b>	<b>20,079.24</b>	<b>20,083.58</b>	<b>0.02</b>
4.A. Enteric Fermentation	NE	NE	0.00	67,704.15	67,728.92	0.04	NE	NE	0.00
4.B. Manure Management	NE	NE	0.00	1,508.06	1,507.97	-0.01	584.27	584.38	0.02
4.C. Rice Cultivation	NE	NE	0.00	523.78	523.78	0.00	NE	NE	0.00
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	15,280.50	15,284.72	0.03
4.E. Prescribed Burning of Savannas	NE	NE	0.00	5,467.19	5,467.19	0.00	4,130.84	4,130.84	0.00
4.F. Field Burning of Agricultural Residues	NE	NE	0.00	178.48	178.48	0.00	83.63	83.63	0.00
4.G. Other	NE	NE	0.00	NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>61,685.04</b>	<b>61,685.04</b>	<b>0.00</b>	<b>6,027.62</b>	<b>6,027.62</b>	<b>0.00</b>	<b>924.67</b>	<b>924.67</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-24,084.18	-24,084.18	0.00	NE	NE	0.00	NE	NE	0.00
5.B. Forest and Grassland Conversion	89,992.76	89,992.76	0.00	4,772.45	4,772.45	0.00	582.14	582.14	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NE	NE	0.00	NE	NE	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NE	NE	0.00	NE	NE	0.00
5.E. Other	NA	NA	0.00	1,255.17	1,255.17	0.00	342.52	342.52	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1991

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
6. Waste	NE	11.58	0.00	15,132.96	15,132.96	0.00	488.76	488.76	0.00
6.A. Solid Waste Disposal on Land	NE	NE	0.00	13,937.81	13,937.81	0.00			
6.B. Wastewater Handling				1,195.15	1,195.15	0.00	488.76	488.76	0.00
6.C. Waste Incineration	NE	11.58	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Memo Items:									
International Bunkers	6,378.80	6,378.80	0.00	2.38	2.38	0.00	57.68	57.68	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	16,641.90	16,641.90	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
Total Actual Emissions	1,126.27	1,126.27	0.00	3,941.47	3,941.47	0.00	NE	NE	0.00
2.C.3. Aluminium Production				3,941.47	3,941.47	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	1,126.27	1,126.27	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>(1)</sup>	1,593.44	1,602.97	0.60						
	Previous submission			Latest submission			Difference		
	CO <sub>2</sub> equivalent (Gg)			CO <sub>2</sub> equivalent (Gg)			Difference (%)		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry	493,461.31			493,516.19			493,516.19		0.01
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry	424,823.97			424,878.86			424,878.86		0.01

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1992

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)
<b>Total National Emissions and Removals</b>	<b>327,936.56</b>	<b>327,947.41</b>	<b>0.00</b>	<b>120,138.89</b>	<b>120,182.43</b>	<b>0.04</b>	<b>24,182.57</b>	<b>24,235.57</b>	<b>0.22</b>
<b>1. Energy</b>	<b>265,401.81</b>	<b>265,401.81</b>	<b>0.00</b>	<b>25,743.13</b>	<b>25,743.13</b>	<b>0.00</b>	<b>2,992.46</b>	<b>2,992.46</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	259,560.87	259,560.87	0.00	2,475.18	2,475.18	0.00	2,959.21	2,959.21	0.00
1.A.1. Energy Industries	148,512.17	148,512.17	0.00	42.25	42.25	0.00	465.67	465.67	0.00
1.A.2. Manufacturing Industries and Construction	36,707.28	36,707.28	0.00	30.90	30.90	0.00	185.53	185.53	0.00
1.A.3. Transport	60,194.18	60,194.18	0.00	546.34	546.34	0.00	2,225.53	2,225.53	0.00
1.A.4. Other Sectors	12,894.80	12,894.80	0.00	1854.81	1,854.81	0.00	78.08	78.08	0.00
1.A.5. Other	1,252.43	1,252.43	0.00	0.88	0.88	0.00	4.40	4.40	0.00
1.B. Fugitive Emissions from Fuels	5840.95	5840.95	0.00	23267.95	23,267.95	0.00	33.25	33.25	0.00
1.B.1. Solid Fuel	NE	NE	0.00	16619.63	16,619.63	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5840.95	5840.95	0.00	6648.32	6,648.32	0.00	33.25	33.25	0.00
<b>2. Industrial Processes</b>	<b>16,642.72</b>	<b>16,641.99</b>	<b>0.00</b>	<b>60.65</b>	<b>69.20</b>	<b>14.11</b>	<b>22.28</b>	<b>22.28</b>	<b>-100.00</b>
2.A. Mineral Products <sup>(1)</sup>	4,299.14	4,299.14	0.00	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	C	NE	8.56	0.00	C	C	C
2.C. Metal Production	12,343.58	12,342.86	-0.01	60.65	60.64	0.00	22.28	22.28	-0.01
2.D. Other Production	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>73,969.76</b>	<b>74,004.74</b>	<b>0.05</b>	<b>19,877.70</b>	<b>19,930.71</b>	<b>0.27</b>
4.A. Enteric Fermentation	NA	NA	0.00	66,430.81	66,465.79	0.05	641.52	669.44	4.35
4.B. Manure Management	NA	NA	0.00	1,537.61	1,537.62	0.00	NA	NA	0.00
4.C. Rice Cultivation	NA	NA	0.00	536.08	536.08	0.00	15,159.54	15,184.62	0.17
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	3,991.92	3,991.92	0.00
4.E. Prescribed Burning of Savannas	NA	NA	0.00	5,283.33	5,283.33	0.00	84.72	84.72	0.00
4.F. Field Burning of Agricultural Residues	NA	NA	0.00	181.93	181.93	0.00	NA	NA	0.00
4.G. Other	NA	NA	0.00	NA	NA	0.00	795.40	795.40	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>45,892.02</b>	<b>45,892.02</b>	<b>0.00</b>	<b>5,055.84</b>	<b>5,055.84</b>	<b>0.00</b>	<b>795.40</b>	<b>795.40</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-24,543.87	-24,543.87	0.00	NA	NA	0.00	472.28	472.28	0.00
5.B. Forest and Grassland Conversion	74,659.43	74,659.43	0.00	3,871.79	3,871.79	0.00	NA	NA	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NA	NA	0.00	NA	NA	0.00
5.E. Other	NA	NA	0.00	1,184.05	1,184.05	0.00	323.12	323.12	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1992

GREENHOUSE GAS SOURCE AND SINK CATEGORIES							
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)
6. Waste	NE	11.58	0.00	15,309.51	15,309.51	0.00	494.73
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,099.77	14,099.77	0.00	494.73
6.B. Wastewater Handling				1,209.74	1,209.74	0.00	494.73
6.C. Waste Incineration	NE	11.58	0.00	NE	NE	0.00	NE
6.D. Other	NA	NA	0.00	NA	NA	0.00	NE
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA
NA	NA	NA	0.00	NA	NA	0.00	NA
Memo Items:							
International Bankers	6,584.40	6,584.40	0.00	2.35	2.35	0.00	59.67
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE
CO <sub>2</sub> Emissions from Biomass	15,141.52	15,141.52	0.00				

GREENHOUSE GAS SOURCE AND SINK CATEGORIES							
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)
Total Actual Emissions	1,053.94	1,053.94	0.00	3,935.10	3,935.10	0.00	NE
2.C.3. Aluminium Production				3,935.10	3,935.10	0.00	NE
2.E. Production of Halocarbons and SF <sub>6</sub>	1,053.94	1,053.94	0.00	NO	NO	0.00	NO
2.F. Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	0.00	NE	NE	0.00	NE
Other	NA	NA	0.00	NA	NA	0.00	NA
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>(1)</sup>	1,715.43	1,754.48	2.28				
	Previous submission			Latest submission			
	CO <sub>2</sub> equivalent (Gg)			CO <sub>2</sub> equivalent (Gg)			
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry				478,962.47			0.03
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry				427,219.21			0.03

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia

2002

Submission 2004

year:

1993

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>	<b>332,695.42</b>	<b>332,710.07</b>	<b>0.00</b>	<b>118,911.69</b>	<b>118,949.29</b>	<b>0.03</b>	<b>25,049.37</b>	<b>25,123.49</b>	<b>0.30</b>
<b>1. Energy</b>	<b>268,804.61</b>	<b>268,804.61</b>	<b>0.00</b>	<b>24,912.47</b>	<b>24,912.47</b>	<b>0.00</b>	<b>3,269.30</b>	<b>3,269.30</b>	<b>0.00</b>
I.A. Fuel Combustion Activities	262,957.26	262,957.26	0.00	2,502.46	2,502.46	0.00	3,237.38	3,237.38	0.00
I.A.1. Energy Industries	149,790.74	149,790.74	0.00	43.32	43.32	0.00	462.62	462.62	0.00
I.A.2. Manufacturing Industries and Construction	37,143.37	37,143.37	0.00	33.27	33.27	0.00	206.68	206.68	0.00
I.A.3. Transport	61,358.05	61,358.05	0.00	559.43	559.43	0.00	2,483.96	2,483.96	0.00
I.A.4. Other Sectors	13,375.86	13,375.86	0.00	1865.57	1,865.57	0.00	79.68	79.68	0.00
I.A.5. Other	1,289.24	1,289.24	0.00	0.87	0.87	0.00	4.45	4.45	0.00
I.B. Fugitive Emissions from Fuels	5,847.35	5,847.35	0.00	22,410.00	22,410.00	0.00	31.92	31.92	0.00
I.B.1. Solid Fuel	NE	NE	0.00	16,611.41	16,611.41	0.00	NE	NE	0.00
I.B.2. Oil and Natural Gas	5,847.35	5,847.35	0.00	5,798.60	5,798.60	0.00	31.92	31.92	0.00
<b>2. Industrial Processes</b>	<b>16,706.14</b>	<b>16,709.21</b>	<b>0.02</b>	<b>63.29</b>	<b>70.03</b>	<b>10.64</b>	<b>21.76</b>	<b>21.77</b>	<b>0.03</b>
2.A. Mineral Products <sup>(1)</sup>	4,507.25	4,507.25	0.00	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	6.73	0.00	C	C	0.00
2.C. Metal Production	12,198.89	12,201.96	0.03	63.29	63.29	0.00	21.76	21.77	0.03
2.D. Other Production	NE	NE	0.00	NA	NA	0.00	NA	NA	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>72,904.79</b>	<b>72,935.66</b>	<b>0.04</b>	<b>20,425.69</b>	<b>20,499.80</b>	<b>0.36</b>
4.A. Enteric Fermentation				64,995.27	65,026.00	0.05			
4.B. Manure Management				1,598.51	1,598.65	0.01	720.16	761.08	5.68
4.C. Rice Cultivation				598.63	598.63	0.00			
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	15,446.11	15,479.29	0.21
4.E. Prescribed Burning of Savannas				5,517.29	5,517.29	0.00	4,168.69	4,168.69	0.00
4.F. Field Burning of Agricultural Residues				195.09	195.09	0.00	90.73	90.73	0.00
4.G. Other				NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>47,184.67</b>	<b>47,184.67</b>	<b>0.00</b>	<b>5,390.22</b>	<b>5,390.22</b>	<b>0.00</b>	<b>833.02</b>	<b>833.02</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-24,154.58	-24,154.58	0.00						
5.B. Forest and Grassland Conversion	75,562.79	75,562.79	0.00	4,227.12	4,227.12	0.00	515.62	515.62	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00						
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00						
5.E. Other	NA	NA	0.00	1,163.09	1,163.09	0.00	317.40	317.40	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1993

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		Difference (%)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)
	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)			
6. Waste	NE	11.58	0.00	15,640.92	0.00	499.60	0.00	499.60	0.00
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,419.29	0.00	499.60	0.00	499.60	0.00
6.B. Wastewater Handling	NE	NE	0.00	1,221.64	0.00	NE	0.00	NE	0.00
6.C. Waste Incineration	NE	11.58	0.00	NE	0.00	NE	0.00	NE	0.00
6.D. Other	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00
NA	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00
Memo Items:									
International Bankers	6,987.84	6,987.84	0.00	2.40	0.00	63.35	0.00	63.35	0.00
Multilateral Operations	NE	NE	0.00	NE	0.00	NE	0.00	NE	0.00
CO <sub>2</sub> Emissions from Biomass	16,799.68	16,799.68	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		PFCs		SF <sub>6</sub>		Difference (%)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)
	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)	Previous submissions CO <sub>2</sub> equivalent (Gg)	Latest submissions (Gg)			
Total Actual Emissions	1,446.59	1,446.59	0.00	2,833.07	0.00	NE	0.00	NE	0.00
2.C.3. Aluminium Production	1,446.59	1,446.59	0.00	2,833.07	0.00	NA	0.00	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NE	NE	0.00	NO	0.00	NO	0.00	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	0.00	NE	0.00	NE	0.00	NE	0.00
Other	NA	NA	0.00	NA	0.00	NA	0.00	NA	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>(1)</sup>	1,726.78	2,308.45	33.69						
Previous submissions									
Latest submissions									
Difference (%)									
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry								483,370.96	0.15
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry								429,963.05	0.16

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1994

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
<b>Total National Emissions and Removals</b>	<b>340,556.46</b>	<b>340,565.79</b>	<b>0.00</b>	<b>117,508.96</b>	<b>117,521.51</b>	<b>0.01</b>	<b>25,680.78</b>	<b>25,769.42</b>	<b>0.35</b>
<b>1. Energy</b>	<b>272,700.18</b>	<b>272,700.18</b>	<b>0.00</b>	<b>24,668.53</b>	<b>24,668.53</b>	<b>0.00</b>	<b>3,546.98</b>	<b>3,546.98</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	267,127.62	267,127.62	0.00	2,470.77	2,470.77	0.00	3,518.52	3,518.52	0.00
1.A.1. Energy Industries	150,850.78	150,850.78	0.00	43.99	43.99	0.00	468.04	468.04	0.00
1.A.2. Manufacturing Industries and Construction	38,645.38	38,645.38	0.00	34.13	34.13	0.00	209.36	209.36	0.00
1.A.3. Transport	62,765.30	62,765.30	0.00	576.05	576.05	0.00	2,757.11	2,757.11	0.00
1.A.4. Other Sectors	13,491.90	13,491.90	0.00	1,815.63	1,815.63	0.00	79.08	79.08	0.00
1.A.5. Other	1,374.24	1,374.24	0.00	0.96	0.96	0.00	4.92	4.92	0.00
1.B. Fugitive Emissions from Fuels	5,572.57	5,572.57	0.00	22,197.77	22,197.77	0.00	28.46	28.46	0.00
1.B.1. Solid Fuel	NE	NE	0.00	16,326.61	16,326.61	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5,572.57	5,572.57	0.00	5,871.16	5,871.16	0.00	28.46	28.46	0.00
<b>2. Industrial Processes</b>	<b>18,615.55</b>	<b>18,613.30</b>	<b>-0.01</b>	<b>69.82</b>	<b>78.19</b>	<b>11.98</b>	<b>24.07</b>	<b>24.06</b>	<b>-0.02</b>
2.A. Mineral Products <sup>(1)</sup>	5,210.39	5,210.39	0.00	NE	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	C	NE	8.37	0.00	C	C	C
2.C. Metal Production	13,405.16	13,402.91	-0.02	69.82	69.82	0.00	24.07	24.06	-0.02
2.D. Other Production	NE	NE	0.00						
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>71,641.98</b>	<b>71,646.17</b>	<b>0.01</b>	<b>20,760.84</b>	<b>20,849.48</b>	<b>0.43</b>
4.A. Enteric Fermentation				63,485.50	63,489.39	0.01			
4.B. Manure Management				1,652.81	1,653.10	0.02	793.08	842.99	6.29
4.C. Rice Cultivation				606.24	606.24	0.00			
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	15,564.23	15,602.96	0.25
4.E. Prescribed Burning of Savannas				5,705.22	5,705.22	0.00	4,310.69	4,310.69	0.00
4.F. Field Burning of Agricultural Residues				192.21	192.21	0.00	92.84	92.84	0.00
4.G. Other				NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>49,240.72</b>	<b>49,240.72</b>	<b>0.00</b>	<b>5,549.58</b>	<b>5,549.58</b>	<b>0.00</b>	<b>843.99</b>	<b>843.99</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-23,173.16	-23,173.16	0.00						
5.B. Forest and Grassland Conversion	76,637.42	76,637.42	0.00	4,442.63	4,442.63	0.00	541.91	541.91	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00						
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00						
5.E. Other	NA	NA	0.00	1,106.96	1,106.96	0.00	302.08	302.08	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".



Australia  
2002  
Submission 2004

year: 1994

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)			
6. Waste	NE	11.58	0.00	15,579.04	0.00	504.91	504.91	504.91	0.00
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,344.40	0.00				
6.B. Wastewater Handling				1,234.64	0.00	504.91	504.91	504.91	0.00
6.C. Waste Incineration	NE	11.58	0.00	NE	0.00	NE	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	0.00	NA	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	0.00	NA	NA	NA	0.00
NA									
Memo Items:									
International Bankers	7,365.97	7,365.97	0.00	2.64	0.00	66.70	66.70	66.70	0.00
Multilateral Operations	NE	NE		NE	0.00	NE	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	17,618.70	17,618.70	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		PFCs		SF <sub>6</sub>		Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)			
Total Actual Emissions	936.01	936.01	0.00	1,847.57	0.00	NE	NE	NE	0.00
2.C.3. Aluminium Production				1,847.57	0.00	NA	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	811.70	811.70	0.00	NO	0.00	NO	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	124.31	124.31	0.00	NE	0.00	NE	NE	NE	0.00
Other	NA	NA	0.00	NA	0.00	NA	NA	NA	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>(1)</sup>	1,859.71	2,459.67	32.26						
			Previous submission		Latest submission		Difference (%)		
			CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)				
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			488,389.49		489,099.98		0.15		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			432,755.19		433,465.68		0.16		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1995

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>	<b>338,396.03</b>	<b>338,393.75</b>	<b>0.00</b>	<b>118,822.74</b>	<b>119,652.61</b>	<b>0.70</b>	<b>26,102.50</b>	<b>26,289.06</b>	<b>0.71</b>
<b>1. Energy</b>	<b>282,424.83</b>	<b>282,424.83</b>	<b>0.00</b>	<b>27,097.86</b>	<b>27,097.86</b>	<b>0.00</b>	<b>3,839.76</b>	<b>3,839.76</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	276,710.00	276,710.00	0.00	2,432.71	2,432.71	0.00	3,810.33	3,810.33	0.00
1.A.1. Energy Industries	156,807.47	156,807.47	0.00	47.22	47.22	0.00	481.00	481.00	0.00
1.A.2. Manufacturing Industries and Construction	39,169.22	39,169.22	0.00	36.98	36.98	0.00	230.41	230.41	0.00
1.A.3. Transport	65,366.69	65,366.69	0.00	596.85	596.85	0.00	3,014.65	3,014.65	0.00
1.A.4. Other Sectors	13,961.17	13,961.17	0.00	1,750.56	1,750.56	0.00	78.25	78.25	0.00
1.A.5. Other	1,405.45	1,405.45	0.00	1.11	1.11	0.00	6.02	6.02	0.00
1.B. Fugitive Emissions from Fuels	5,714.83	5,714.83	0.00	24,665.15	24,665.15	0.00	29.42	29.42	0.00
1.B.1. Solid Fuel	NE	NE	0.00	17,480.17	17,480.17	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5,714.83	5,714.83	0.00	7,184.98	7,184.98	0.00	29.42	29.42	0.00
<b>2. Industrial Processes</b>	<b>18,596.36</b>	<b>18,594.08</b>	<b>-0.01</b>	<b>71.79</b>	<b>79.78</b>	<b>11.13</b>	<b>24.76</b>	<b>24.76</b>	<b>-0.02</b>
2.A. Mineral Products <sup>(1)</sup>	5,008.05	5,008.05	0.00	NE	NE	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	7.99	0.00	C	C	0.00
2.C. Metal Production	13,588.31	13,586.03	-0.02	71.79	71.79	0.00	24.76	24.76	-0.02
2.D. Other Production	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>71,672.28</b>	<b>71,622.46</b>	<b>-0.07</b>	<b>20,963.65</b>	<b>21,150.22</b>	<b>0.89</b>
4.A. Enteric Fermentation	NE	NE	0.00	62,927.20	62,875.98	-0.08	820.25	926.79	12.99
4.B. Manure Management	NE	NE	0.00	1,672.34	1,673.73	0.08	15,345.02	15,425.05	0.52
4.C. Rice Cultivation	NE	NE	0.00	648.74	648.74	0.00	4,702.32	4,702.32	0.00
4.D. Agricultural Soils	NE	NE	0.00	NE	NE	0.00	96.05	96.05	0.00
4.E. Prescribed Burning of Savannas	NE	NE	0.00	6,223.56	6,223.56	0.00	NA	NA	0.00
4.F. Field Burning of Agricultural Residues	NE	NE	0.00	200.45	200.45	0.00	NA	NA	0.00
4.G. Other	NE	NE	0.00	NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>37,358.01</b>	<b>37,358.01</b>	<b>0.00</b>	<b>4,808.19</b>	<b>4,808.19</b>	<b>0.00</b>	<b>763.28</b>	<b>763.28</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-22,380.22	-22,380.22	0.00	3,636.77	3,636.77	0.00	443.61	443.61	0.00
5.B. Forest and Grassland Conversion	63,961.77	63,961.77	0.00	NA	NA	0.00	NA	NA	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NA	NA	0.00	NA	NA	0.00
5.E. Other	NA	NA	0.00	1,171.42	1,171.42	0.00	319.67	319.67	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1995

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)	
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		
6. Waste	16.83	16.83	0.00	15,172.62	16,044.33	5.75	511.05	511.05	0.00
6.A. Solid Waste Disposal on Land	NE	NE	0.00	13,922.98	14,794.69	6.26			
6.B. Wastewater Handling				1,249.64	1,249.64	0.00	511.05	511.05	0.00
6.C. Waste Incineration	16.83	16.83	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Memo Items:									
International Bunkers	8,532.60	8,532.60	0.00	3.37	3.37	0.00	77.15	77.15	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	18,447.90	18,447.90	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)	
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		
Total Actual Emissions	977.42	977.42	0.00	1,309.06	1,309.06	0.00	NE	NE	0.00
2.C.3. Aluminium Production				1,309.06	1,309.06	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	718.85	718.85	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	258.57	258.57	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>0</sup>	1,816.93	2,407.17	32.49						
	Previous submission		Latest submission		Difference				
	CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)		(%)				
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			487,424.68				489,029.07		0.33
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			444,495.20				446,099.60		0.36

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1996

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O		Difference	Previous submission	Latest submission
	Previous submission	Latest submission	Previous submission	Latest submission	Previous submission	Latest submission			
	CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)	(%)		(%)
<b>Total National Emissions and Removals</b>	<b>344,309.22</b>	<b>344,309.25</b>	<b>118,609.02</b>	<b>118,539.48</b>	<b>26,375.69</b>	<b>26,538.67</b>	<b>-0.06</b>		<b>0.62</b>
<b>1. Energy</b>	<b>292,173.10</b>	<b>292,173.10</b>	<b>26,862.10</b>	<b>26,862.10</b>	<b>4,099.30</b>	<b>4,099.30</b>	<b>0.00</b>		<b>0.00</b>
1.A. Fuel Combustion Activities	286,922.57	286,922.57	2,394.56	2,394.56	4,068.57	4,068.57	0.00		0.00
1.A.1. Energy Industries	163,334.69	163,334.69	48.18	48.18	498.83	498.83	0.00		0.00
1.A.2. Manufacturing Industries and Construction	40,314.68	40,314.68	37.30	37.30	232.99	232.99	0.00		0.00
1.A.3. Transport	67,710.68	67,710.68	618.05	618.05	3,252.37	3,252.37	0.00		0.00
1.A.4. Other Sectors	14,044.93	14,044.93	1,689.81	1,689.81	77.61	77.61	0.00		0.00
1.A.5. Other	1,517.59	1,517.59	1.22	1.22	6.77	6.77	0.00		0.00
1.B. Fugitive Emissions from Fuels	5,250.53	5,250.53	24,467.54	24,467.54	30.72	30.72	0.00		0.00
1.B.1. Solid Fuel	NE	NE	17,786.50	17,786.50	NE	NE	0.00		0.00
1.B.2. Oil and Natural Gas	5,250.53	5,250.53	6,681.03	6,681.03	30.72	30.72	0.00		0.00
<b>2. Industrial Processes</b>	<b>18,671.59</b>	<b>18,668.64</b>	<b>71.97</b>	<b>81.53</b>	<b>24.63</b>	<b>24.63</b>	<b>13.27</b>		<b>-0.03</b>
2.A. Mineral Products <sup>(1)</sup>	5,076.15	5,076.15	NA	NA	NA	NA	0.00		0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	NE	9.55	C	C	0.00		C
2.C. Metal Production	13,595.44	13,592.48	71.97	71.97	24.63	24.63	0.00		-0.03
2.D. Other Production	NE	NE							
2.G. Other	NA	NA	NA	NA	NA	NA	0.00		0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>		<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>71,769.92</b>	<b>71,690.83</b>	<b>21,007.74</b>	<b>21,170.72</b>	<b>-0.11</b>		<b>0.78</b>
4.A. Enteric Fermentation			62,732.85	62,652.50			-0.13		
4.B. Manure Management			1,691.14	1,692.39	840.67	934.19	0.07		11.12
4.C. Rice Cultivation			702.28	702.28			0.00		
4.D. Agricultural Soils	NA	NA	NE	NE	15,209.67	15,279.15	0.00		0.46
4.E. Prescribed Burning of Savannas			6,426.76	6,426.76	4,855.86	4,855.86	0.00		0.00
4.F. Field Burning of Agricultural Residues			216.89	216.89	101.53	101.53	0.00		0.00
4.G. Other			NA	NA	NA	NA	0.00		0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>33,451.01</b>	<b>33,453.99</b>	<b>4,554.09</b>	<b>4,554.09</b>	<b>726.21</b>	<b>726.21</b>	<b>0.00</b>		<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-22,431.63	-22,428.65					-0.01		
5.B. Forest and Grassland Conversion	60,106.18	60,106.18	3,422.93	3,422.93	417.53	417.53	0.00		0.00
5.C. Abandonment of Managed Lands	NA	NA							
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54					0.00		
5.E. Other	NA	NA	1,131.16	1,131.16	308.68	308.68	0.00		0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1996

year:

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O				
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>6. Waste</b>	13.53	13.53	0.00	15,350.94	15,350.94	0.00	517.81	517.81	0.00
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,084.77	14,084.77	0.00			
6.B. Wastewater Handling				1,266.17	1,266.17	0.00	517.81	517.81	0.00
6.C. Waste Incineration	13.53	13.53	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>Memo Items:</b>									
<b>International Bankers</b>	9,030.65	9,030.65	0.00	3.35	3.35	0.00	81.69	81.69	0.00
<b>Multilateral Operations</b>	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
<b>CO<sub>2</sub> Emissions from Biomass</b>	18,437.02	18,437.02	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		PFCs		SF <sub>6</sub>				
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>Total Actual Emissions</b>	602.54	602.54	0.00	1,205.39	1,205.39	0.00	8.60	8.60	0.00
2.C.3. Aluminium Production				1,205.39	1,205.39	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	602.54	602.54	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	8.60	8.60	0.00
<b>Potential Emissions from Consumption of HFCs/PFCs and SF<sub>6</sub></b>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Confidential emissions reported as CO<sub>2</sub> equivalents<sup>0</sup></b>	1,970.11	2,592.87	31.61						
				Previous submission		Latest submission	Difference		
				CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)	Difference (%)		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry				493,080.58		493,796.82	0.15		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry				454,349.28		455,062.53	0.16		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1997

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub>		CH <sub>4</sub>		N <sub>2</sub> O	
		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>		<b>348,489.26</b>	<b>348,489.24</b>	<b>0.00</b>	<b>120,902.33</b>	<b>120,795.03</b>	<b>-0.09</b>
<b>1. Energy</b>		<b>299,491.76</b>	<b>299,491.76</b>	<b>0.00</b>	<b>27,749.41</b>	<b>27,749.41</b>	<b>0.00</b>
1.A.	Fuel Combustion Activities	294,443.08	294,443.08	0.00	2,427.02	2,427.02	0.00
1.A.1.	Energy Industries	169,403.10	169,403.10	0.00	98.71	98.71	0.00
1.A.2.	Manufacturing Industries and Construction	39,855.61	39,855.61	0.00	49.52	49.52	0.00
1.A.3.	Transport	69,060.28	69,060.28	0.00	638.20	638.20	0.00
1.A.4.	Other Sectors	14,585.63	14,585.63	0.00	1,639.36	1,639.36	0.00
1.A.5.	Other	1,538.46	1,538.46	0.00	1.23	1.23	0.00
1.B.	Fugitive Emissions from Fuels	5,048.68	5,048.68	0.00	25,322.39	25,322.39	0.00
1.B.1.	Solid Fuel	NE	NE	0.00	18,176.44	18,176.44	0.00
1.B.2.	Oil and Natural Gas	5,048.68	5,048.68	0.00	7,145.96	7,145.96	0.00
<b>2. Industrial Processes</b>		<b>18,661.15</b>	<b>18,658.14</b>	<b>-0.02</b>	<b>70.73</b>	<b>79.76</b>	<b>12.76</b>
2.A.	Mineral Products <sup>(1)</sup>	5,008.60	5,008.60	0.00	NA	NA	0.00
2.B.	Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	9.03	0.00
2.C.	Metal Production	13,652.55	13,649.53	-0.02	70.73	70.73	0.00
2.D.	Other Production	NE	NE	0.00			
2.G.	Other	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>		<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>
<b>4. Agriculture</b>		<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>72,884.27</b>	<b>72,770.66</b>	<b>-0.16</b>
4.A.	Enteric Fermentation				63,270.17	63,154.17	-0.18
4.B.	Manure Management				1,761.42	1,763.81	0.14
4.C.	Rice Cultivation				722.05	722.05	0.00
4.D.	Agricultural Soils	NA	NA	0.00	NE	NE	0.00
4.E.	Prescribed Burning of Savannas				6,884.31	6,884.31	0.00
4.F.	Field Burning of Agricultural Residues				246.32	246.32	0.00
4.G.	Other				NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>		<b>30,319.41</b>	<b>30,322.40</b>	<b>0.01</b>	<b>4,613.37</b>	<b>4,613.37</b>	<b>0.00</b>
5.A.	Changes in Forest and Other Woody Biomass Stocks	-22,517.90	-22,514.92	-0.01			
5.B.	Forest and Grassland Conversion	57,060.86	57,060.86	0.00	3,420.22	3,420.22	0.00
5.C.	Abandonment of Managed Lands	NA	NA	0.00			
5.D.	CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00			
5.E.	Other	NA	NA	0.00	1,193.15	1,193.15	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1997

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
6. Waste	16.94	16.94	0.00	15,584.55	15,581.83	-0.02	524.23	523.66	-0.11
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,302.69	14,301.35	-0.01			
6.B. Wastewater Handling				1,281.86	1,280.48	-0.11	524.23	523.66	-0.11
6.C. Waste Incineration	16.94	16.94	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Memo Items:									
International Bankers	9,020.41	9,020.41	0.00	3.29	3.29	0.00	81.71	81.71	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	20,275.50	20,275.50	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
Total Actual Emissions	907.09	907.09	0.00	1,050.67	1,050.67	0.00	5.98	5.98	0.00
2.C.3. Aluminium Production				1,050.67	1,050.67	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	907.09	907.09	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	5.98	5.98	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>0)</sup>	1,958.03	2,564.16	30.96						
			Previous submission	Latest submission			Difference		
			CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)			(%)		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			501,312.86	502,090.88			0.16		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			465,637.28	466,412.31			0.17		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1998

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	Difference (%)
<b>Total National Emissions and Removals</b>	<b>372,753.24</b>	<b>372,753.33</b>	<b>0.00</b>	<b>122,570.35</b>	<b>122,493.74</b>	<b>-0.06</b>	<b>29,305.50</b>	<b>29,603.87</b>	<b>1.02</b>
<b>1. Energy</b>	<b>315,517.98</b>	<b>315,517.98</b>	<b>0.00</b>	<b>29,505.84</b>	<b>29,505.84</b>	<b>0.00</b>	<b>4,650.80</b>	<b>4,650.80</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	310,229.01	310,229.01	0.00	2,332.77	2,332.77	0.00	4,617.59	4,617.59	0.00
1.A.1. Energy Industries	184,779.29	184,779.29	0.00	105.73	105.73	0.00	594.69	594.69	0.00
1.A.2. Manufacturing Industries and Construction	40,222.52	40,222.52	0.00	51.12	51.12	0.00	252.13	252.13	0.00
1.A.3. Transport	69,122.80	69,122.80	0.00	655.89	655.89	0.00	3,688.58	3,688.58	0.00
1.A.4. Other Sectors	14,785.31	14,785.31	0.00	1,518.83	1,518.83	0.00	75.87	75.87	0.00
1.A.5. Other	1,319.08	1,319.08	0.00	1.19	1.19	0.00	6.31	6.31	0.00
1.B. Fugitive Emissions from Fuels	5,288.97	5,288.97	0.00	27,173.08	27,173.08	0.00	33.21	33.21	0.00
1.B.1. Solid Fuel	NE	NE	0.00	20,048.78	20,048.78	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	5,288.97	5,288.97	0.00	7,124.30	7,124.30	0.00	33.21	33.21	0.00
<b>2. Industrial Processes</b>	<b>18,943.26</b>	<b>18,940.36</b>	<b>-0.02</b>	<b>75.70</b>	<b>83.07</b>	<b>9.73</b>	<b>23.63</b>	<b>23.62</b>	<b>-0.03</b>
2.A. Mineral Products <sup>(1)</sup>	5,433.39	5,433.39	0.00	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	C	NE	7.37	0.00	C	C	C
2.C. Metal Production	13,509.87	13,506.97	-0.02	75.70	75.70	0.00	23.63	23.62	-0.03
2.D. Other Production	NE	NE	0.00	NA	NA	0.00	NA	NA	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>73,116.55</b>	<b>73,040.15</b>	<b>-0.10</b>	<b>23,377.94</b>	<b>23,677.71</b>	<b>1.28</b>
4.A. Enteric Fermentation	NA	NA	0.00	63,358.32	63,234.89	-0.19	974.93	1,125.94	15.49
4.B. Manure Management	NA	NA	0.00	1,846.08	1,848.37	0.12	NA	NA	0.00
4.C. Rice Cultivation	NA	NA	0.00	724.47	724.47	0.00	17,054.53	17,169.47	0.67
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	5,235.73	5,269.54	0.65
4.E. Prescribed Burning of Savannas	NA	NA	0.00	6,929.53	6,974.27	0.65	112.76	112.76	0.00
4.F. Field Burning of Agricultural Residues	NA	NA	0.00	258.15	258.15	0.00	NA	NA	0.00
4.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>38,274.87</b>	<b>38,277.86</b>	<b>0.01</b>	<b>4,458.75</b>	<b>4,458.75</b>	<b>0.00</b>	<b>722.62</b>	<b>722.62</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-22,709.30	-22,706.31	-0.01	NA	NA	0.00	NA	NA	0.00
5.B. Forest and Grassland Conversion	65,207.71	65,207.71	0.00	3,274.31	3,274.31	0.00	399.40	399.40	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NA	NA	0.00	NA	NA	0.00
5.E. Other	NA	NA	0.00	1,184.44	1,184.44	0.00	323.22	323.22	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".



Australia  
2002  
Submission 2004

1998

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
<b>6. Waste</b>	17.13	17.13	0.00	15,413.51	15,405.93	-0.05	530.50	529.12	-0.26
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,116.30	14,112.10	-0.03			
6.B. Wastewater Handling				1,297.22	1,293.83	-0.26	530.50	529.12	-0.26
6.C. Waste Incineration	17.13	17.13	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>Memo Items:</b>									
International Bankers	9,473.01	9,473.01	0.00	2.98	2.98	0.00	86.32	86.32	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	20,492.97	20,492.97	0.00						
<b>GREENHOUSE GAS SOURCE AND SINK CATEGORIES</b>									
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
<b>Total Actual Emissions</b>	1,311.25	1,311.25	0.00	1,396.99	1,396.99	0.00	3.66	3.66	0.00
2.C.3. Aluminium Production				1,396.99	1,396.99	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	1,311.25	1,311.25	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	3.66	3.66	0.00
<b>Potential Emissions from Consumption of HFCs/PFCs and SF<sub>6</sub></b>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Confidential emissions reported as CO<sub>2</sub> equivalents<sup>(1)</sup></b>	2,132.86	2,784.44	30.55						
	<b>Previous submission</b>			<b>Latest submission</b>			<b>Difference</b>		
	CO <sub>2</sub> equivalent (Gg)			CO <sub>2</sub> equivalent (Gg)			Difference		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry	529,473.85			530,347.28			0.16		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry	486,017.61			486,888.05			0.18		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 1999

GREENHOUSE GAS SOURCE AND SINK CATEGORIES			CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission	Latest submission	Difference	Previous submission	Latest submission	Difference	Previous submission	Latest submission	Previous submission	Latest submission	Difference
	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	CO <sub>2</sub> equivalent (Gg)	(Gg)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)
<b>Total National Emissions and Removals</b>	<b>369,594.83</b>	<b>369,592.58</b>	<b>0.00</b>	<b>122,204.60</b>	<b>121,901.38</b>	<b>-0.25</b>	<b>31,083.00</b>	<b>31,396.73</b>	<b>31,083.00</b>	<b>31,396.73</b>	<b>1.01</b>
<b>1. Energy</b>	<b>324,580.67</b>	<b>324,580.67</b>	<b>0.00</b>	<b>27,274.46</b>	<b>27,274.46</b>	<b>0.00</b>	<b>4,922.08</b>	<b>4,922.08</b>	<b>4,922.08</b>	<b>4,922.08</b>	<b>0.00</b>
I.A. Fuel Combustion Activities	318,846.67	318,846.67	0.00	2,277.90	2,277.90	0.00	4,899.34	4,899.34	4,899.34	4,899.34	0.00
I.A.1. Energy Industries	189,112.04	189,112.04	0.00	156.89	156.89	0.00	605.04	605.04	605.04	605.04	0.00
I.A.2. Manufacturing Industries and Construction	43,600.70	43,600.70	0.00	51.12	51.12	0.00	255.31	255.31	255.31	255.31	0.00
I.A.3. Transport	69,969.79	69,969.79	0.00	663.23	663.23	0.00	3,959.26	3,959.26	3,959.26	3,959.26	0.00
I.A.4. Other Sectors	14,931.69	14,931.69	0.00	1,405.56	1,405.56	0.00	74.04	74.04	74.04	74.04	0.00
I.A.5. Other	1,232.45	1,232.45	0.00	1.10	1.10	0.00	5.68	5.68	5.68	5.68	0.00
I.B. Fugitive Emissions from Fuels	5,734.00	5,734.00	0.00	24,996.56	24,996.56	0.00	22.74	22.74	22.74	22.74	0.00
I.B.1. Solid Fuel	NE	NE	0.00	18,969.85	18,969.85	0.00	NE	NE	NE	NE	0.00
I.B.2. Oil and Natural Gas	5,734.00	5,734.00	0.00	6,026.71	6,026.71	0.00	22.74	22.74	22.74	22.74	0.00
<b>2. Industrial Processes</b>	<b>19,550.80</b>	<b>19,548.74</b>	<b>-0.01</b>	<b>70.56</b>	<b>77.74</b>	<b>10.19</b>	<b>24.77</b>	<b>24.77</b>	<b>24.77</b>	<b>24.77</b>	<b>-0.02</b>
2.A. Mineral Products <sup>(1)</sup>	5,355.99	5,355.99	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	7.19	0.00	C	C	C	C	0.00
2.C. Metal Production	14,194.80	14,192.74	-0.01	70.56	70.56	0.00	24.77	24.77	24.77	24.77	-0.02
2.D. Other Production	NE	NE	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>74,618.00</b>	<b>74,318.94</b>	<b>-0.40</b>	<b>24,901.87</b>	<b>25,217.24</b>	<b>24,901.87</b>	<b>25,217.24</b>	<b>1.27</b>
4.A. Enteric Fermentation	NA	NA	0.00	64,188.14	64,020.92	-0.26	1,044.41	1,281.37	1,044.41	1,281.37	22.69
4.B. Manure Management	NA	NA	0.00	1,888.56	1,892.35	0.20	NA	NA	NA	NA	0.00
4.C. Rice Cultivation	NA	NA	0.00	670.72	670.72	0.00	17,993.55	18,174.45	17,993.55	18,174.45	1.01
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	5,753.66	5,651.18	5,753.66	5,651.18	-1.78
4.E. Prescribed Burning of Savannas	NA	NA	0.00	7,615.01	7,479.37	-1.78	110.24	110.24	110.24	110.24	0.00
4.F. Field Burning of Agricultural Residues	NA	NA	0.00	255.57	255.57	0.00	NA	NA	NA	NA	0.00
4.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>25,445.88</b>	<b>25,445.69</b>	<b>0.00</b>	<b>4,330.25</b>	<b>4,330.25</b>	<b>0.00</b>	<b>697.45</b>	<b>697.45</b>	<b>697.45</b>	<b>697.45</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-23,298.18	-23,298.37	0.00	NA	NA	0.00	391.41	391.41	391.41	391.41	0.00
5.B. Forest and Grassland Conversion	52,967.60	52,967.60	0.00	3,208.77	3,208.77	0.00	NA	NA	NA	NA	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NA	NA	0.00	NA	NA	NA	NA	0.00
5.E. Other	NA	NA	0.00	1,121.48	1,121.48	0.00	306.04	306.04	306.04	306.04	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 1999

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		CH <sub>4</sub>		Difference	N <sub>2</sub> O		Difference	N <sub>2</sub> O
	Previous submission	Latest submission	Previous submission	Latest submission		Previous submission	Latest submission		
	CO <sub>2</sub> equivalent (Gg)	(Gg)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	(%)
6. Waste	17.49	17.49	15,911.34	15,899.99	-0.07	536.84	535.20	-0.31	-0.31
6.A. Solid Waste Disposal on Land	NE	NE	14,598.63	14,591.29	-0.05				
6.B. Wastewater Handling			1,312.70	1,308.69	-0.31	536.84	535.20	-0.31	-0.31
6.C. Waste Incineration	17.49	17.49	NE	NE	0.00	NE	NE	0.00	0.00
6.D. Other	NA	NA	NA	NA	0.00	NA	NA	0.00	0.00
7. Other (please specify)	NA	NA	NA	NA	0.00	NA	NA	0.00	0.00
NA	NA	NA	NA	NA	0.00	NA	NA	0.00	0.00
Memo Items:									
International Bunkers	9,752.78	9,752.78	3.11	3.11	0.00	88.74	88.74	0.00	0.00
Multilateral Operations	NE	NE	NE	NE	0.00	NE	NE	0.00	0.00
CO <sub>2</sub> Emissions from Biomass	20,145.07	20,145.07			0.00				
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		PFCs		Difference	SF <sub>6</sub>		Difference	SF <sub>6</sub>
	Previous submission	Latest submission	Previous submission	Latest submission		Previous submission	Latest submission		
	CO <sub>2</sub> equivalent (Gg)	(Gg)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)	(%)
Total Actual Emissions	1,694.44	1,694.44	981.99	981.99	0.00	3.59	3.59	0.00	0.00
2.C.3. Aluminium Production			981.99	981.99	0.00	NA	NA	0.00	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	NO	NO	0.00	NO	NO	0.00	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	1,694.44	1,694.44	NE	NE	0.00	NE	NE	0.00	0.00
Other	NA	NA	NA	NA	0.00	3.59	3.59	0.00	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> -equivalents <sup>(1)</sup>	2,019.63	2,666.08			32.01				
			Previous submission	Latest submission					
			CO <sub>2</sub> equivalent (Gg)	(Gg)	(%)				
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			527,582.08	528,236.79	0.12				
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			497,108.51	497,763.41	0.13				

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 2000

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)
<b>Total National Emissions and Removals</b>	<b>365,526.10</b>	<b>365,652.63</b>	<b>0.03</b>	<b>124,810.76</b>	<b>124,517.38</b>	<b>-0.24</b>	<b>33,145.92</b>	<b>33,492.63</b>	<b>1.05</b>
<b>1. Energy</b>	<b>330,222.67</b>	<b>330,222.67</b>	<b>0.00</b>	<b>28,581.06</b>	<b>28,581.06</b>	<b>0.00</b>	<b>5,205.58</b>	<b>5,205.58</b>	<b>0.00</b>
1.A. Fuel Combustion Activities	323,734.22	323,734.22	0.00	2,207.11	2,207.11	0.00	5,178.97	5,178.97	0.00
1.A.1. Energy Industries	192,390.72	192,390.72	0.00	192.64	192.64	0.00	611.79	611.79	0.00
1.A.2. Manufacturing Industries and Construction	42,588.54	42,588.54	0.00	51.61	51.61	0.00	246.13	246.13	0.00
1.A.3. Transport	72,095.17	72,095.17	0.00	663.26	663.26	0.00	4,242.46	4,242.46	0.00
1.A.4. Other Sectors	15,383.96	15,383.96	0.00	1,298.50	1,298.50	0.00	72.78	72.78	0.00
1.A.5. Other	1,275.82	1,275.82	0.00	1.10	1.10	0.00	5.82	5.82	0.00
1.B. Fugitive Emissions from Fuels	6,488.46	6,488.46	0.00	26,373.96	26,373.96	0.00	26.61	26.61	0.00
1.B.1. Solid Fuel	NE	NE	0.00	19,638.07	19,638.07	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	6,488.46	6,488.46	0.00	6,735.88	6,735.88	0.00	26.61	26.61	0.00
<b>2. Industrial Processes</b>	<b>18,744.66</b>	<b>18,741.86</b>	<b>-0.01</b>	<b>60.80</b>	<b>70.01</b>	<b>15.16</b>	<b>22.88</b>	<b>22.87</b>	<b>-0.03</b>
2.A. Mineral Products <sup>(1)</sup>	5,150.78	5,150.78	0.00	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	0.00	NE	9.21	0.00	C	C	0.00
2.C. Metal Production	13,593.88	13,591.08	-0.02	60.80	60.80	0.00	22.88	22.87	-0.03
2.D. Other Production	NE	NE	0.00	NA	NA	0.00	NA	NA	0.00
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>76,255.48</b>	<b>75,969.07</b>	<b>-0.38</b>	<b>26,769.79</b>	<b>27,118.54</b>	<b>1.30</b>
4.A. Enteric Fermentation	NA	NA	0.00	64,495.65	64,316.79	-0.28	NA	NA	0.00
4.B. Manure Management	NA	NA	0.00	1,911.95	1,915.91	0.21	1,115.65	1,361.01	21.99
4.C. Rice Cultivation	NA	NA	0.00	741.34	741.34	0.00	NA	NA	0.00
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	18,860.84	19,048.48	0.99
4.E. Prescribed Burning of Savannas	NA	NA	0.00	8,843.68	8,732.17	-1.26	6,682.00	6,597.76	-1.26
4.F. Field Burning of Agricultural Residues	NA	NA	0.00	262.85	262.85	0.00	111.29	111.29	0.00
4.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>16,542.46</b>	<b>16,671.80</b>	<b>0.78</b>	<b>3,763.39</b>	<b>3,763.39</b>	<b>0.00</b>	<b>604.02</b>	<b>604.02</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-23,349.21	-23,219.88	-0.55	NA	NA	0.00	NA	NA	0.00
5.B. Forest and Grassland Conversion	44,115.21	44,115.21	0.00	2,802.83	2,802.83	0.00	341.89	341.89	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00	NA	NA	0.00	NA	NA	0.00
5.E. Other	NA	NA	0.00	960.56	960.56	0.00	262.13	262.13	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 2000

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	
6. Waste	16.30	16.30	0.00	16,150.03	16,133.84	-0.10	543.65	541.62	-0.37
6.A. Solid Waste Disposal on Land	NE	NE	0.00	14,820.66	14,809.45	-0.08			
6.B. Wastewater Handling				1,329.37	1,324.39	-0.37	543.65	541.62	-0.37
6.C. Waste Incineration	16.30	16.30	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
Memo Items:									
International Bankers	10,099.67	10,099.67	0.00	3.36	3.36	0.00	91.69	91.69	0.00
Multilateral Operations	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
CO <sub>2</sub> Emissions from Biomass	20,146.07	20,146.07	0.00						
GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission CO <sub>2</sub> equivalent (Gg)	
Total Actual Emissions	2,084.83	2,084.83	0.00	1,103.21	1,103.21	0.00	2.39	2.39	0.00
2.C.3. Aluminium Production				1,103.21	1,103.21	0.00	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	2,084.83	2,084.83	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	2.39	2.39	0.00
Potential Emissions from Consumption of HFCs/PFCs and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA
Confidential emissions reported as CO <sub>2</sub> equivalents <sup>1)</sup>	2,076.35	2,765.12	33.17						
			Previous submission	Latest submission			Difference		
			CO <sub>2</sub> equivalent (Gg)	CO <sub>2</sub> equivalent (Gg)			(%)		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry			528,749.56	529,618.19			0.16		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry			507,839.69	508,578.98			0.15		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

year: 2001

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>			CH <sub>4</sub>			N <sub>2</sub> O		
	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)	Previous submission	Latest submission	Difference (%)
<b>Total National Emissions and Removals</b>	<b>361,874.10</b>	<b>361,210.06</b>	<b>-0.18</b>	<b>124,235.39</b>	<b>124,553.10</b>	<b>-0.54</b>	<b>34,365.40</b>	<b>34,522.76</b>	<b>0.46</b>
<b>1. Energy</b>	<b>336,326.38</b>	<b>335,381.45</b>	<b>-0.28</b>	<b>27,324.71</b>	<b>27,327.30</b>	<b>0.01</b>	<b>5,320.71</b>	<b>5,323.38</b>	<b>0.05</b>
1.A. Fuel Combustion Activities	329,402.62	328,457.69	-0.29	2,066.69	2,069.29	0.13	5,291.77	5,294.44	0.05
1.A.1. Energy Industries	198,168.52	197,223.59	-0.48	190.67	190.05	-0.33	628.64	624.87	-0.60
1.A.2. Manufacturing Industries and Construction	42,034.59	42,034.59	0.00	48.74	48.74	0.00	230.24	230.24	0.00
1.A.3. Transport	72,260.40	72,260.40	0.00	630.57	633.78	0.51	4,355.72	4,362.16	0.15
1.A.4. Other Sectors	15,585.94	15,585.94	0.00	1,195.62	1,195.62	0.00	70.96	70.96	0.00
1.A.5. Other	1,353.17	1,353.17	0.00	1.10	1.10	0.00	6.21	6.21	0.00
1.B. Fugitive Emissions from Fuels	6,923.76	6,923.76	0.00	25,258.01	25,258.01	0.00	28.94	28.94	0.00
1.B.1. Solid Fuel	NE	NE	0.00	18,445.52	18,445.52	0.00	NE	NE	0.00
1.B.2. Oil and Natural Gas	6,923.76	6,923.76	0.00	6,812.50	6,812.50	0.00	28.94	28.94	0.00
<b>2. Industrial Processes</b>	<b>18,211.90</b>	<b>18,264.92</b>	<b>0.29</b>	<b>57.91</b>	<b>65.20</b>	<b>12.59</b>	<b>20.44</b>	<b>20.43</b>	<b>-0.05</b>
2.A. Mineral Products <sup>(1)</sup>	5,099.94	5,157.40	1.13	NA	NA	0.00	NA	NA	0.00
2.B. Chemical Industry <sup>(1)</sup>	C	C	C	NE	7.29	0.00	C	C	C
2.C. Metal Production	13,111.96	13,107.52	-0.03	57.91	57.91	0.00	20.44	20.43	-0.05
2.D. Other Production	NE	NE	0.00						
2.G. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>3. Solvent and Other Product Use</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>NE</b>	<b>NE</b>	<b>0.00</b>
<b>4. Agriculture</b>	<b>NA</b>	<b>NA</b>	<b>0.00</b>	<b>77,865.55</b>	<b>77,192.89</b>	<b>-0.86</b>	<b>27,900.92</b>	<b>28,057.66</b>	<b>0.56</b>
4.A. Enteric Fermentation				65,204.54	64,721.56	-0.74			
4.B. Manure Management				1,913.05	1,959.42	2.42	1,140.66	1,369.94	20.10
4.C. Rice Cultivation				737.90	737.82	-0.01			
4.D. Agricultural Soils	NA	NA	0.00	NE	NE	0.00	19,285.67	19,394.07	0.56
4.E. Prescribed Burning of Savannas				9,745.09	9,504.24	-2.47	7,363.08	7,181.11	-2.47
4.F. Field Burning of Agricultural Residues				264.97	269.85	1.84	111.51	112.54	0.92
4.G. Other				NA	NA	0.00	NA	NA	0.00
<b>5. Land-Use Change and Forestry (net)</b>	<b>7,319.53</b>	<b>7,547.39</b>	<b>3.11</b>	<b>3,479.19</b>	<b>3,479.19</b>	<b>0.00</b>	<b>572.32</b>	<b>572.32</b>	<b>0.00</b>
5.A. Changes in Forest and Other Woody Biomass Stocks	-22,669.46	-22,441.59	-1.01						
5.B. Forest and Grassland Conversion	34,212.53	34,212.53	0.00	2,498.95	2,498.95	0.00	304.82	304.82	0.00
5.C. Abandonment of Managed Lands	NA	NA	0.00						
5.D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	0.00						
5.E. Other	NA	NA	0.00	980.24	980.24	0.00	267.50	267.50	0.00

1. Emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash Production and Use and Magnesia Production are confidential and are aggregated and reported in Table 8(a)s2 under "Confidential emissions reported as CO<sub>2</sub>-equivalents".

Australia  
2002  
Submission 2004

year: 2001

GREENHOUSE GAS SOURCE AND SINK CATEGORIES									
	CO <sub>2</sub>		Difference (%)	CH <sub>4</sub>		Difference (%)	N <sub>2</sub> O		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
<b>6. Waste</b>	16,30	16,30	0.00	16,508.03	16,488.52	-0.12	551.01	548.97	-0.37
6.A. Solid Waste Disposal on Land	NE	NE	0.00	15,160.68	15,146.15	-0.10			
6.B. Wastewater Handling				1,347.35	1,342.37	-0.37	551.01	548.97	-0.37
6.C. Waste Incineration	16,30	16,30	0.00	NE	NE	0.00	NE	NE	0.00
6.D. Other	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
7. Other (please specify)	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
NA	NA	NA	0.00	NA	NA	0.00	NA	NA	0.00
<b>Memo Items:</b>									
<b>International Bunkers</b>	10,625.28	10,625.28	0.00	3.14	3.14	0.00	96.99	96.99	0.00
<b>Multilateral Operations</b>	NE	NE	0.00	NE	NE	0.00	NE	NE	0.00
<b>CO<sub>2</sub> Emissions from Biomass</b>	18,254.75	20,147.07	10.37						
<b>GREENHOUSE GAS SOURCE AND SINK CATEGORIES</b>									
	HFCs		Difference (%)	PFCs		Difference (%)	SF <sub>6</sub>		Difference (%)
	Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)		Previous submission CO <sub>2</sub> equivalent (Gg)	Latest submission (Gg)	
<b>Total Actual Emissions</b>	2,344.90	2,344.90	0.00	1,527.04	1,555.97	1.89	0.00	0.00	0.00
2.C.3. Aluminium Production				1,527.04	1,555.97	1.89	NA	NA	0.00
2.E. Production of Halocarbons and SF <sub>6</sub>	NO	NE	0.00	NO	NO	0.00	NO	NO	0.00
2.F. Consumption of Halocarbons and SF <sub>6</sub>	2,344.90	2,344.90	0.00	NE	NE	0.00	NE	NE	0.00
Other	NA	NA	0.00	NA	NA	0.00	NE	NE	0.00
<b>Potential Emissions from Consumption of HFCs/PFCs and SF<sub>6</sub></b>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Confidential emissions reported as CO<sub>2</sub> equivalents<sup>(1)</sup></b>	2,754.06	3,477.12	26.25						
	<b>Previous submission</b>			<b>Latest submission</b>			<b>Difference</b>		
				<b>CO<sub>2</sub> equivalent (Gg)</b>			<b>(%)</b>		
Total CO <sub>2</sub> Equivalent Emissions with Land-Use Change and Forestry	528,100.88			527,663.89			-0.08		
Total CO <sub>2</sub> Equivalent Emissions without Land-Use Change and Forestry	516,729.85			516,064.99			-0.13		

1. Includes confidential emissions of N<sub>2</sub>O from Nitric Acid Production and CO<sub>2</sub> from Ammonia Production, Soda Ash production and use and Magnesia Production

Australia  
2002  
Submission 2004

Specify the sector and source/sink category where changes in estimates have occurred:	GHG	RECALCULATION DUE TO			
		CHANGES IN:			Addition/removal/ replacement of source/sink categories
		Methods	Emission factors	Activity data	
1.A.1	Stationary Energy Combustion - Energy Industries	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, CO, NO <sub>x</sub> , NMVOC, SO <sub>2</sub>	see Documentation box below		
1.A.3	Transport - Road Transport	CH <sub>4</sub> , N <sub>2</sub> O, CO, NO <sub>x</sub> , NMVOC	To adopt a consistent methodology, the distance travelled by natural gas vehicles was derived	New emission factor for Natural Gas by VKT	
1.A.3	Transport - Road Transport	CH <sub>4</sub> , N <sub>2</sub> O, CO, NO <sub>x</sub> , NMVOC		Recalculation in inventory year 2001 due to the use of new and updated fuel consumption rate.	
2.A.7	Other: Magnesia Production	CO <sub>2</sub>	Country Specific - emission factor multiplied by fractional purity multiplied by quantity produced.	Based on stoichiometric relationship.	Complete production datasets provided by producers. These emissions are reported as part of the sum of "Confidential data reported as CO <sub>2</sub> -e".
2.B.2	Nitric Acid Production	N <sub>2</sub> O			Data revised following reporting of data on a previously omitted plant. These emissions are reported as part of the sum of "Confidential data reported as CO <sub>2</sub> -e".
2.B.5	Chemical Industry: Other	CH <sub>4</sub> , NMVOC	Default	Country specific and default	Complete production datasets provided by producers. Addition of sources of CH <sub>4</sub> and NMVOC emissions.
4.A - 4.F	Agriculture	CH <sub>4</sub> and N <sub>2</sub> O			The inventory component is calculated as a three year average between the year of interest and the two years immediately adjacent. Consequently the value reported in the 2003 Submission for 2001, which was the average of years 2000 and 2001 (the only data available), has now been recalculated as the average of years 2000, 2001 and 2002.
4.A, 4.B	Enteric Fermentation, Manure Management and Agricultural soils	CH <sub>4</sub> and N <sub>2</sub> O			New data on cattle in feedlots.
4.E	Savanna burning	CH <sub>4</sub> and N <sub>2</sub> O			Revised data on area burnt for financial years 1999-2001.
6.A	Managed Solid Waste Disposal on Land	CH <sub>4</sub>			Population data updated following publication of the results of a national census.
6.A	Managed Solid Waste Disposal on Land	CH <sub>4</sub>			Population data updated based on the latest ABS data.
6.B	Wastewater Handling	CH <sub>4</sub> , N <sub>2</sub> O			Population data updated following publication of the results of a national census.

**Documentation box:** Use the documentation box to report the justifications of the changes as to improvements in the accuracy, completeness and consistency of the inventory.

Some differences in the recalculation tables are due to inconsistent rounding or transcription errors in the previous submissions. Only differences due to changes in data and methodology are reported in Table 8(b).



**TABLE 9 COMPLETENESS**

Australia  
2002  
Submission 2004

Sources and sinks not reported (NE)				
GHG	Sector	Source/sink category	Explanation	
CO <sub>2</sub>	1. Energy	1.B.1.a Coal Mining	No data, no suitable emission factors.	
	1. Energy	1.B.2.b Natural Gas: (i) Production/Processing	No data are available.	
	1. Energy	1.B.2.b Natural Gas: (iii) Other Leakage	No data are available.	
	2. Industrial Processes	2.A.6. Mineral Products: Road Paving with Asphalt	No data are available.	
	2. Industrial Processes	2.A.7 Other: Glass Production	No data are available.	
	2. Industrial Processes	2.B.4. Chemical Industry: Carbide Production	There is no carbide production in Australia. Acetylene is produced from imported calcium carbide	
	2. Industrial Processes	2.B.5. Chemical Industry: Other	Data on some sources are unavailable.	
	2. Industrial Processes	2.C.5. Metal Production: Other	No methodology developed. Metals production is predominantly from sulfide ores rather than carbonates	
	2. Industrial Processes	2.D.1. Other Production: Pulp and paper	No data are available.	
	2. Industrial Processes	2.D.2. Other Production : Food and Drink	No methodology developed.	
CH <sub>4</sub>	5. Land Use Change and Forestry	5.D Cultivation of mineral and organic soils, Liming of agricultural soils, and Forest soils	No national methodology or data are available. Emissions due to Forest and Grassland Conversion are reported under 5B.	
	6. Waste	6.A.1. Managed Waste Disposal on Land	No methodology developed.	
	Memo Items	Multilateral Operations	No data or methodology available	
	1. Energy	1.A.5.a Lubricants	No national methodology.	
	1. Energy	1.B.2.b Natural Gas: (iii) Other Leakage	No data are available.	
N <sub>2</sub> O	6. Waste	6.C Waste Incineration: Solvent	No methodology available	
	Memo Items	Multilateral Operations	No data or methodology available	
	1. Energy	1.A.5.a Lubricants	No national methodology.	
	1. Energy	1.B.2.b Natural Gas: (iii) Other Leakage	No data are available.	
	3. Solvent and Other Product Use	3.D. Other	No data are available.	
HFCs	4. Agriculture	4.D.3. Indirect emissions	No data are available	
	6. Waste	6.B.1 Wastewater Handling: Industrial Wastewater	No data are available.	
	6. Waste	6.C Waste Incineration: Solvent	No data are available.	
	Memo Items	Multilateral Operations	No data or methodology available	
	2. Industrial Processes	2.F. Consumption of Halocarbons: 2.F.2 - 2.F.6	No reliable data are available.	
PFCs	2. Industrial Processes	2.F. Consumption of Halocarbons: 2.F.1 and 2.F.3	No reliable data are available.	
	2. Industrial Processes	2.C4. SF <sub>6</sub> Used in Aluminium and Magnesium Foundries	No longer used as a cover gas in trial magnesium casting plant, however small quantity are used in downstream uses of magnesium. Data is not available on these sources.	
SF <sub>6</sub>	2. Industrial Processes	2.F.7.Electricity equipment	No reliable data are available.	
Sources and sinks reported elsewhere (IE)				
GHG	Source/sink category	Allocation as per IPCC Guidelines	Allocation used by the Party	Explanation
CO <sub>2</sub>	1. Energy	1.B.2.c Flaring (i) Oil and (ii) Gas	1.B.2.c Flaring (iii) Combined Oil and Gas	Flaring emissions for Oil and Gas are not available
	5. Land Use Change and Forestry	5.A.1-4: Temperate, tropical and boreal forests, grassland/tundra and harvested wood.	5.A.5 Other	Data are currently unavailable in a format that allows allocation of emissions and removals according to the
	5. Land Use Change and Forestry	5.B.1-4: Temperate, tropical and boreal forests and grassland/tundra	5.B.5 Other	Forests and grasslands data are currently unavailable in a format that allows allocation of emissions according to the particular forest categories given in the CRF.
CH <sub>4</sub>	1. Energy	1.B.1.b Solid Fuel Transformation	2.C Industrial Processes: Iron and Steel Production	Fugitive emissions associated with Coke production are included in the CH <sub>4</sub> emission factor for integrated iron and steel plants.
	1. Energy	1.B.2.c Flaring (i) Oil and (ii) Gas	1.B.2.c Flaring (iii) Combined Oil and Gas	Flaring emissions for Oil and Gas are not available separately. They are reported as a combined figure.
	5. Land Use Change and Forestry	5.B.1-4: Temperate, tropical and boreal forests and grassland/tundra	5.B.5 Other	Forests and grasslands data are currently unavailable in a format that allows allocation of emissions according to
N <sub>2</sub> O	1. Energy	1.B.2.c Flaring (i) Oil and (ii) Gas	1.B.2.c Flaring (iii) Combined Oil and Gas	Flaring emissions for Oil and Gas are not available separately. They are reported as a combined figure.
	4. Agriculture	4.D.1 Nitrogen fixing crops, crop residues, direct emissions from cultivation of histosols 4.D.3 Atmospheric Deposition	4.D Other: Soil Disturbance	Country specific methodology.
	5. Land Use Change and Forestry	5.B.1-4: Temperate, tropical and boreal forests and grassland/tundra	5.B.5 Other	Forests and grasslands data are currently unavailable in a format that allows allocation of emissions according to the particular forest categories given in the CRF.
HFCs	NA	NA	NA	NA
PFCs	NA	NA	NA	NA
SF <sub>6</sub>	NA	NA	NA	NA

Australia  
2002  
Submission 2004

Additional GHG Emissions Reported						
GHG	Source Category	Emissions (Gg)	Estimated GWP Value (100-year horizon)	Emissions CO <sub>2</sub> Equivalent (Gg)	Reference to the Data Source of GWP Value	Explanation
NO <sub>x</sub>	Energy	1,613.25	NA	NA	NA	Methodology described in Australian methodology workbooks
CO	Energy	4,381.06	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Energy	787.61	NA	NA	NA	Methodology described in Australian methodology workbooks
SO <sub>2</sub>	Energy	751.03	NA	NA	NA	Methodology described in Australian methodology workbooks
NO <sub>x</sub>	Industrial Processes	56.61	NA	NA	NA	Methodology described in Australian methodology workbooks
CO	Industrial Processes	8.07	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Industrial Processes	71.54	NA	NA	NA	Methodology described in Australian methodology workbooks
SO <sub>2</sub>	Industrial Processes	2,052.06	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Solvents	141.87	NA	NA	NA	Methodology described in Australian methodology workbooks
NO <sub>x</sub>	Agriculture	1,431.62	NA	NA	NA	Methodology described in Australian methodology workbooks
CO	Agriculture	19,108.81	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Agriculture	1,114.68	NA	NA	NA	Methodology described in Australian methodology workbooks
NO <sub>x</sub>	Land Use Change and Forestry	90.43	NA	NA	NA	Methodology described in Australian methodology workbooks
CO	Land Use Change and Forestry	4,530.30	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Land Use Change and Forestry	280.30	NA	NA	NA	Methodology described in Australian methodology workbooks
NM VOC	Waste	3.69	NA	NA	NA	Methodology described in Australian methodology workbooks



**TABLE 10 EMISSION TRENDS**

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
			(Gg)									
1. Energy			258,622.51	258,622.51	260,716.76	265,401.81	268,804.61	272,700.18	273,173.10	299,491.76	315,517.98	324,580.67
A. Fuel Combustion (Sectoral Approach)			252,659.80	252,659.80	254,971.64	259,560.87	262,957.26	267,127.62	267,127.62	294,443.08	310,229.01	318,846.67
1. Energy Industries			141,805.68	141,805.68	145,296.14	148,512.17	149,790.74	150,850.78	150,850.78	169,403.10	184,779.29	189,112.04
2. Manufacturing Industries and Construction			37,384.55	37,384.55	36,829.60	36,707.28	37,143.37	38,645.38	39,169.22	40,314.68	40,222.52	43,600.70
3. Transport			59,726.89	59,726.89	59,076.56	60,194.18	61,358.05	62,765.30	65,366.69	67,710.68	69,060.28	69,969.79
4. Other Sectors			12,485.74	12,485.74	12,558.60	12,894.80	13,375.86	13,491.90	13,961.17	14,044.93	14,585.63	14,931.69
5. Other			1,256.94	1,256.94	1,210.75	1,252.43	1,289.24	1,374.24	1,405.45	1,517.59	1,538.46	1,319.08
B. Fugitive Emissions from Fuels			5,962.71	5,962.71	5,745.12	5,840.95	5,847.35	5,572.57	5,714.83	5,250.53	5,048.68	5,288.97
1. Solid Fuel			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Oil and Natural Gas			5,962.71	5,962.71	5,745.12	5,840.95	5,847.35	5,572.57	5,714.83	5,250.53	5,048.68	5,288.97
2. Industrial Processes			19,234.74	19,234.74	18,879.21	16,641.99	16,709.21	18,613.30	18,594.08	18,668.64	18,940.36	19,548.74
A. Mineral Products <sup>(1)</sup>			4,763.45	4,763.45	4,477.14	4,299.14	4,507.25	5,210.39	5,008.05	5,076.15	5,008.60	5,433.39
B. Chemical Industry <sup>(1)</sup>			C	C	C	C	C	C	C	C	C	C
C. Metal Production			14,471.28	14,471.28	14,402.08	12,342.86	12,201.96	13,402.91	13,592.48	13,649.53	13,506.97	14,192.74
D. Other Production			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
E. Production of Halocarbons and SF <sub>6</sub>												
F. Consumption of Halocarbons and SF <sub>6</sub>												
G. Other			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Agriculture			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A. Enteric Fermentation			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B. Manure Management			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Rice Cultivation			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. Agricultural Soils			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Prescribed Burning of Savannas			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
F. Field Burning of Agricultural Residues			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G. Other			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Land-Use Change and Forestry			85,370.37	85,370.37	61,685.04	45,992.02	47,184.67	49,240.72	33,453.99	30,322.40	38,277.86	25,445.69
A. Changes in Forest and Other Woody Biomass Stocks			-24,598.42	-24,598.42	-24,084.18	-24,543.87	-24,154.58	-23,173.16	-22,428.65	-22,514.92	-22,706.31	-23,298.37
B. Forest and Grassland Conversion			114,192.33	114,192.33	89,992.76	74,659.43	75,562.79	76,637.42	63,961.77	60,106.18	57,060.86	52,967.60
C. Abandonment of Managed Lands			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D. CO <sub>2</sub> Emissions and Removals from Soil			-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54
E. Other			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6. Waste			11.58	11.58	11.58	11.58	11.58	11.58	13.53	16.94	17.13	17.49
A. Solid Waste Disposal on Land			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Waste-water Handling			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C. Waste Incineration			11.58	11.58	11.58	11.58	11.58	11.58	13.53	16.94	17.13	17.49
D. Other			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7. Other (please specify)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Emissions/Removals with LUCF			363,239.20	363,239.20	341,293.60	327,947.41	332,710.07	340,565.79	344,309.25	348,489.24	372,753.33	369,592.58
Total Emissions without LUCF			277,868.83	277,868.83	279,607.55	282,055.39	285,525.40	291,325.06	310,855.26	318,166.84	334,475.47	344,146.89
Memo Items:												
International Bankers			6,400.97	6,400.97	6,378.80	6,584.40	6,987.84	7,365.97	8,532.60	9,020.41	9,473.01	9,752.78
Aviation			4,345.12	4,345.12	4,320.39	4,295.71	5,199.38	5,353.94	6,311.70	6,501.21	7,232.89	7,268.09
Marine			2,055.85	2,055.85	1,858.42	1,788.69	1,788.46	2,012.03	2,674.93	2,519.20	2,240.12	2,484.69
Multilateral Operations			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass			16,514.85	16,514.85	16,641.90	15,141.52	16,799.68	17,618.70	18,437.90	20,275.50	20,492.97	20,145.07

1. Specified emissions from Ammonia Production, Nitric Acid Production, Magnesia Production, and Soda Ash Production and Use are Confidential. These emissions are reported in Table 10a5 as Confidential emissions reported as CO<sub>2</sub>e.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		Base year			
		2000	2001	2002	
<b>1. Energy</b>		<b>330,222.67</b>	<b>335,381.45</b>	<b>340,141.90</b>	
A. Fuel Combustion (Sectoral Approach)		323,734.22	328,457.69	333,679.70	
1. Energy Industries		192,390.72	197,223.59	198,870.90	
2. Manufacturing Industries and Construction		42,588.54	42,034.59	43,248.67	
3. Transport		72,095.17	72,260.40	74,086.56	
4. Other Sectors		15,383.96	15,585.94	16,042.85	
5. Other		1,275.82	1,353.17	1,430.71	
B. Fugitive Emissions from Fuels		6,488.46	6,923.76	6,462.20	
1. Solid Fuel		NE	NE	NE	
2. Oil and Natural Gas		6,488.46	6,923.76	6,462.20	
<b>2. Industrial Processes</b>		<b>19,234.74</b>	<b>18,741.86</b>	<b>18,297.13</b>	
A. Mineral Products <sup>(1)</sup>		4,763.45	5,150.78	5,179.52	
B. Chemical Industry <sup>(1)</sup>		C	C	C	
C. Metal Production		14,471.28	13,107.52	13,117.61	
D. Other Production		NE	NE	NE	
E. Production of Halocarbons and SF <sub>6</sub>					
F. Consumption of Halocarbons and SF <sub>6</sub>					
G. Other		NA	NA	NA	
<b>3. Solvent and Other Product Use</b>					
<b>4. Agriculture</b>					
A. Enteric Fermentation		NA	NA	NA	
B. Manure Management		NA	NA	NA	
C. Rice Cultivation		NA	NA	NA	
D. Agricultural Soils		NA	NA	NA	
E. Prescribed Burning of Savannas		NA	NA	NA	
F. Field Burning of Agricultural Residues		NA	NA	NA	
G. Other		NA	NA	NA	
<b>5. Land-Use Change and Forestry</b>		<b>85,370.37</b>	<b>7,547.39</b>	<b>13,113.19</b>	
A. Changes in Forest and Other Woody Biomass Stocks		-24,598.42	-22,441.59	-21,827.14	
B. Forest and Grassland Conversion		114,192.33	34,212.53	39,163.87	
C. Abandonment of Managed Lands		NA	NA	NA	
D. CO <sub>2</sub> Emissions and Removals from Soil		-4,223.54	-4,223.54	-4,223.54	
E. Other		NA	NA	NA	
<b>6. Waste</b>		<b>11.58</b>	<b>16.30</b>	<b>16.30</b>	
A. Solid Waste Disposal on Land		NE	NE	NE	
B. Waste-water Handling		NA	NA	NA	
C. Waste Incineration		11.58	16.30	16.30	
D. Other		NA	NA	NA	
<b>7. Other (please specify)</b>					
NA		NA	NA	NA	
<b>Total Emissions/Removals with LUCF</b>		<b>363,239.20</b>	<b>361,210.06</b>	<b>371,568.53</b>	
<b>Total Emissions without LUCF</b>		<b>277,868.83</b>	<b>353,662.67</b>	<b>358,455.34</b>	
<b>Memo Items:</b>					
<b>International Bankers</b>		<b>6,400.97</b>	<b>10,625.28</b>	<b>11,100.74</b>	
Aviation		4,345.12	8,151.32	8,567.30	
Marine		2,055.85	2,473.96	2,533.44	
<b>Multilateral Operations</b>					
CO <sub>2</sub> Emissions from Biomass		16,514.85	20,147.07	17,600.23	

1. Speciated emissions from Ammonia Production, Nitric Acid Production, Magnesia Production, and Soda Ash Production and Use are Confidential. These emissions are reported in Table 10b5 as Confidential emissions reported as CO<sub>2</sub>-e.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES													
Base Year		1990	1991	1992	(Gg)		1993	1994	1995	1996	1997	1998	1999
Total Emissions	1. Energy	5,806.58	5,775.44	5,722.97	5,664.25	5,596.26	5,697.74	5,644.74	5,752.14	5,833.04	5,804.83		
	A. Fuel Combustion (Sectoral Approach)	1,197.86	1,173.98	1,225.86	1,186.31	1,174.69	1,290.37	1,279.15	1,321.40	1,405.04	1,298.78		
	1. Energy Industries	113.77	115.33	117.87	119.16	117.66	115.84	114.03	115.57	111.08	108.47		
	2. Manufacturing Industries and Construction	1.90	1.92	2.01	2.06	2.09	2.25	2.29	2.25	2.43	2.43		
	3. Transport	1.55	1.52	1.47	1.58	1.63	1.76	1.78	2.36	2.43	2.43		
	4. Other Sectors	26.25	25.74	26.02	26.64	27.43	28.42	29.43	30.39	31.23	31.58		
	5. Other	84.03	86.11	88.32	88.84	86.46	83.36	80.47	78.06	72.33	66.93		
	B. Fugitive Emissions from Fuels	0.05	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.05		
	1. Solid Fuel	1,084.09	1,058.65	1,108.00	1,067.14	1,057.04	1,174.53	1,165.12	1,205.83	1,293.96	1,190.31		
	2. Oil and Natural Gas	753.16	760.91	791.41	791.02	777.46	832.39	846.98	865.54	954.70	903.33		
	3. Industrial Processes	330.93	297.75	316.59	276.12	279.58	342.14	318.14	340.28	339.25	286.99		
	A. Mineral Products	3.29	3.03	3.30	3.33	3.72	3.80	3.88	3.80	3.96	3.70		
	B. Chemical Industry	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	C. Metal Production	0.44	0.40	0.41	0.32	0.40	0.38	0.45	0.43	0.35	0.34		
	D. Other Production	2.85	2.63	2.89	3.01	3.32	3.42	3.43	3.37	3.60	3.36		
E. Production of Halocarbons and SF <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
F. Consumption of Halocarbons and SF <sub>6</sub>													
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3. Solvent and Other Product Use													
4. Agriculture													
A. Enteric Fermentation	3,580.33	3,580.33	3,590.78	3,524.04	3,473.13	3,411.72	3,410.59	3,413.85	3,465.27	3,478.10	3,539.00		
B. Manure Management	3,214.15	3,225.19	3,165.04	3,096.48	3,023.30	2,994.09	2,983.45	3,007.34	3,011.19	3,048.62			
C. Rice Cultivation	71.82	71.81	73.22	76.13	78.72	79.70	80.59	83.99	88.02	90.11			
D. Agricultural Soils	23.36	24.94	25.53	28.51	28.87	30.89	33.44	34.38	34.50	31.94			
E. Prescribed Burning of Savannas	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE			
F. Field Burning of Agricultural Residues	262.24	262.24	260.34	251.59	262.73	271.68	296.36	306.04	327.82	332.11	356.16		
G. Other	8.77	8.50	8.66	9.29	9.15	9.55	10.33	10.33	11.73	12.29	12.17		
5. Land-Use Change and Forestry													
A. Changes in Forest and Other Woody Biomass Stocks	320.18	320.18	287.03	240.75	256.68	264.27	228.96	216.86	219.68	212.32	206.20		
B. Forest and Grassland Conversion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
C. Abandonment of Managed Lands	262.24	262.24	227.26	184.37	201.29	211.55	173.18	163.00	162.87	155.92	152.80		
D. CO <sub>2</sub> Emissions and Removals from Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
E. Other	57.94	57.94	59.77	56.38	55.39	52.71	55.78	53.86	56.82	56.40	53.40		
6. Waste													
A. Solid Waste Disposal on Land	704.92	704.92	720.62	729.02	744.81	741.86	764.02	731.00	741.99	733.62	757.14		
B. Waste-water Handling	648.73	648.73	663.71	671.42	686.63	683.07	704.51	670.70	681.02	672.00	694.82		
C. Waste Incineration	56.19	56.19	56.91	57.61	58.17	58.79	59.51	60.29	60.98	61.61	62.32		
D. Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
7. Other (please specify)													
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Memo Items:													
International Bankers													
Aviation	0.13	0.13	0.11	0.11	0.11	0.13	0.16	0.16	0.16	0.14	0.15		
Marine	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03		
Multilateral Operations	0.11	0.11	0.09	0.09	0.10	0.14	0.14	0.14	0.13	0.12	0.12		
CO <sub>2</sub> Emissions from Biomass	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		



GREENHOUSE GAS SOURCE AND SINK CATEGORIES		Base Year	2000	2001	2002
<b>Total Emissions</b>		5,806.58	5,929.40	5,931.10	5,918.39
<b>1. Energy</b>		1,197.86	1,361.00	1,301.30	1,227.91
A. Fuel Combustion (Sectoral Approach)		113.77	105.10	98.54	98.99
1. Energy Industries		1.90	9.17	9.05	9.18
2. Manufacturing Industries and Construction		1.55	2.46	2.32	2.29
3. Transport		26.25	31.58	30.18	31.25
4. Other Sectors		84.03	61.83	56.93	56.20
5. Other		0.05	0.05	0.05	0.06
B. Fugitive Emissions from Fuels		1,084.09	1,255.90	1,202.76	1,128.92
1. Solid Fuel		753.16	935.15	878.36	831.25
2. Oil and Natural Gas		330.93	320.76	324.40	297.67
<b>2. Industrial Processes</b>		3.29	3.33	3.10	3.08
A. Mineral Products		NA	NA	NA	NA
B. Chemical Industry		0.44	0.44	0.35	0.36
C. Metal Production		2.85	2.90	2.76	2.72
D. Other Production		NA	NA	NA	NA
E. Production of Halocarbons and SF <sub>6</sub>					
F. Consumption of Halocarbons and SF <sub>6</sub>					
G. Other		NA	NA	NA	NA
<b>3. Solvent and Other Product Use</b>		NA	NA	NA	NA
<b>4. Agriculture</b>		3,580.33	3,617.57	3,675.85	3,672.16
A. Enteric Fermentation		3,214.15	3,062.70	3,081.98	3,038.55
B. Manure Management		71.82	91.23	93.31	95.51
C. Rice Cultivation		23.36	35.30	35.13	28.12
D. Agricultural Soils		NE	NE	NE	NE
E. Prescribed Burning of Savannas		262.24	415.82	452.58	476.92
F. Field Burning of Agricultural Residues		8.77	12.52	12.85	13.05
G. Other		NA	NA	NA	NA
<b>5. Land-Use Change and Forestry</b>		320.18	179.21	165.68	204.86
A. Changes in Forest and Other Woody Biomass Stocks		NA	NA	NA	NA
B. Forest and Grassland Conversion		262.24	133.47	119.00	126.23
C. Abandonment of Managed Lands		NA	NA	NA	NA
D. CO <sub>2</sub> Emissions and Removals from Soil		NA	NA	NA	NA
E. Other		57.94	45.74	46.68	78.63
<b>6. Waste</b>		704.92	768.28	785.17	810.38
A. Solid Waste Disposal on Land		648.73	705.21	721.25	745.71
B. Waste-water Handling		56.19	63.07	63.92	64.67
C. Waste Incineration		NE	NE	NE	NE
D. Other		NA	NA	NA	NA
<b>7. Other (Please specify)</b>		NA	NA	NA	NA
NA		NA	NA	NA	NA
<b>Memo Items:</b>					
<b>International Bunkers</b>		0.13	0.16	0.15	0.13
Aviation		0.02	0.03	0.03	0.01
Marine		0.11	0.13	0.12	0.12
<b>Multilateral Operations</b>		NE	NE	NE	NE
<b>CO<sub>2</sub> Emissions from Biomass</b>					

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES												
Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		
(Gg)												
Total Emissions	77.10	78.29	78.18	81.04	83.13	84.80	85.61	91.22	95.50	101.28		
1. Energy	7.95	8.85	9.65	10.55	11.44	12.39	13.22	14.02	15.00	15.88		
A. Fuel Combustion (Sectoral Approach)	7.84	8.75	9.55	10.44	11.35	12.29	13.12	13.95	14.90	15.80		
1. Energy Industries	1.41	1.47	1.50	1.49	1.51	1.55	1.61	1.72	1.92	1.95		
2. Manufacturing Industries and Construction	0.68	0.66	0.60	0.67	0.68	0.74	0.75	0.80	0.81	0.82		
3. Transport	5.49	6.35	7.18	8.01	8.89	9.72	10.49	11.16	11.90	12.77		
4. Other Sectors	0.24	0.25	0.25	0.26	0.25	0.25	0.24	0.24	0.24	0.24		
5. Other	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02		
B. Fugitive Emissions from Fuels	0.12	0.11	0.11	0.10	0.09	0.09	0.10	0.07	0.11	0.07		
1. Solid Fuel	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
2. Oil and Natural Gas	0.12	0.11	0.11	0.10	0.09	0.09	0.10	0.07	0.11	0.07		
2. Industrial Processes	0.09	0.09	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08		
A. Mineral Products	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
B. Chemical Industry <sup>(1)</sup>	C	C	C	C	C	C	C	C	C	C		
C. Metal Production	0.09	0.09	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08		
D. Other Production	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
E. Production of Halocarbons and SF <sub>6</sub>												
F. Consumption of Halocarbons and SF <sub>6</sub>												
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
3. Solvent and Other Product Use	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
4. Agriculture	64.26	64.79	64.29	66.13	67.26	68.23	68.29	73.04	76.38	81.35		
A. Enteric Fermentation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
B. Manure Management	1.70	1.89	2.16	2.46	2.72	2.99	3.01	3.34	3.63	4.13		
C. Rice Cultivation	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
D. Agricultural Soils	48.86	49.31	48.98	49.93	50.33	49.76	49.29	52.56	55.39	58.63		
E. Prescribed Burning of Savannas	13.42	13.33	12.88	13.45	13.91	15.17	15.66	16.78	17.00	18.23		
F. Field Burning of Agricultural Residues	0.28	0.27	0.27	0.29	0.30	0.31	0.33	0.36	0.36	0.36		
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
5. Land-Use Change and Forestry	3.24	2.98	2.57	2.69	2.72	2.46	2.34	2.40	2.33	2.25		
A. Changes in Forest and Other Woody Biomass Stocks	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
B. Forest and Grassland Conversion	2.17	1.88	1.52	1.66	1.75	1.43	1.35	1.35	1.29	1.26		
C. Abandonment of Managed Lands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
D. CO <sub>2</sub> Emissions and Removals from Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
E. Other	1.07	1.10	1.04	1.02	0.97	1.03	1.00	1.05	1.04	0.99		
6. Waste	1.56	1.58	1.60	1.61	1.63	1.65	1.67	1.69	1.71	1.73		
A. Solid Waste Disposal on Land	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
B. Waste-water Handling	1.56	1.58	1.60	1.61	1.63	1.65	1.67	1.69	1.71	1.73		
C. Waste Incineration	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
D. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Memo Items:												
International Bankers	0.19	0.19	0.19	0.20	0.22	0.25	0.26	0.26	0.28	0.29		
Aviation	0.13	0.13	0.14	0.15	0.16	0.17	0.19	0.19	0.22	0.22		
Marine	0.06	0.06	0.05	0.05	0.06	0.07	0.08	0.07	0.06	0.07		
Multilateral Operations	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
CO <sub>2</sub> Emissions from Biomass												

1. Speciated emissions from Ammonia Production, Nitric Acid Production, Magnesia Production, and Soda Ash Production and Use are Confidential. These emissions are reported in Table 10s5 as Confidential emissions reported as CO<sub>2</sub>.

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		Base year			2000	2001	2002
Total Emissions		77.10	108.04	111.36			113.87
<b>1. Energy</b>		<b>7.95</b>	<b>16.79</b>	<b>17.17</b>			<b>17.49</b>
A. Fuel Combustion (Sectoral Approach)		7.84	16.71	17.08			17.41
1. Energy Industries		1.41	1.97	2.02			2.02
2. Manufacturing Industries and Construction		0.68	0.79	0.74			0.72
3. Transport		5.49	13.69	14.07			14.41
4. Other Sectors		0.24	0.23	0.23			0.23
5. Other		0.01	0.02	0.02			0.02
B. Fugitive Emissions from Fuels		0.12	0.09	0.09			0.08
1. Solid Fuel		NE	NE	NE			NE
2. Oil and Natural Gas		0.12	0.09	0.09			0.08
<b>2. Industrial Processes</b>		<b>0.09</b>	<b>0.07</b>	<b>0.07</b>			<b>0.07</b>
A. Mineral Products		NA	NA	NA			NA
B. Chemical Industry <sup>(1)</sup>		C	C	C			C
C. Metal Production		0.09	0.07	0.07			0.07
D. Other Production		NA	NA	NA			NA
E. Production of Halocarbons and SF <sub>6</sub>							
F. Consumption of Halocarbons and SF <sub>6</sub>							
G. Other		NA	NA	NA			NA
<b>3. Solvent and Other Product Use</b>		<b>NE</b>	<b>NE</b>	<b>NE</b>			<b>NE</b>
<b>4. Agriculture</b>		<b>64.26</b>	<b>87.48</b>	<b>90.51</b>			<b>92.03</b>
A. Enteric Fermentation		NA	NA	NA			NA
B. Manure Management		1.70	4.39	4.42			4.44
C. Rice Cultivation		NA	NA	NA			NA
D. Agricultural Soils		48.86	61.45	62.56			62.81
E. Prescribed Burning of Savannas		13.42	21.28	23.16			24.41
F. Field Burning of Agricultural Residues		0.28	0.36	0.36			0.37
G. Other		NA	NA	NA			NA
<b>5. Land-Use Change and Forestry</b>		<b>3.24</b>	<b>1.95</b>	<b>1.85</b>			<b>2.50</b>
A. Changes in Forest and Other Woody Biomass Stocks		NA	NA	NA			NA
B. Forest and Grassland Conversion		2.17	1.10	0.98			1.04
C. Abandonment of Managed Lands		NA	NA	NA			NA
D. CO <sub>2</sub> Emissions and Removals from Soil		NA	NA	NA			NA
E. Other		1.07	0.85	0.86			1.45
<b>6. Waste</b>		<b>1.56</b>	<b>1.75</b>	<b>1.77</b>			<b>1.79</b>
A. Solid Waste Disposal on Land		NA	NA	NA			NA
B. Waste-water Handling		1.56	1.75	1.77			1.79
C. Waste Incineration		NE	NE	NE			NE
D. Other		NA	NA	NA			NA
<b>7. Other (please specify)</b>		<b>NA</b>	<b>NA</b>	<b>NA</b>			<b>NA</b>
NA		NA	NA	NA			NA
<b>Memo Items:</b>							
<b>International Bunkers</b>		<b>0.19</b>	<b>0.30</b>	<b>0.31</b>			<b>0.33</b>
Aviation		0.13	0.22	0.24			0.26
Marine		0.06	0.08	0.07			0.07
<b>Multilateral Operations</b>		<b>NE</b>	<b>NE</b>	<b>NE</b>			<b>NE</b>
<b>CO<sub>2</sub> Emissions from Biomass</b>							

1. Speciated emissions from Ammonia Production, Nitric Acid Production, Magnesia Production, and Soda Ash Production and Use are Confidential. These emissions are reported in Table 10s5 as Confidential emissions reported as CO<sub>2</sub>-e.

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
		(Gg)												
Emissions of HFCs— CO <sub>2</sub> equivalent (Gg)	1,126.27	1,126.27	1,126.27	1,053.94	1,446.59	936.01	977.42	602.54	907.09	1,311.25	1,694.44	2,084.83	2,344.90	2,744.46
HFC-23	0.10	0.10	0.10	0.09	0.12	0.07	0.06	NE	NE	NE	NE	NE	NE	NE
HFC-32	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-41	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-43-10mee	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-125	NE	NE	NE	NE	NE	0.02	0.03	0.05	0.05	0.06	0.07	0.08	0.08	0.10
HFC-134	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-134a	NE	NE	NE	NE	NE	0.00	0.05	0.22	0.42	0.69	0.94	1.19	1.39	1.61
HFC-152a	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-143	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-143a	NE	NE	NE	NE	NE	0.02	0.03	0.05	0.06	0.07	0.07	0.09	0.08	0.09
HFC-227ea	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-236fa	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
HFC-245ca	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Emissions of PFCs— CO <sub>2</sub> equivalent (Gg)	3,938.28	3,938.28	3,941.47	3,935.10	2,833.07	1,847.57	1,309.06	1,205.39	1,050.67	1,396.99	981.99	1,103.21	1,555.97	1,507.17
CF <sub>4</sub>	0.51	0.51	0.51	0.51	0.37	0.24	0.17	0.16	0.14	0.18	0.13	0.14	0.20	0.20
C <sub>2</sub> F <sub>6</sub>	0.07	0.07	0.07	0.07	0.05	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
C <sub>3</sub> F <sub>8</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C <sub>4</sub> F <sub>10</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
e-C <sub>4</sub> F <sub>8</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C <sub>6</sub> F <sub>12</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C <sub>8</sub> F <sub>18</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Emissions of SF <sub>6</sub> — CO <sub>2</sub> equivalent (Gg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
SF <sub>6</sub>	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Chemical	GWP
HFC-23	11700
HFC-32	650
HFC-41	150
HFC-43-10mee	1300
HFC-125	2800
HFC-134	1000
HFC-134a	1300
HFC-152a	140
HFC-143	300
HFC-143a	3800
HFC-227ea	2900
HFC-236fa	6300
HFC-245ca	560
PFCs	
CF <sub>4</sub>	6500
C <sub>2</sub> F <sub>6</sub>	9200
C <sub>3</sub> F <sub>8</sub>	7000
C <sub>4</sub> F <sub>10</sub>	7000
e-C <sub>4</sub> F <sub>8</sub>	8700
C <sub>6</sub> F <sub>12</sub>	7500
C <sub>8</sub> F <sub>18</sub>	7400
SF <sub>6</sub>	23900

Australia  
2002  
Submission 2004

GREENHOUSE GAS EMISSIONS	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
		CO <sub>2</sub> equivalent (Gg)												
Net CO <sub>2</sub> emissions/removals	363,239.20	363,239.20	341,292.60	327,947.41	332,710.07	340,565.79	338,393.75	344,309.25	348,489.24	372,753.33	369,592.58	365,652.63	361,210.06	371,568.53
CO <sub>2</sub> emissions (without LUCF)	277,868.83	277,868.83	279,607.55	282,055.39	285,525.40	291,325.06	301,035.74	310,855.26	318,166.84	334,475.47	344,146.89	348,980.83	353,662.67	358,455.34
Confidential emissions reported as CO <sub>2</sub> -e <sup>(1)</sup>	1,741.00	1,741.00	1,602.97	1,754.48	2,308.45	2,459.67	2,407.17	2,592.87	2,564.16	2,784.44	2,666.08	2,765.12	3,477.12	3,748.43
CH <sub>4</sub>	121,938.20	121,938.20	121,284.23	120,182.43	118,949.29	117,521.51	119,652.61	118,539.48	120,795.03	122,493.74	121,901.38	124,517.38	124,553.10	124,286.16
N <sub>2</sub> O	23,900.36	23,900.36	24,268.65	24,235.57	25,123.49	25,769.42	26,289.06	26,538.67	28,278.71	29,603.87	31,396.73	33,492.63	34,522.76	35,300.40
HFCs	1,126.27	1,126.27	1,126.27	1,053.94	1,446.59	936.01	977.42	602.54	907.09	1,311.25	1,694.44	2,084.83	2,344.90	2,744.46
PFCS	3,938.28	3,938.28	3,941.47	3,935.10	2,833.07	1,847.57	1,309.06	1,205.39	1,050.67	1,396.99	981.99	1,103.21	1,555.97	1,507.17
SF <sub>6</sub>	NE	NE	NE	NE	NE	NE	NE	8.60	5.98	3.66	3.59	2.39	NE	NE
Total (with net CO <sub>2</sub> emissions/removals)	515,883.32	515,883.32	493,516.19	479,108.93	483,370.96	489,099.98	489,029.07	493,796.82	502,090.88	530,347.28	528,236.79	529,618.19	527,663.89	539,155.14
Total (without CO <sub>2</sub> from LUCF)	430,512.95	430,512.95	431,831.15	433,216.91	436,186.29	439,859.25	451,671.06	460,342.83	471,768.48	491,069.42	502,791.10	512,946.39	520,116.50	526,041.95

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
		CO <sub>2</sub> equivalent (Gg)												
1. Energy	286,243.09	286,243.09	288,115.39	294,137.40	296,986.38	300,915.69	313,362.45	323,134.50	331,587.72	349,674.62	356,777.21	364,009.32	368,032.13	371,350.26
2. Industrial Processes	26,136.19	26,136.19	25,640.24	23,476.99	23,389.12	23,958.80	23,302.27	23,184.21	23,290.34	24,543.39	24,997.35	24,790.29	25,728.53	26,382.17
3. Solvent and Other Product Use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Agriculture	95,108.72	95,108.72	95,489.92	93,935.45	93,435.46	92,495.65	92,772.68	92,861.55	95,411.82	96,717.86	99,536.18	103,087.61	105,250.54	105,643.77
5. Land-Use Change and Forestry	93,097.84	93,097.84	68,637.33	51,743.26	53,407.91	55,634.30	42,929.48	38,734.29	35,678.57	43,459.23	30,473.38	21,039.20	11,598.90	18,189.26
6. Waste	15,297.48	15,297.48	15,633.31	15,815.83	16,152.10	16,095.53	16,572.21	15,882.27	16,122.43	15,952.18	16,452.67	16,691.76	17,053.79	17,589.67
7. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

1. Includes confidential emissions of CO<sub>2</sub> from Soda Ash Production and Use (2A4), Magnesia Production (2A7), and Ammonia Production (2B1) and N<sub>2</sub>O from Nitric Acid

Australia  
2002  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES												
Base year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999		
				(Gg)								
<b>1. Energy</b>	<b>286,243.09</b>	<b>288,115.39</b>	<b>294,137.40</b>	<b>296,986.38</b>	<b>300,915.69</b>	<b>313,362.45</b>	<b>323,134.50</b>	<b>331,587.72</b>	<b>349,674.62</b>	<b>356,777.21</b>		
A. Fuel Combustion (Sectoral Approach)	257,478.85	260,105.15	264,995.26	268,697.11	273,116.90	282,953.04	293,385.71	301,195.07	317,179.36	326,023.91		
1. Energy Industries	142,283.89	145,792.61	149,020.09	150,296.69	151,362.82	157,335.68	163,881.70	170,033.76	185,479.71	189,873.98		
2. Manufacturing Industries and Construction	37,628.27	37,066.87	36,923.72	37,383.32	38,888.87	39,436.62	40,584.96	40,153.22	40,525.77	43,907.13		
3. Transport	61,979.86	61,586.86	62,966.05	64,401.43	66,008.47	68,978.19	71,581.10	73,158.36	73,467.27	74,902.28		
4. Other Sectors	14,325.20	14,443.22	14,827.69	15,321.11	15,386.62	15,789.98	15,812.35	16,303.08	16,380.01	16,411.29		
5. Other	1,261.63	1,215.59	1,257.71	1,294.56	1,380.12	1,412.58	1,525.59	1,546.64	1,326.59	1,239.23		
B. Fugitive Emissions from Fuels	28,764.25	28,010.24	29,142.15	28,289.27	27,988.79	30,409.41	29,748.79	30,392.65	32,495.26	30,753.30		
1. Solid Fuel	15,816.36	15,979.04	16,619.63	16,611.41	16,326.61	17,480.17	17,865.00	18,176.44	20,048.78	18,669.85		
2. Oil and Natural Gas	12,947.88	12,031.20	12,522.52	11,677.86	11,472.19	12,929.24	11,962.29	12,216.22	12,446.49	11,783.44		
3. Industrial Processes	26,136.19	25,640.24	23,476.99	23,389.12	23,958.80	23,392.27	23,184.21	23,290.34	24,543.39	24,997.35		
A. Mineral Products	4,763.45	4,477.14	4,299.14	4,507.25	5,210.39	5,008.05	5,076.15	5,008.60	5,433.39	5,555.99		
B. Chemical Industry	1,750.19	1,611.45	1,763.04	2,315.18	2,468.04	2,415.16	2,602.43	2,573.19	2,791.81	2,673.27		
C. Metal Production	18,496.27	18,425.39	16,360.88	15,120.09	15,344.37	14,991.64	14,894.48	14,795.48	15,003.28	15,270.06		
D. Other Production	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE		
E. Production of Halocarbons and SF <sub>6</sub>	1,126.27	1,126.27	1,053.94	1,446.59	811.70	718.85	NO	NO	NO	NO		
F. Consumption of Halocarbons and SF <sub>6</sub>	NE	NE	NE	NE	124.31	258.57	611.15	913.07	1,314.91	1,698.03		
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
3. Solvent and Other Product Use	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>4. Agriculture</b>	<b>95,108.72</b>	<b>95,489.92</b>	<b>93,935.45</b>	<b>93,435.46</b>	<b>92,495.65</b>	<b>92,772.68</b>	<b>92,861.55</b>	<b>95,411.82</b>	<b>96,717.86</b>	<b>99,536.18</b>		
A. Enteric Fermentation	67,497.11	67,728.92	66,465.79	65,026.00	63,489.39	62,875.98	62,652.50	63,154.17	63,234.89	64,020.92		
B. Manure Management	2,035.67	2,092.36	2,207.06	2,359.72	2,496.10	2,600.52	2,626.58	2,798.78	2,974.31	3,173.72		
C. Rice Cultivation	490.50	523.78	536.08	598.63	606.24	648.74	702.28	722.05	724.47	670.72		
D. Agricultural Soils	15,145.90	15,284.72	15,184.62	15,479.29	15,602.96	15,425.05	15,279.15	16,294.45	17,169.47	18,174.45		
E. Prescribed Burning of Savannas	9,667.99	9,598.03	9,275.25	9,085.99	10,015.88	10,925.88	11,283.61	12,085.87	12,243.81	13,130.55		
F. Field Burning of Agricultural Residues	271.55	262.12	266.65	285.82	285.05	296.50	318.43	356.50	370.90	365.81		
G. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>5. Land-Use Change and Forestry</b>	<b>93,097.84</b>	<b>68,637.33</b>	<b>51,743.26</b>	<b>53,407.91</b>	<b>55,634.30</b>	<b>42,939.48</b>	<b>38,734.29</b>	<b>35,678.57</b>	<b>43,459.23</b>	<b>30,473.38</b>		
A. Changes in Forest and Other Woody Biomass Stocks	-24,598.42	-24,084.18	-24,543.87	-24,154.58	-23,173.16	-22,320.22	-22,428.65	-22,514.92	-22,706.31	-23,298.37		
B. Forest and Grassland Conversion	120,371.03	95,347.36	79,003.50	80,305.54	81,621.96	68,042.15	63,946.64	60,898.28	68,881.42	56,567.78		
C. Abandonment of Managed Lands	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
D. CO <sub>2</sub> Emissions and Removals from Soil	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54	-4,223.54		
E. Other	1,548.77	1,597.69	1,507.17	1,480.49	1,409.04	1,491.09	1,439.84	1,518.75	1,507.67	1,427.52		
<b>6. Waste</b>	<b>15,297.48</b>	<b>15,633.31</b>	<b>15,815.83</b>	<b>16,152.10</b>	<b>16,095.53</b>	<b>16,572.31</b>	<b>15,882.27</b>	<b>16,122.43</b>	<b>15,952.18</b>	<b>16,452.67</b>		
A. Solid Waste Disposal on Land	13,623.32	13,937.81	14,099.77	14,419.29	14,344.40	14,794.69	14,084.77	14,301.35	14,112.10	14,391.29		
B. Waste-water Handling	1,662.58	1,683.92	1,704.47	1,721.23	1,739.55	1,760.69	1,783.97	1,804.14	1,822.94	1,843.89		
C. Waste Incineration	11.58	11.58	11.58	11.58	11.58	16.83	13.53	16.94	17.13	17.49		
D. Other	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
<b>Total Emissions/Removals with LUCF</b>	<b>515,883.32</b>	<b>493,516.19</b>	<b>479,108.93</b>	<b>483,370.96</b>	<b>489,099.98</b>	<b>489,029.07</b>	<b>493,796.82</b>	<b>502,090.88</b>	<b>530,347.28</b>	<b>528,236.79</b>		
<b>Total Emissions without LUCF</b>	<b>422,785.48</b>	<b>424,878.86</b>	<b>427,365.67</b>	<b>429,963.05</b>	<b>433,465.68</b>	<b>446,099.60</b>	<b>455,062.53</b>	<b>466,412.31</b>	<b>486,888.05</b>	<b>497,763.41</b>		
<b>Memo Items:</b>												
<b>International Bankers</b>	<b>6,461.40</b>	<b>6,438.86</b>	<b>6,646.42</b>	<b>7,053.58</b>	<b>7,435.31</b>	<b>8,613.12</b>	<b>9,115.69</b>	<b>9,105.41</b>	<b>9,562.31</b>	<b>9,844.63</b>		
Aviation	4,385.62	4,562.49	4,840.41	5,247.80	5,403.82	5,912.32	6,370.59	6,561.81	7,300.53	7,336.08		
Marine	2,075.79	1,876.37	1,806.01	1,805.78	2,031.49	2,700.80	2,745.10	2,543.60	2,261.79	2,508.55		
<b>Multilateral Operations</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>		
<b>CO<sub>2</sub> Emissions from Biomass</b>	<b>16,514.85</b>	<b>16,641.90</b>	<b>15,141.52</b>	<b>16,799.68</b>	<b>17,618.70</b>	<b>18,447.90</b>	<b>18,437.02</b>	<b>20,275.50</b>	<b>20,492.97</b>	<b>20,145.07</b>		

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		Base year	2000	2001	2002
<b>1. Energy</b>					
A. Fuel Combustion (Sectoral Approach)		286,243.09	364,009.32	368,032.13	371,350.26
1. Energy Industries		257,478.85	331,120.30	335,821.42	341,154.75
2. Manufacturing Industries and Construction		142,285.89	193,195.15	198,038.50	199,690.77
3. Transport		37,628.27	42,886.28	42,313.57	43,520.50
4. Other Sectors		61,979.89	77,209.89	77,256.34	79,209.89
5. Other		14,325.20	16,755.24	16,852.52	17,294.84
B. Fugitive Emissions from Fuels		1,261.63	1,282.74	1,360.48	1,438.75
1. Solid Fuel		28,764.25	32,889.02	32,210.71	30,195.51
2. Oil and Natural Gas		15,816.36	19,638.07	18,445.52	17,456.28
<b>2. Industrial Processes</b>		12,947.88	13,250.95	13,765.20	12,739.23
A. Mineral Products		26,136.19	24,790.29	25,728.53	26,382.17
B. Chemical Industry		4,763.45	5,150.78	5,157.40	5,179.52
C. Metal Production		1,750.19	2,774.33	3,484.41	3,756.09
D. Other Production		18,496.27	14,777.96	14,741.82	14,702.11
E. Production of Halocarbons and SF <sub>6</sub>		NE	NE	NE	NE
F. Consumption of Halocarbons and SF <sub>6</sub>		1,126.27	NO	NO	NO
G. Other		NE	2,087.22	2,344.90	2,744.46
<b>3. Solvent and Other Product Use</b>		NA	NA	NA	NA
<b>4. Agriculture</b>		95,108.72	103,087.61	105,250.54	105,643.77
A. Enteric Fermentation		67,497.11	64,316.79	64,721.56	64,229.55
B. Manure Management		2,035.67	3,276.92	3,329.36	3,381.60
C. Rice Cultivation		490.50	741.34	737.82	590.57
D. Agricultural Soils		15,145.90	19,048.48	19,394.07	19,471.15
E. Prescribed Burning of Savannas		9,667.99	15,329.93	16,685.35	17,582.73
F. Field Burning of Agricultural Residues		271.55	374.14	382.39	388.17
G. Other		NA	NA	NA	NA
<b>5. Land-Use Change and Forestry</b>		93,097.84	21,039.20	11,598.90	18,189.26
A. Changes in Forest and Other Woody Biomass Stocks		-24,596.42	-23,219.88	-22,441.59	-21,827.14
B. Forest and Grassland Conversion		120,371.03	47,259.93	37,016.30	42,138.12
C. Abandonment of Managed Lands		NA	NA	NA	NA
D. CO <sub>2</sub> Emissions and Removals from Soil		-4,223.54	-4,223.54	-4,223.54	-4,223.54
E. Other		1,548.77	1,222.69	1,247.73	2,101.82
<b>6. Waste</b>		15,297.48	16,691.76	17,053.79	17,589.67
A. Solid Waste Disposal on Land		13,623.32	14,809.45	15,146.15	15,659.82
B. Waste-water Handling		1,662.58	1,866.01	1,891.34	1,913.55
C. Waste Incineration		11.58	16.30	16.30	16.30
D. Other		NA	NA	NA	NA
<b>7. Other (please specify)</b>		NA	NA	NA	NA
NA		NA	NA	NA	NA
<b>Total Emissions/Removals with LUCF</b>		515,883.32	529,618.19	527,663.89	539,155.14
<b>Total Emissions without LUCF</b>		422,785.48	508,578.98	516,064.99	520,965.88
<b>Memo Items:</b>					
<b>International Bankers</b>		6,461.40	10,194.71	10,725.41	11,206.95
Aviation		4,385.62	7,399.42	8,227.70	8,649.31
Marine		2,075.79	2,795.29	2,497.71	2,557.64
<b>Multilateral Operations</b>		NE	NE	NE	NE
<b>CO<sub>2</sub> Emissions from Biomass</b>		16,514.85	20,146.07	20,147.07	17,600.23





# APPENDIX TABLE 1 ENERGY (INCLUDING TRANSPORT)

	PAGE
FUEL COMBUSTION ACTIVITIES	
Tables 1A-1 Emissions from Energy Industries	B-106
Tables 1A-2 Emissions from Manufacturing Industries and Construction	B-109
Tables 1A-3 Emissions from Transport	B-113
Tables 1A-4 Emissions from Other Sectors	B-125
Tables 1A-5 Emissions from Other	B-127
FUGITIVE EMISSIONS FROM FUELS	
Tables 1B-1 Emissions from Solid Fuels	B-128
Tables 1B-2 Emissions from Oil and Natural Gas	B-129
MEMO ITEMS	
Tables 1—Memo Emissions from Biomass	B-131
Standard Data Table 1: IPCC Reference Approach	B-132

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES					
Fossil fuels		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
<b>1A1 Energy Industries</b>		<b>2,407.89</b>	<b>198,870.90</b>	<b>9.18</b>	<b>2.02</b>	<b>671.27</b>	<b>74.39</b>	<b>8.76</b>
Coal		1,853.50	168,431.60	1.50	1.89	462.17	31.06	3.20
Petroleum		142.87	9,777.69	0.28	0.09	100.14	20.27	3.04
Gas		402.98	20,661.61	5.57	0.04	98.53	20.43	1.91
Wood, wood waste		0.86	NA	0.00	0.00	0.22	0.01	0.00
Biogas		7.68	NA	1.84	0.00	10.22	2.61	0.61
<b>1A1a Electricity and Heat Production</b>		<b>2,097.87</b>	<b>181,005.35</b>	<b>7.80</b>	<b>1.92</b>	<b>562.37</b>	<b>54.45</b>	<b>6.62</b>
Black coal		1,193.00	108,266.43	1.05	0.98	389.56	13.39	2.02
Brown coal incl. briquettes		642.16	59,111.38	0.43	0.90	67.34	15.89	1.15
Petroleum		31.75	2,203.14	0.12	0.02	38.80	10.14	1.31
Gas		222.42	11,424.39	4.36	0.02	56.21	12.41	1.52
Wood, wood waste		0.86	NA	0.00	0.00	0.22	0.01	0.00
Biogas		7.68	NA	1.84	0.00	10.22	2.61	0.61
<b>Electricity generation</b>		<b>2,097.87</b>	<b>181,005.35</b>	<b>7.80</b>	<b>1.92</b>	<b>562.37</b>	<b>54.45</b>	<b>6.62</b>
Black coal		1,193.00	108,266.43	1.05	0.98	389.56	13.39	2.02
Brown coal incl. briquettes		642.16	59,111.38	0.43	0.90	67.34	15.89	1.15
Petroleum		31.75	2,203.14	0.12	0.02	38.80	10.14	1.31
Gas		222.42	11,424.39	4.36	0.02	56.21	12.41	1.52
Wood, wood waste		0.86	NA	0.00	0.00	0.22	0.01	0.00
Biogas		7.68	NA	1.84	0.00	10.22	2.61	0.61

In APPENDIX TABLE 1 - 2001 Fuel Combustion Activities 1-Memo items: Biomass Fuels, the CO<sub>2</sub> emissions from biomass fuels are reported, these are not included in the subsector totals of the Common Reporting Format tables.

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES					
		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
Fossil fuels	1A1b Petroleum refining	104.87	6,806.21	0.09	0.05	46.64	5.71	0.09
	Petroleum	86.01	5,841.09	0.07	0.05	33.01	4.64	0.07
	Gas	18.87	965.12	0.02	0.00	13.64	1.07	0.02
1A1c Manufacture of Solid Fuels and Other Energy Industries								
		205.14	11,059.35	1.30	0.05	62.27	14.22	2.05
	Coal	18.33	1,053.79	0.02	0.01	5.26	1.78	0.02
	Petroleum	25.10	1,733.46	0.09	0.02	28.33	5.49	1.66
	Gas	161.70	8,272.10	1.19	0.02	28.68	6.95	0.37
	Coke ovens	18.68	1,069.28	0.02	0.01	5.59	1.79	0.02
	Coal	17.63	992.62	0.02	0.01	5.06	1.71	0.02
	Petroleum	1.05	76.66	0.00	0.00	0.53	0.08	0.00
	Briquetting	0.71	61.16	0.00	0.00	0.20	0.07	0.00
	Coal	0.71	61.16	0.00	0.00	0.20	0.07	0.00
Coal mining		23.00	1,586.94	0.08	0.01	26.74	5.07	1.60
	Petroleum	23.00	1,586.94	0.08	0.01	26.74	5.07	1.60

## APPENDIX TABLE 1 - 2002

Fuel combustion activities 1A-1 (sheet 3): Emissions from energy industries (all sources)

Fuel combustion activities 1A-1 (sheet 4): Emissions from energy industries (mobile equipment)

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES						
		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	
<b>Fossil fuels</b>									
<b>1A1c</b>	<b>Manufacture of Solid Fuels and Other Energy Industries (cont.)</b>								
	<b>Oil and gas production and field processing</b>	<b>149.25</b>	<b>7,650.84</b>	<b>1.09</b>	<b>0.02</b>	<b>27.20</b>	<b>6.67</b>	<b>0.40</b>	
	Petroleum	1.06	69.87	0.00	0.00	1.06	0.34	0.05	
	Gas	148.20	7,580.97	1.08	0.01	26.13	6.33	0.34	
	<b>Natural gas transmission</b>	<b>11.27</b>	<b>576.68</b>	<b>0.09</b>	<b>0.00</b>	<b>2.12</b>	<b>0.52</b>	<b>0.03</b>	
	Gas	11.27	576.68	0.09	0.00	2.12	0.52	0.03	
<b>Gas production and distribution</b>		<b>2.23</b>	<b>114.45</b>	<b>0.02</b>	<b>0.00</b>	<b>0.42</b>	<b>0.10</b>	<b>0.01</b>	
	Gas	2.23	114.45	0.02	0.00	0.42	0.10	0.01	

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES						
		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	
<b>Fossil fuels</b>									
<b>1A1c</b>	<b>Manufacture of Solid Fuels and Other Energy Industries</b>								
	<b>Petroleum</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	
	<b>Coal mining</b>								
	<b>Petroleum</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	<b>IE</b>	
	<b>Oil and gas production and field processing</b>								
	Petroleum	IE	IE	IE	IE	IE	IE	IE	

**APPENDIX TABLE 1 - 2002**

Fuel combustion activities 1A-2 (sheet 1): Emissions from manufacturing industries and construction (all sources)

**ENERGY**

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES							
		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)		
<b>Fossil fuels</b>									
<b>1A2 Manufacturing Industries and Construction</b>									
Coal	812.27	43,248.67	2.29	0.72	381.26	273.04	15.52		
Petroleum	151.29	12,264.30	0.18	0.10	50.30	13.03	0.67		
Gas	183.11	12,376.62	0.80	0.12	141.06	85.23	12.83		
Biomass	363.73	18,607.75	0.39	0.04	180.57	15.14	0.42		
	114.15	NA	0.92	0.47	9.34	159.64	1.60		
<b>a. Iron and Steel</b>									
Coal	56.83	2,683.28	0.08	0.01	33.38	9.15	0.52		
Petroleum	28.94	1,243.37	0.03	0.01	8.52	1.21	0.03		
Gas	1.37	83.59	0.03	0.00	0.61	6.13	0.46		
Wood, Wood Waste	26.51	1,356.33	0.02	0.00	24.25	1.81	0.03		
	NA	NA	NA	NA	NA	NA	NA		
<b>b. Non-Ferrous Metals</b>									
Coal	225.90	14,608.12	0.33	0.10	100.03	17.82	0.63		
Petroleum	60.85	5,530.22	0.08	0.05	19.28	6.30	0.06		
Gas	36.34	2,612.02	0.10	0.03	14.95	4.44	0.41		
Wood, Wood Waste	126.40	6,465.89	0.14	0.01	65.62	5.50	0.14		
	2.32	NA	0.01	0.01	0.17	1.57	0.02		
<b>c. Chemicals</b>									
Coal	108.83	6,261.17	0.19	0.03	51.21	24.95	1.57		
Petroleum	8.23	790.51	0.01	0.01	3.09	0.76	0.01		
Gas	32.40	1,980.49	0.11	0.02	15.96	21.43	1.49		
	68.21	3,490.17	0.08	0.01	32.16	2.75	0.08		
<b>d. Wood and Paper Product Manufacturing</b>									
Coal	56.93	2,230.73	0.13	0.09	6.70	15.34	0.31		
Petroleum	7.77	684.90	0.01	0.01	2.23	0.82	0.01		
Gas	2.99	199.94	0.01	0.00	1.44	0.65	0.14		
	26.31	1,345.88	0.03	0.00	1.54	0.36	0.03		
Wood, Wood Waste	19.87	NA	0.08	0.08	1.49	13.51	0.14		

In APPENDIX TABLE 1 - 2001 Fuel Combustion Activities 1-Memo items: Biomass Fuels, the CO<sub>2</sub> emissions from biomass fuels are reported, these are not included in the subsector totals of the Common Reporting Format tables.

**ENERGY**

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES					
		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
Fossil fuels								
e. Food Processing, Beverages, and Tobacco		143.61	3,403.26	0.89	0.39	14.09	146.37	1.60
Coal		16.22	1,469.82	0.02	0.01	3.35	1.71	0.02
Petroleum		6.34	400.27	0.01	0.00	1.64	0.38	0.09
Gas		29.97	1,533.17	0.03	0.00	1.48	0.33	0.05
Wood, Wood Waste		4.27	NA	0.02	0.02	0.32	2.90	0.03
Bagasse		86.80	NA	0.81	0.36	7.29	141.05	1.41
f. Other		220.18	14,062.10	0.67	0.10	175.87	59.41	10.90
Coal		29.28	2,545.48	0.03	0.02	13.83	2.23	0.55
Petroleum		103.67	7,100.31	0.55	0.06	106.46	52.20	10.24
Gas		86.33	4,416.31	0.09	0.01	55.52	4.38	0.10
Wood, Wood Waste		0.89	NA	0.00	0.00	0.07	0.61	0.01
Mining (non-energy)		62.68	4,240.03	0.19	0.03	56.60	10.61	3.13
Coal		7.48	611.22	0.01	0.01	3.28	0.53	0.01
Petroleum		45.04	3,108.65	0.16	0.03	52.44	9.94	3.11
Gas		10.17	520.16	0.01	0.00	0.88	0.14	0.01
Non-metallic mineral products		79.51	4,864.88	0.12	0.03	62.13	15.00	0.86
Coal		20.63	1,822.18	0.02	0.02	10.21	1.57	0.02
Petroleum		5.60	362.92	0.04	0.00	3.07	9.17	0.78
Gas		52.39	2,679.78	0.05	0.01	48.79	3.65	0.06
Wood, Wood Waste		0.89	NA	0.00	0.00	0.07	0.61	0.01
All other manufacturing		26.36	1,431.02	0.08	0.01	7.41	14.56	1.59
Coal		1.17	112.08	0.00	0.00	0.33	0.12	0.52
Petroleum		3.40	203.89	0.06	0.00	1.34	13.87	1.04
Gas		21.80	1,115.05	0.02	0.00	5.73	0.56	0.03
Construction		51.62	3,526.18	0.28	0.03	49.73	19.23	5.32
Petroleum		49.63	3,424.85	0.28	0.03	49.61	19.21	5.32
Gas		1.98	101.33	0.00	0.00	0.11	0.02	0.00

SOURCE CATEGORIES		EMISSION ESTIMATES						
ACTIVITY DATA								
Energy use (PJ)		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NMVOC (Gg)	
Fossil fuels								
Manufacturing		697.97	35,482.46	1.82	0.66	274.93	243.19	7.08
Coal		143.81	11,653.08	0.17	0.10	47.01	12.50	0.66
Petroleum		88.44	5,843.12	0.35	0.06	39.01	56.07	4.41
Gas		351.58	17,986.26	0.38	0.03	179.57	14.97	0.41
Biomass		114.15	NA	0.92	0.47	9.34	159.64	1.60

Note: Includes all sub-categories other than Mining (non-energy) and Construction from the Manufacturing and Construction category.

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES					
Fossil fuels		Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NMVOC (Gg)
1A2	Manufacturing Industries and Construction							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Manufacturing							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Iron and Steel							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Non-Ferrous metals							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Chemicals							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Wood and Paper Product Manufacturing							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Food Processing, Beverages, and Tobacco							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Mining (non-energy)							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Non-metallic mineral products							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	All other manufacturing							
	Petroleum	IE	IE	IE	IE	IE	IE	IE
	Construction							
	Petroleum	IE	IE	IE	IE	IE	IE	IE



SOURCE CATEGORY	ACTIVITY DATA	EMISSION ESTIMATES						
		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	SO <sub>2</sub> (Gg)
1A3 Transport								
1A3 a Civil Aviation								
i International Aviation (International Bunkers)								
Jet Kerosene	124.16	8,567.30	0.01	0.26	45.61	13.63	7.16	1.61
ii Domestic								
Aviation Gasoline	83.85	5,779.89	0.24	0.18	19.09	97.44	3.24	1.09
	3.68	248.03	0.21	0.00	0.28	84.00	1.89	0.05
Jet Kerosene	80.17	5,531.85	0.03	0.18	18.81	13.44	1.35	1.04
1A3 b Road Transportation								
i Cars								
Automotive Gasoline	985.36	64,886.97	28.42	14.15	380.31	2,988.31	430.19	43.20
	599.49	38,901.75	21.88	13.31	236.04	2,429.15	158.79	10.89
Passenger Cars with Catalysts <sup>a</sup>	525.17	34,314.88	20.60	13.17	208.06	2,170.67	136.35	7.94
Passenger Cars with Catalysts <sup>b</sup>	152.83	9,985.90	2.32	4.78	27.19	195.26	12.16	2.31
Passenger Cars without Catalysts <sup>c</sup>	305.48	19,959.74	15.58	8.33	143.65	1,418.72	81.79	4.62
Passenger Cars without Catalysts <sup>d</sup>	56.97	3,722.59	2.16	0.05	31.61	452.45	33.82	0.86
ADO	9.90	646.65	0.55	0.01	5.61	104.24	8.59	0.15
LPG	21.86	1,508.13	0.05	0.05	5.09	5.34	2.62	2.54
Natural Gas	51.64	3,036.84	1.02	0.09	22.73	253.05	19.80	0.41
	0.82	41.90	0.21	0.00	0.15	0.09	0.02	0.00

a. Post-97 vehicles with three way catalysts

b. 1986–97 vehicles with mixture of two and three way catalysts

c. 1976–85 vehicles

d. Pre-76 vehicles

SOURCE CATEGORY		ACTIVITY DATA	EMISSION ESTIMATES						
		Energy Use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	SO <sub>2</sub> (Gg)
1A3 b Road Transportation (cont.)									
ii Light Trucks		147.54	9,678.10	3.48	0.43	54.55	405.63	30.95	6.31
Automotive Gasoline		88.63	5,790.90	2.98	0.24	34.48	306.11	19.10	1.34
ADO		41.57	2,868.55	0.09	0.13	10.77	9.82	4.82	4.84
LPG		17.19	1,010.69	0.37	0.06	9.26	89.68	7.02	0.14
Natural Gas		0.16	7.97	0.04	0.00	0.03	0.02	0.00	0.00
iii Heavy Duty Trucks and Buses <sup>a</sup>		234.65	16,066.49	2.77	0.40	89.33	117.38	20.99	25.94
Medium Duty Trucks		85.57	5,875.76	1.26	0.20	42.31	59.10	10.04	9.36
Automotive Gasoline		4.71	307.88	0.02	0.01	1.46	6.29	0.60	0.07
ADO		79.78	5,504.74	1.21	0.19	40.11	49.65	8.88	9.28
LPG		0.99	58.40	0.03	0.00	0.63	3.14	0.55	0.01
Natural Gas		0.09	4.74	0.01	0.00	0.11	0.02	0.00	0.00
Heavy Duty Trucks		120.90	8,341.57	0.94	0.15	31.23	38.76	6.92	14.05
Automotive Gasoline		0.19	12.50	0.00	0.00	0.03	0.14	0.01	0.00
ADO		120.71	8,329.07	0.94	0.15	31.19	38.62	6.91	14.05
LPG		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Buses		28.18	1,849.15	0.57	0.05	15.79	19.52	4.02	2.53
Automotive Gasoline		1.01	65.81	0.03	0.00	0.69	8.60	0.61	0.02
ADO		21.52	1,485.14	0.06	0.05	9.09	5.34	2.89	2.50
LPG		1.08	63.79	0.02	0.00	0.54	4.67	0.47	0.01
Natural Gas		4.56	234.41	0.46	0.00	5.47	0.91	0.05	0.00
iv Motorcycles		3.68	240.64	0.28	0.00	0.39	36.15	8.59	0.06
Automotive Gasoline		3.68	240.64	0.28	0.00	0.39	36.15	8.59	0.06

a. The category "Heavy Duty Trucks and Buses" includes medium duty trucks, heavy duty trucks and buses.

SOURCE CATEGORY		ACTIVITY DATA	EMISSION ESTIMATES						
		Energy Use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	SO <sub>2</sub> (Gg)
1A3 b Road Transportation (cont.)									
v Evaporative Emissions from Vehicles		e	NA	NA	NA	NA	NA	210.88	NA
Automotive Gasoline		e	NA	NA	NA	NA	NA	210.88	NA
Passenger Cars with Catalysts <sup>a</sup>		e	NA	NA	NA	NA	NA	50.17	NA
Passenger Cars with Catalysts <sup>b</sup>		e	NA	NA	NA	NA	NA	99.42	NA
Passenger Cars without Catalysts <sup>c</sup>		e	NA	NA	NA	NA	NA	24.79	NA
Passenger Cars without Catalysts <sup>d</sup>		e	NA	NA	NA	NA	NA	6.43	NA
Light Trucks		e	NA	NA	NA	NA	NA	26.73	NA
Medium Duty Trucks		e	NA	NA	NA	NA	NA	1.45	NA
Heavy Duty Trucks		e	NA	NA	NA	NA	NA	0.04	NA
Buses		e	NA	NA	NA	NA	NA	0.43	NA
Motorcycles		e	NA	NA	NA	NA	NA	1.43	NA
1A3 c Railways		26.35	1,818.22	0.08	0.05	40.32	5.32	1.87	3.07
ADO		26.35	1,818.22	0.08	0.05	40.32	5.32	1.87	3.07
IDF		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

a. Post-97 vehicles with three way catalysts

b. 1986–97 vehicles with mixture of two and three way catalysts

c. 1976–85 vehicles

d. Pre-76 vehicles

e. Evaporative emissions are estimated with the same activity data as are used for estimating combustion emissions

SOURCE CATEGORY	ACTIVITY DATA	EMISSION ESTIMATES						
		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	SO <sub>2</sub> (Gg)
1A3 d Navigation i International Marine (Bunkers)	Energy Use (PJ)	56.12	2.62	0.10	87.26	133.36	24.71	63.34
		34.97	0.12	0.07	68.37	1.98	2.14	51.05
	ADO	2.74	188.85	0.01	4.32	0.45	0.13	0.32
	IDF	1.00	68.79	0.01	1.58	0.16	0.05	0.20
	Fuel Oil	31.23	2,275.80	0.09	62.47	1.37	1.97	50.52
ii Navigation (Domestic)								
	Automotive Gasoline (small craft)	21.15	1,559.92	2.50	18.90	131.38	22.57	12.29
	ADO	6.36	415.64	2.29	1.62	129.13	20.61	0.10
	IDF	3.39	233.58	0.01	3.74	0.83	0.25	0.39
	Fuel Oil	0.21	14.53	0.00	0.33	0.03	0.01	0.04
	Natural Gas	6.12	445.88	0.02	12.24	0.27	0.39	9.90
	Coal	0.05	2.75	0.00	0.01	0.01	0.00	0.00
1A3 e Other Transportation i Off-road Vehicles		5.02	447.53	0.16	0.95	1.11	1.31	1.86
	Automotive Gasoline	0.64	41.56	0.02	0.24	4.45	0.69	0.01
		0.64	41.56	0.02	0.24	4.45	0.69	0.01
		0.64	41.56	0.02	0.24	4.45	0.69	0.01

Vehicle Age (years)	Percent of Total VKT	Year <i>j</i>	Age Category			
			Post-97 <i>i</i>	86-97 <i>2</i>	76-85 <i>3</i>	Pre-76 <i>4</i>
0	4.90	2002	4.9	0	0	0
1	9.00	2001	9	0	0	0
2	8.24	2000	8.24	0	0	0
3	7.45	1999	7.45	0	0	0
4	6.66	1998	6.66	0	0	0
5	6.38	1997	0	6.38	0	0
6	6.09	1996	0	6.09	0	0
7	5.81	1995	0	5.81	0	0
8	5.52	1994	0	5.52	0	0
9	5.23	1993	0	5.23	0	0
10	4.83	1992	0	4.83	0	0
11	4.43	1991	0	4.43	0	0
12	4.02	1990	0	4.02	0	0
13	3.62	1989	0	3.62	0	0
14	3.21	1988	0	3.21	0	0
15	2.83	1987	0	2.83	0	0
16	2.45	1986	0	2.45	0	0
17	2.06	1985	0	0	2.06	0
18	1.68	1984	0	0	1.68	0
19	1.29	1983	0	0	1.29	0
20+	4.30	1973-1982	0	0	2.58	1.72
Proportion of total fleet kilometres			36.3%	54.4%	7.6%	1.7%
Fuel Consumption Rate (L/km)			0.114	0.115	0.125	0.127
Proportion of fuel consumption			35.7%	54.1%	8.2%	1.9%

## APPENDIX TABLE 1 - 2002

Fuel combustion activities 1A-3 (sheet 6): Emissions from transport—proportion of fuel consumed by vehicle type

Proportion Of Fuel Consumed By Vehicle Type (Q <sub>ik</sub> )				
(Based on data for 1997–98)				
Vehicle Type	Fuel Type			
	Automotive Gasoline (k=1)	ADO (k=2)	LPG (k=3)	NG (k=8)
Passenger Cars	0.842	0.077	0.728	0.145
Light Trucks	0.142	0.146	0.242	0.028
Medium Duty Trucks <sup>a</sup>	0.008	0.279	0.014	0.016
Heavy Duty Trucks	0.000	0.423	0.000	0.000
Buses	0.002	0.075	0.015	0.811
Motorcycles	0.006	0.000	0.000	0.000

Source: ATF 1998, Apelbaum Consulting Group, 2001

a. Medium Trucks is the sum of Other Truck Types and Rigid Trucks

Fuel Consumption Rates By Vehicle Type (l/km) (R <sub>ik</sub> )				
(Based on data for 2000-01)				
Vehicle Type	Fuel Type			
	Automotive Gasoline	ADO	LPG	NG
Passenger Cars (i=1)	a	0.115	0.172	0.145
Light Trucks (i=2)	0.128	0.118	0.161	0.148
Medium Duty Trucks (i=3) <sup>b</sup>	0.238	0.268	0.296	0.328
Heavy Duty Trucks (i=4)	0.450	0.521	0.814	0.665
Buses (i=5)	0.167	0.300	0.217	0.573
Motorcycles (i=6)	0.057	NA	NA	NA

Source: ATF 2001, Apelbaum Consulting Group, 2003

a. See AGE\_DIST (2) for passenger car fuel consumption split by vehicle age.

b. Medium Trucks is the sum of Other Truck Types and Rigid Trucks

## APPENDIX TABLE 1 - 2002

Fuel combustion activities 1A-3, 1A-4 b, 1A-5 b (sheet 8):  
Emissions from transport—Energy and vehicle use statistics

Sector	Energy (PJ) <sup>a</sup>
<b>Energy—fuel combustion activities</b>	
<b>All Transport</b>	<b>1,117.35<sup>b</sup></b>
Automotive Gasoline	630.39
ADO	315.17
LPG	70.91
Aviation Gasoline	3.68
Jet Kerosene	80.17
IDF	0.21
Fuel Oil	6.12
Natural Gas	5.68
Coal	5.02
<b>1A3 a ii Domestic Aviation</b>	
Aviation Gasoline	3.68
Jet Kerosene	80.17
<b>1A3 a i International Aviation</b>	
Jet Kerosene	124.16

a. Energy data derived for emissions estimates by following the Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks 2002: Energy (Transport)

b. This value is for Transport (1A3) only.



Sector	Energy (PJ)	VKT (billions of km)
<b>Energy—fuel combustion activities</b>		
<b>1A3 b Road Transportation</b>	<b>985.36</b>	<b>201.77</b>
Automotive Gasoline	623.39	155.37
<i>Leaded</i>		
<i>Unleaded</i>		
ADO	285.43	29.61
LPG	70.91	16.19
Natural Gas	5.62	0.60
<b>1A3 b i Cars</b>		
Automotive Gasoline	525.17	132.47
<i>Passenger Cars with Catalysts<sup>a</sup></i>	152.83	39.20
<i>Passenger Cars with Catalysts<sup>b</sup></i>	305.48	77.67
<i>Passenger Cars without Catalysts<sup>c</sup></i>	56.97	13.33
<i>Passenger Cars without Catalysts<sup>d</sup></i>	9.90	2.28
ADO	21.86	4.94
LPG	51.64	11.72
Natural Gas	0.82	0.22
<b>1A3 b ii Light Trucks</b>		
Automotive Gasoline	88.63	20.25
ADO	41.57	9.10
LPG	17.19	4.15
Natural Gas	0.16	0.04

Notes: (1) Only data relevant to estimating emissions under the current methodology are presented. See Australian Methodology for Estimation of Greenhouse Gas Emissions and Sinks 2002: Energy (Transport)

(2) See Table 1A-3 (sheet 8) for description of data in columns.

a. Post-97 vehicles with three way catalysts

b. 1986–97 vehicles with mixture of two and three way catalysts

c. 1976–85 vehicles

d. Pre-76 vehicles

Sector	Energy (PJ)	VKT (billions of km)
<b>Energy—fuel combustion activities</b>		
<b>1A3 b iii Heavy Duty Trucks and Buses<sup>a</sup></b>		
<b>Medium Duty Trucks</b>		
Automotive Gasoline	4.71	0.58
ADO	79.78	7.71
LPG	0.99	0.13
Natural Gas	0.09	0.01
<b>Heavy Duty Trucks</b>		
Automotive Gasoline	0.19	0.01
ADO	120.71	6.00
LPG	0.00	0.00
Natural Gas	0.00	0.00
<b>Buses</b>		
Automotive Gasoline	1.01	0.18
ADO	21.52	1.86
LPG	1.08	0.19
Natural Gas	4.56	0.32
<b>1A3 b iv Motorcycles</b>		
Automotive Gasoline	3.68	1.88

Note: See Table 1A-3 (sheet 8) for description of data in columns.

a. Heavy Duty Trucks and Buses includes medium duty vehicles, heavy duty vehicles and buses

Sector	Energy (PJ)
<b>Energy—fuel combustion activities</b>	
<b>1A3 c Railways</b>	
ADO	26.35
IDF	0.00
Coal	0.00
<b>1A3 d i International (Marine Bunkers)</b>	
ADO	2.74
IDF	1.00
Fuel Oil	31.23
<b>1A3 d ii Navigation (domestic)</b>	
Automotive Gasoline (small craft)	6.36
ADO	3.39
IDF	0.21
Fuel Oil	6.12
Natural Gas	0.05
Coal	5.02
<b>1A3 e i Off-road Vehicles</b>	
Automotive Gasoline	0.64

Note: See Table 1A-3 (sheet 8) for description of data in columns.

Sector	Energy (PJ) <sup>a</sup>
<b>Energy—fuel combustion activities</b>	
<b>1A4 b Residential</b>	
<b>Lawn Mowers</b>	
Automotive Gasoline	5.09
<b>1A5 b Mobile</b>	
<b>Military Transport-Land</b>	
Automotive Gasoline	0.64
ADO	1.43
<b>Military Transport-Water</b>	
ADO	2.26
Fuel Oil	0.00
<b>Military Transport-Aviation</b>	
Aviation Gasoline	0.13
Jet Kerosene	6.97

**APPENDIX TABLE 1 - 2002**

Fuel combustion activities 1A-4 (sheet 1): Emissions from other sectors - Commercial/Institutional (all sources)

Fuel combustion activities 1A-4 (sheet 2): Emissions from other sectors - Commercial/Institutional (mobile equipment)

Fuel combustion activities 1A-4 (sheet 3): Emissions from other sectors - Residential (all sources)

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES					
	Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
Fossil fuels							
1A4a Commercial/Institutional	72.02	3,992.81	0.08	0.02	4.87	2.50	0.21
Coal	3.61	351.22	0.00	0.00	1.04	0.38	0.00
Petroleum	15.92	976.98	0.01	0.01	1.53	0.46	0.09
Gas	52.05	2,664.61	0.06	0.01	2.27	1.46	0.12
Wood, Wood Waste	0.44	NA	0.00	0.00	0.03	0.20	0.00

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES						
Fossil fuels	Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)	
1A4a Commercial/Institutional Petroleum	IE	IE	IE	IE	IE	IE	IE	

SOURCE CATEGORIES		EMISSION ESTIMATES						
	ACTIVITY DATA		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM/OC (Gg)
Fossil fuels	Energy use (PJ)							
	227.34	7,750.53	55.60	0.17	7.96	757.83	85.62	
	Coal	0.17	16.99	0.02	0.00	0.03	0.99	0.04
	Petroleum	20.07	1,258.14	2.00	0.01	1.16	66.35	17.59
	Gas	126.46	6,475.41	0.20	0.01	4.93	2.02	0.39
Wood, Wood Waste	80.63	NA	53.37	0.15	1.83	688.47	67.61	

a. Includes emissions from lawnmowers that were included in emissions from transport prior to 1997.

**APPENDIX TABLE 1 - 2002**

Fuel combustion activities 1A-4 (sheet 4): Emissions from other sectors - Residential (mobile equipment)

Fuel combustion activities 1A-4 (sheet 5): Emissions from other sectors - Agriculture/Forestry/Fishing (all sources)

Fuel combustion activities 1A-4 (sheet 6): Emissions from other sectors - Agriculture/Forestry/Fishing (mobile equipment)

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES					
<b>Fossil fuels</b>	Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
<b>1A4b Residential</b>							
Lawnmowers							
Petroleum	5.09	332.51	1.93	0.00	0.44	66.16	17.56

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES					
<b>Fossil fuels</b>	Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
<b>1A4c Agriculture/Forestry/Fishing</b>	<b>62.46</b>	<b>4,299.52</b>	<b>0.53</b>	<b>0.04</b>	<b>80.37</b>	<b>29.25</b>	<b>10.01</b>
Petroleum	62.44	4,298.49	0.53	0.04	80.36	29.25	10.01
Gas	0.02	1.02	0.00	0.00	0.00	0.00	0.00

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES					
<b>Fossil fuels</b>	Energy use (PJ)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
<b>1A4c Agriculture/Forestry/Fishing</b>							
Petroleum	IE	IE	IE	IE	IE	IE	IE

**APPENDIX TABLE 1 - 2002**

Fuel combustion activities 1A-5 (sheet 1): Emissions from Other (mobile equipment)

Fuel combustion activities 1A-5 (sheet 2): Emissions from Other - combustion related

**ENERGY**

SOURCE CATEGORIES	ACTIVITY DATA	EMISSIONS ESTIMATE (Gg)						
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC	SO <sub>2</sub>
<b>1A5 Other</b>								
1A5 b Mobile (Military Transport)	Energy Use (PJ)							
	11.44	786.51	0.06	0.02	6.71	8.19	0.90	0.54

SOURCE CATEGORIES	ACTIVITY DATA	EMISSION ESTIMATES					
		CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)	N <sub>2</sub> O (Gg)	NO <sub>x</sub> (Gg)	CO (Gg)	NM VOC (Gg)
<b>Fossil fuels</b>							
1A5a Other	Energy use (PJ)						
	8.74	644.20	NE	NE	NE	NE	NE
Lubricants and greases (not allocated to sector)							
Petroleum <sup>1</sup>	8.74	644.20	NE	NE	NE	NE	NE

<sup>1</sup> This figure now includes an allowance for recycled lubricants which are subsequently burned as fuel oil.

**ENERGY**

SOURCE AND SINK CATEGORIES		ACTIVITY DATA	EMISSIONS ESTIMATES	
		Production (Mt)	CO <sub>2</sub> (Gg)	CH <sub>4</sub> (Gg)
<b>1B1</b>	<b>Solid fuels</b>			
<b>1B1a</b>	<b>Coal mining<sup>a</sup></b>	<b>335.83</b>	<b>NE</b>	<b>831.25</b>
	<b>1B1ai Underground mines</b>	<b>91.88</b>	<b>NE</b>	<b>507.77</b>
	Underground activities	91.88	NE	479.97
	Post mining activities	36.05	NE	27.81
	<b>1B1aii Surface mining</b>	<b>243.96</b>	<b>NE</b>	<b>323.48</b>
	Surface activities	243.96	NE	323.48
	Post mining activities	243.96	NE	NE
<b>1B1b</b>	<b>Solid fuel transformation<sup>b</sup></b>	<b>IE</b>	<b>NA</b>	<b>IE</b>
<b>1B1c</b>	<b>Other<sup>c</sup></b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

- a. Production tonnage shown here is less than total coal produced in Australia, because it excludes production from mines which are estimated to have zero emissions.
- b. Emissions from solid fuel transformation processes in Australia are reported under Industrial Process emissions, Iron and Steel.
- c. This includes emissions from abandoned mines, and from burning coal seams and waste piles. However, no methodologies are currently provided by the Revised 1996 IPCC Guidelines or the Good Practice Guidelines.



SOURCE AND SINK CATEGORIES		ACTIVITY DATA	EMISSIONS ESTIMATES						
		Fuel quantity (PJ)	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC	
			(Gg)						
<b>1B2a Oil</b>		NA	<b>433.29</b>	<b>5.71</b>	<b>0.01</b>	<b>0.68</b>	<b>1.51</b>	<b>115.60</b>	
i	Exploration (for both oil and gas) <sup>a</sup>	NA							
ii	Crude oil production	1,380.10	202.48	1.91	0.01	0.55	0.77	1.40	
iii	Crude oil transport: domestic	279.07	NA	1.42	NA	NA	NA	15.82	
iv	Crude oil refining and storage <sup>b</sup>	1,798.77	230.81	2.18	0.01	0.13	0.73	37.00	
v	Petroleum product distribution	1,160.50	NA	NA	NA	NA	NA	60.21	
vi	Other <sup>c</sup>	NA	NA	NA	NA	NA	NA	NA	
<b>1B2b Natural Gas</b>		NA	<b>9.73</b>	<b>169.56</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>29.54</b>	
i	Production and processing	1,446.87	NE	1.57	NA	NA	NA	0.39	
ii	Transmission	756.00	0.48	8.34	NA	NA	NA	1.56	
iiib	Distribution	433.19	9.25	159.65	NA	NA	NA	27.58	
iii	Other <sup>d</sup>	NE	NE	NE	NE	NE	NE	NE	
<b>1B2c Venting and Flaring<sup>e</sup></b>		<b>2,826.97</b>	<b>6,019.19</b>	<b>122.40</b>	<b>0.07</b>	<b>1.29</b>	<b>7.46</b>	<b>62.87</b>	
	Venting at gas processing plant	1,446.87	3,580.07	92.40	NA	NA	NA	50.01	
	Flaring	2,826.97	2,439.12	30.00	0.07	1.29	7.46	12.86	
	Not included in totals	NA	NA	1.42	NA	NA	NA	8.02	
	Crude oil transport: exports	852.93	NA	0.64	NA	NA	NA	3.58	
	Crude oil transport: imports	1,057.26	NA	0.79	NA	NA	NA	4.44	

a. The emission estimates for this source cannot be related to the number of wells drilled.

b. Includes flaring at oil refineries. Note that N<sub>2</sub>O is reported under Flaring/oil in Table 1.B.2

c. All emissions are accounted in the preceding sub-categories.

d. This category comprises only emissions on the customer's side of the meter.

e. Activity data for venting and flaring is total oil and gas production.

SOURCE AND SINK CATEGORIES	ACTIVITY DATA	EMISSIONS ESTIMATES
	Consumption (PJ)	NM VOC (Gg)
Petroleum product		
Petrol	638.47	58.62
Diesel	518.83	1.33
Avgas	3.19	0.26

SOURCE CATEGORIES		ACTIVITY DATA	EMISSION ESTIMATES
		Energy use (PJ)	CO <sub>2</sub> (Gg)
<b>Biomass fuels</b>			
<b>1A Fuel Combustion Activities</b>		<b>203.75</b>	<b>17,600.23</b>
Wood, wood waste		109.27	8,966.99
Bagasse		86.80	8,234.13
Biogas		7.68	399.11
<b>1A1a Electricity and Heat Production</b>		<b>8.53</b>	<b>479.85</b>
Wood, wood waste		0.86	80.75
Biogas		7.68	399.11
<b>1A2 Manufacturing Industries and Construction</b>		<b>114.15</b>	<b>10,753.24</b>
Wood, wood waste		27.35	2,519.11
Bagasse		86.80	8,234.13
<b>a. Iron and Steel</b>		<b>NA</b>	<b>NA</b>
Wood, wood waste		NA	NA
<b>b. Non-Ferrous Metals</b>		<b>2.32</b>	<b>213.28</b>
Wood, wood waste		2.32	213.28
<b>d. Wood and Paper Product Manufacturing</b>		<b>19.87</b>	<b>1,830.14</b>
Wood, wood waste		19.87	1,830.14
<b>e. Food Processing, Beverages, and Tobacco</b>		<b>91.07</b>	<b>8,627.45</b>
Wood, wood waste		4.27	393.32
Bagasse		86.80	8,234.13
<b>f. Other - Non-metallic Mineral Products</b>		<b>0.89</b>	<b>82.37</b>
Wood, wood waste		0.89	82.37
<b>1A4a Commercial/Institutional</b>		<b>0.44</b>	<b>40.02</b>
Wood, wood waste		0.44	40.02
<b>1A4b Residential</b>		<b>80.63</b>	<b>6,327.12</b>
Wood, wood waste		80.63	6,327.12

Note: These emissions are reported, but not included in subsector totals in COMMON REPORTING FORMAT TABLES.

Note: Emissions previously reported under All Other Manufacturing are now reported under Non-Ferrous Metals and Other - Non-metallic Mineral Products.

MODULE: ENERGY									
SUBMODULE: CO <sub>2</sub> FROM ENERGY SOURCES									
WORKSHEET: 1-1									
	A	B	C	D	E	F=(A+B-C-D-E)	G	H	I=(F×G×H)
	Production	Imports	Exports	International bunkers	Stock change	Apparent consumption	CO <sub>2</sub> emission factor	Fraction of carbon oxidised	Actual CO <sub>2</sub> emission
	(PJ)	(PJ)	(PJ)	(PJ)	(PJ)	(PJ)	(Gg/PJ)		(Gg)
<b>Fuel types</b>									
Liquid Fossil	Crude Oil and Condensate	1,335.70	1,056.33	885.96	0.00	-16.58	68.20	0.99	102,806.68
	LPG	122.22	15.58	84.45	0.00	-4.44	59.40	0.99	3,397.97
	Automotive Gasoline	0.00	49.12	40.52	0.00	-0.81	66.00	0.99	614.84
	Aviation Gasoline	0.00	0.00	2.44	0.00	0.03	68.00	0.99	-166.34
	Aviation Turbine Fuel	0.00	8.27	20.20	54.48	1.21	69.70	0.99	-4,665.72
	Kerosine	0.00	0.00	0.07	0.00	-0.05	69.70	0.99	-1.59
	Heating Oil	0.00	0.00	0.00	0.00	-0.07	69.70	0.99	4.78
	Diesel Fuel	0.00	49.42	36.52	3.08	-0.45	69.70	0.99	708.19
	Fuel Oil	0.00	24.91	11.63	19.00	-2.94	73.60	0.99	-202.67
	Lubes	0.00	2.13	6.31	0.00	-1.28	73.70	1.00	-213.87
	Bitumen	0.00	1.58	0.08	0.00	0.25	80.70	1.00	100.40
	Other Products	0.00	3.42	8.37	0.00	-4.26	68.20	0.99	-46.79
	Petroleum Coke	0.00	9.19	0.00	0.00	0.00	80.70	1.00	741.71
	Petroleum Products not Oxidised								
						-81.89			-6,101.44
Liquid Fossil Totals	1,457.92	1,219.94	1,096.57	76.55	-29.39	1,452.24			96,976.16
Solid Fossil	Black Coal	7,180.90	0.00	5,760.50	0.00	0.00	90.55	1.00	128,621.64
	Brown Coal	652.10	0.00	0.00	0.00	0.00	92.59	1.00	60,377.83
	Coal by-products	N/A	0.00	0.00	0.00	0.00	81.00	0.99	0.00
	Coke	N/A	0.00	0.00	0.00	0.00	119.50	0.99	0.00
	Briquettes	N/A	0.00	0.02	0.00	0.00	105.00	0.99	-2.08
	Coal Products not Oxidised					-82.61			-9,563.40
Solid Fossil Totals	7,833.00	0.00	5,760.52	0.00	0.00	1,989.87			179,434.00
Gaseous Fossil	Natural Gas	1,414.30	0.00	413.44	0.00	0.00	51.53	1.00	51,314.74
	Natural Gas not oxidised					-48.23			-2,571.13
Gaseous Fossil Totals	1,414.30	0.00	413.44	0.00	0.00	952.63	NA	NA	48,743.61
Total Biomass <sup>a</sup>									

a. Australia does not collect statistics of national biomass consumption except by summing consumption estimates made using the detailed technology or 'bottom up' approach. Estimates can be found in the detailed technology inventory.

MODULE: ENERGY		EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)					
SUBMODULE: CO <sub>2</sub> FROM ENERGY SOURCES							
WORKSHEET: 1-1							
		A	B	C=(AxB)	D	E	F=(DxE)
		Quantities Delivered	Conversion Factor	Quantities Delivered	CO <sub>2</sub> Emission Factor	Fraction of Carbon Oxidised	Actual CO <sub>2</sub> Emission
Fuel types		(MJ)	(MJ/l)	(PJ)	(Gg/PJ)		(Gg)
Liquid Fossil	Aviation Turbine Fuel	3,373.91	36.80	124.16	69.70	0.99	8,567.41
	Marine Diesel Fuel	94.44	39.60	3.74	69.70	0.99	258.07
	Fuel Oil	765.44	40.80	31.23	73.60	0.99	2,275.54
Total				159.13			11,101.03

MODULE: ENERGY						
SUBMODULE: CO <sub>2</sub> FROM ENERGY						
WORKSHEET: AUXILIARY WORKSHEET 1-1						
ESTIMATING CARBON STORED IN PRODUCTS OR REPORTED ELSEWHERE						
Fuel types	Estimated Fuel Quantities (PJ)	Fraction of Carbon Stored	Quantity not Oxidised (PJ)	Quantity Reported Elsewhere (PJ)	CO <sub>2</sub> Emission Factor (Gg/PJ)	CO <sub>2</sub> "Not Emitted in this Sector" (Gg)
Coal by-products as feedstock	4.09	0.75	3.07	0.00	81.00	248.47
Coke used in reduction of iron ore			0.00	79.54	117.11	9,314.93
Petroleum products as feedstock			16.20	0.00	NA	1,100.42
Refinery Flaring <sup>a</sup>			0.00	4.89	68.60	335.45
Petroleum Coke for anodes <sup>b</sup>			0.00	9.19	80.70	741.71
Solvents <sup>c</sup>	9.80	0.75	7.35	2.45	66.00	646.80
Lubricants	21.85	0.60	13.11	0.00	73.30	960.96
Bitumen	28.70	1.00	28.70	0.00	80.70	2,316.09
Ethane as feedstock			14.62	0.00	NA	849.19
Natural gas used in reduction of iron ore			0.00	22.90	51.14	1,171.17
Natural Gas leakage <sup>a</sup>			0.00	10.71	51.41	550.77

a. Emissions from these sources are accounted in the Fugitive Fuels Inventory.

b. Emissions from this source are accounted in the Industrial Processes Inventory.

c. Solvents which are not oxidised are accounted in the Industrial Processes Inventory; solvents which are oxidised are accounted for in the Wastes Inventory.

RECONCILIATION				
	IPCC reference		Detailed technology	
	Energy (PJ)	CO <sub>2</sub> (Gg)	Energy (PJ)	CO <sub>2</sub> (Gg)
<b>Fuel types</b>				
Coal:	1,989.87	179,434.00	2,013.60	181,511.64
Petroleum	1,452.24	96,976.16	1,546.15	103,133.59
Natural gas	952.63	48,743.61	951.28	48,720.01
Total energy combustion	4,394.74	325,153.76	4,511.02	333,365.24





## APPENDIX TABLE 2 INDUSTRIAL PROCESSES

	PAGE
2A. MINERAL PRODUCTS	
Tables 2A-2      Production of Lime	B-138
2D. OTHER PRODUCTION	
Tables 2D-2      Food and Drink	B-139

Module		Industrial Processes		
Submodule		Production of Lime		
Worksheet		2-2		
Sheet		1 of 1 CO <sub>2</sub> Emissions		
Lime Type	A Quantity of Lime Produced (kt)	B Emission Factor (t CO <sub>2</sub> /t quicklime or dolomitic lime produced)	C CO <sub>2</sub> Emitted  (t)  C = (A x B)	D CO <sub>2</sub> Emitted  (Gg)  D = (C/10 <sup>3</sup> )
Quicklime	1,582.89	0.68	1,078,659.01	1,078.66
Dolomitic Lime*	NA	NA	NA	NA
<b>Total (Gg):</b>				1,078.66

\*There is no commercial dolomitic lime production in Australia. In-house dolomitic lime produced and used jointly with dolomite is included with dolomite.

Module	Industrial Processes			
Submodule	Food and Drink			
Worksheet	2-13			
Sheet	1 of 2 Alcoholic Beverage Production – NMVOC Emissions			
STEP 1				
Alcoholic Beverage Type	A Quantity of Alcoholic Beverage Produced  (hl)	B Emission Factor  (kg NMVOC/hl beverage produced)	C NMVOC Emitted  (kg)  C = (A x B)	D NMVOC Emitted  (Gg)  D = C/10 <sup>6</sup>
Beer	17,540,000.00	0.04	613,900.00	0.61
Red wine	3,642,800.00	0.08	291,424.00	0.29
White wine	3,709,000.00	0.04	129,815.00	0.13
Total (Gg):				1.04

Module	Industrial Processes			
Submodule	Food and Drink			
Worksheet	2-13			
Sheet	2 of 2 Bread and Other Food Production – NMVOC Emissions			
STEP 2				
Food Production Type	A Quantity of Food Produced (kt)	B Emission Factor (kg NMVOC/t food produced)	C NMVOC Emitted (t)  C = (A x B)	D NMVOC Emitted (Gg)  D = C/10 <sup>3</sup>
Bread	1,068.00	1.66	1,772.88	1.77
Sugar	4,987.00	10.00	49,870.00	49.87
Meat and Poultry	3,734.00	0.30	1,120.20	1.12
			Total (Gg):	52.76



# APPENDIX TABLE 3 AGRICULTURE

4A. ENTERIC FERMENTATION	PAGE
Tables 4A-1	B-142
Tables 4A-3	B-145
Tables 4A-8	B-146
Tables 4A-10	B-147
4C. RICE CULTIVATION	
Tables 4C-1	B-148
4D. AGRICULTURAL SOILS	B-150
4E. PRESCRIBED BURNING OF SAVANNAS	B-153
4F. FIELD BURNING OF AGRICULTURAL RESIDUES	B-156

State	Region	Bulls >1	Bulls <1	Steers <1	Cows 1 to 2	Cows >2	Cows <1	Steers >1
NSW/ACT		106,708	40,390	715,384	672,332	2,185,003	637,647	1,244,880
Tas		8,194	3,205	60,937	44,598	154,150	52,826	107,860
WA	South West	19,197	8,010	178,257	114,492	396,826	138,468	220,086
	Pilbara	9,722	2,266	66,599	66,311	179,234	56,751	77,499
	Kimberley	10,465	2,327	40,425	59,440	196,679	39,340	97,436
SA		25,819	7,923	180,597	145,675	448,593	164,209	228,501
Vic		39,177	13,254	377,257	276,835	880,745	337,676	538,021
Qld		218,775	54,321	1,174,691	1,728,379	4,033,911	1,115,222	2,958,503
NT		39,813	10,284	167,747	334,758	734,013	174,774	315,331
<b>Australia</b>		<b>477,869</b>	<b>141,982</b>	<b>2,961,894</b>	<b>3,442,819</b>	<b>9,209,155</b>	<b>2,716,913</b>	<b>5,788,118</b>

Source: Australian Bureau of Statistics

APPENDIX TABLE 3 – 2002

Enteric fermentation 4A-1 (sheet 2): Number of dairy cattle  
Enteric fermentation 4A-1 (sheet 3): Average milk production

State	Milking Cows	Heifers >1	Heifers <1	House Cows	Dairy Bulls >1	Dairy Bulls <1
NSW/ACT	272,502	88,232	61,898	0	4,169	1,408
Tas	128,161	28,554	27,832	0	1,717	795
WA	73,850	27,238	21,518	0	891	280
SA	114,454	36,030	26,803	0	1,813	520
Vic	1,357,220	292,240	274,348	0	19,140	6,546
Qld	174,240	48,136	34,679	0	2,407	717
NT	0	0	0	0	0	0
Australia	2,120,426	520,430	447,077	0	30,137	10,267

Source: Australian Bureau of Statistics

State	Milking Cows (kg/head/year)
NSW/ACT	4,712
Tas	3,947
WA	5,458
SA	5,376
Vic	4,872
Qld	4,022
NT	4,022
Australia	32,409

Source: Australian Dairy Corporation

State	Feedlot Cattle Class/Average Time on Feed	Annual Turnoff	Annual Equivalent Numbers	
			Numbers Accounting for Time on Feed	Total
NSW	domestic/75 days	249,714	51,311	
	export/140 days	57,254	21,961	
	japan ox/ 250 days	305,011	208,912	282,184
Tas	domestic/75 days	0	0	
	export/140 days	0	0	
	japan ox/ 250 days	0	0	0
WA	domestic/75 days	31,750	6,524	
	export/140 days	7,280	2,792	
	japan ox/ 250 days	38,781	26,562	35,879
SA	domestic/75 days	25,344	5,208	
	export/140 days	5,811	2,229	
	japan ox/ 250 days	30,957	21,203	28,640
Vic	domestic/75 days	59,333	12,192	
	export/140 days	13,604	5,218	
	japan ox/ 250 days	72,472	49,638	67,048
Qld	domestic/75 days	429,144	88,180	
	export/140 days	98,394	37,740	
	japan ox/ 250 days	524,175	359,024	484,944
NT	domestic/75 days	0	0	
	export/140 days	0	0	
	japan ox/ 250 days	0	0	0
Australia	domestic/75 days	795,287	163,415	
	export/140 days	182,343	69,940	
	japan ox/ 250 days	971,396	665,339	898,694

Source: Australian Lotfeeders Association



**APPENDIX TABLE 3 – 2002**

Enteric fermentation 4A-3 (sheet 1): Number of sheep

Enteric fermentation 4A-3 (sheet 2): Average greasy wool production and clean wool yield

**AGRICULTURE**

State	Sheep > 1					Sheep <1 Lambs and Hoggets
	Rams	Wethers	Maiden Ewes (intended for breeding)	Breeding Ewes	Other Ewes	
NSW/ACT	299,168	7,957,973	3,496,148	15,650,089	951,201	10,224,744
Tas	31,256	922,415	281,725	1,196,041	153,595	794,600
WA	144,880	3,650,661	2,141,927	9,735,380	661,530	6,728,239
SA	93,381	1,975,574	1,087,597	5,657,517	208,696	4,020,092
Vic	157,200	4,893,912	1,732,599	8,488,717	486,176	5,591,112
Qld	73,011	2,378,304	617,620	2,451,791	194,077	1,036,707
NT	0	0	0	0	0	0
<b>Australia</b>	<b>798,895</b>	<b>21,778,839</b>	<b>9,357,615</b>	<b>43,179,536</b>	<b>2,655,275</b>	<b>28,395,494</b>

Source: Australian Bureau of Statistics

State	Greasy Wool Production Sheep >1 (kg/head/year)	Greasy Wool Production Sheep <1 (kg/head/year)	Clean Wool Yield (%)
NSW/ACT	4.32	1.78	67.60
Tas	3.99	1.22	70.20
WA	4.20	1.55	62.40
SA	4.70	1.70	63.40
Vic	4.24	1.44	67.50
Qld	4.25	1.98	65.00
NT	0.00	0.00	0.00

Sources: Australian Bureau of Statistics and Wool International. Note that the partitioning between sheep and lambs for wool production is made on past years data as is clean wool yield.

**AGRICULTURE**

State	Boars	Breeding Sows	Gilts – Intended for Breeding	Other Pigs (suckers/weaners, growers and finishers)
NSW/ACT	4,853	86,872	11,606	729,373
Tas	186	2,487	353	14,760
WA	1,965	35,353	6,447	316,815
SA	2,473	50,724	5,363	351,864
Vic	3,886	70,699	10,856	587,908
Qld	3,559	65,631	9,009	564,818
NT	35	318	51	2,165
<b>Australia</b>	<b>16,957</b>	<b>312,085</b>	<b>43,685</b>	<b>2,567,704</b>

Source: Australian Bureau of Statistics

State	Goats	Horses	Deer	Buffalo	Donkeys/ Mules	Emus/ Ostriches	Alpacas	Camels	Poultry
NSW/ACT	199,257	62,082	10,860	0	0	88,707	2,188	0	34,419,914
Tas	1,217	2,952	3,558	0	0	946	88	0	304,618
WA	38,389	10,302	0	0	0	28,484	0	469	8,171,042
SA	17,717	7,621	20,804	0	0	10,040	2,216	0	6,486,872
Vic	15,317	30,672	42,471	0	0	39,493	0	8	22,510,282
Qld	106,963	83,057	9,899	0	187	25,780	0	0	14,161,628
NT	0	811	0	13,609	2	0	0	634	112,757
<b>Australia</b>	<b>378,860</b>	<b>197,496</b>	<b>87,592</b>	<b>13,609</b>	<b>189</b>	<b>193,451</b>	<b>4,491</b>	<b>1,111</b>	<b>86,167,113</b>

Source: Australian Bureau of Statistics

APPENDIX TABLE 3 – 2002

Rice cultivation 4C-1 (sheet 1): Areas under cultivation in New South Wales

Rice cultivation 4C-1 (sheet 2): Areas under cultivation in Victoria

Rice cultivation 4C-1 (sheet 3): Areas under cultivation in Western Australia

Nominated Year $Y_m$	Year	Summer Crop $A_{jkl}$ (ha)	Winter Crop $A_{jkl}$ (ha)	Total Crop Area $A_{jkl}$ (ha)
$Y_{m-1}$	2,001.00	184,230.00	0.00	184,230.00
$Y_m$	2,002.00	147,268.00	0.00	147,268.00
$Y_{m+1}$	2,003.00	38,356.00	0.00	38,356.00
ave $Y_m$	2,002.00	123,284.67	0.00	123,284.67

Nominated Year $Y_m$	Year	Summer Crop $A_{jkl}$ (ha)	Winter Crop $A_{jkl}$ (ha)	Total Crop Area $A_{jkl}$ (ha)
$Y_{m-1}$	2001	1,839.91	0.00	1,839.91
$Y_m$	2002	1,564.00	0.00	1,564.00
$Y_{m+1}$	2003	NE	NE	NE
ave $Y_m$	2002	1,701.96	0.00	1,701.96

Nominated Year $Y_m$	Year	Summer Crop $A_{jkl}$ (ha)	Winter Crop $A_{jkl}$ (ha)	Total Crop Area $A_{jkl}$ (ha)
$Y_{m-1}$	2001	5.00	0.00	5.00
$Y_m$	2002	0.00	0.00	0.00
$Y_{m+1}$	2003	NE	NE	NE
ave $Y_m$	2002	2.50	0.00	2.50

Sources:

1 Ricegrowers Association of Australia

2 Agstats 2001, Agstats 2002, Australian Bureau of Statistics

**APPENDIX TABLE 3 – 2002**

Rice cultivation 4C-1 (sheet 4): Areas under cultivation in Queensland

Rice cultivation 4C-1 (sheet 5): Areas under cultivation in Northern Territory

 Rice cultivation 4C-1 (sheet 6): CH<sub>4</sub> emissions

**AGRICULTURE**

Nominated Year $Y_m$	Year	Summer Crop $A_{jkl}$ (ha)	Winter Crop $A_{jkl}$ (ha)	Total Crop Area $A_{jkl}$ (ha)
$Y_{m-1}$	2001	0	0	0
$Y_m$	2002	0	0	0
$Y_{m+1}$	2003	0	0	0
ave $Y_m$	2002	0	0	0

Nominated Year $Y_m$	Year	Summer Crop $A_{jkl}$ (ha)	Winter Crop $A_{jkl}$ (ha)	Total Crop Area $A_{jkl}$ (ha)
$Y_{m-1}$	2001	0	0	0
$Y_m$	2002	0	0	0
$Y_{m+1}$	2003	0	NE	0
ave $Y_m$	2002	0	0	0

State $i$	Area $A_{jkl}$ (ha)	Emission Factor $E_{ijk}$ (kg CH <sub>4</sub> /ha)	CH <sub>4</sub> Emission Total <sub>ijkl</sub> (Gg CH <sub>4</sub> )
NSW	123,284.67	225.00	27.74
VIC	1,701.96	225.00	0.38
WA	2.50	225.00	0.00
QLD	0.00	225.00	0.00
NT	0.00	225.00	0.00
<b>Total</b>	<b>124,989.12</b>	<b>225.00</b>	<b>28.12</b>

Sources:

1 Ricegrowers Association of Australia

2 Agstats 2001, Agstats 2002, Australian Bureau of Sta

APPENDIX TABLE 3 – 2002

Agricultural soils 4D-1 (sheet 1): Areas of agricultural lands  
 Agricultural soils 4D-1 (sheet 2): N<sub>2</sub>O emissions due to soil disturbance  
 Agricultural soils 4D-1 (sheet 3): N<sub>2</sub>O emissions due to fertilizer use

Nominated Year Y <sub>m</sub>	Year	Crops A <sub>jkl</sub> (ha)	Improved Pasture A <sub>jkl</sub> (ha)
Y <sub>m-1</sub>	2001	24,519,961.54	26,666,928.35
Y <sub>m</sub>	2002	24,059,745.40	25,004,691.00
Y <sub>m+1</sub>	2003	NE	NE
ave Y <sub>m</sub>	2002	24,289,853.47	25,835,809.68

System	Area A <sub>jkl</sub> (ha)	Emission Factor (E <sub>pijkl</sub> - E <sub>nijkl</sub> ) (kg N/ha/year)	Conversion Factor C <sub>i</sub>	N <sub>2</sub> O Emissions Total <sub>ijkl</sub> (Gg N <sub>2</sub> O/year)
Crop	24,289,853.47	0.29	1.57	11.07
Pasture	25,835,809.68	0.29	1.57	11.77
Total	50,125,663.15			22.84

Nominated Year Y <sub>m</sub>	Year	Total N Fertilizer Applied M <sub>jkl</sub> (Gg N)	Emission Factor E <sub>ijk</sub> (%)	Conversion Factor C <sub>i</sub>	N <sub>2</sub> O Emissions Total <sub>ijkl</sub> (Gg N <sub>2</sub> O/year)
Y <sub>m-1</sub>	2001	1,065.50	1.25	1.57	20.93
Y <sub>m</sub>	2002	971.00	1.25	1.57	19.07
Y <sub>m+1</sub>	2003	NE	1.25	1.57	NE
ave Y <sub>m</sub>	2002	1,018.25			20.00

Sources:

<sup>1</sup> Agstats 2001, Agstats 2002, Australian Bureau of Statistics

<sup>2</sup> Fertilizer Industry Federation of Australia

**APPENDIX TABLE 3 – 2002**

Agricultural soils 4D-2 (sheet 1): N<sub>2</sub>O emissions due to animal urine  
Agricultural soils 4D-2 (sheet 2): N<sub>2</sub>O emissions due to animal faeces

**AGRICULTURE**

Animals k	Waste Deposited M <sub>ijkl</sub> (Gg N)	Emission Factor E <sub>ijk</sub> (%)	Conversion Factor C <sub>i</sub>	N <sub>2</sub> O Emission Total <sub>ijkl</sub> (Gg N <sub>2</sub> O)
Cattle				
beef	626.62	0.40	1.57	3.94
dairy	337.00	0.40	1.57	2.12
feedlot	0.00	0.40	1.57	0.00
Sheep	570.65	0.40	1.57	3.59
Pigs	0.00	0.40	1.57	0.00
Poultry	0.00	0.40	1.57	0.00
Other	10.20	0.40	1.57	0.06
<b>Total</b>	<b>1,544.48</b>			<b>9.71</b>

Animals k	Waste Deposited M <sub>ijkl</sub> (Gg N)	Emission Factor E <sub>ijk</sub> (%)	Conversion Factor C <sub>i</sub>	N <sub>2</sub> O Emission Total <sub>ijkl</sub> (Gg N <sub>2</sub> O)
Cattle				
beef	300.89	0.50	1.57	2.36
dairy	71.81	0.50	1.57	0.56
feedlot	0.00	0.50	1.57	0.00
Sheep	191.39	0.50	1.57	1.50
Pigs	0.00	0.50	1.57	0.00
Poultry	1.84	0.50	1.57	0.01
Other	4.17	0.50	1.57	0.03
<b>Total</b>	<b>570.10</b>			<b>4.48</b>

Source:

<sup>1</sup> Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture

Agricultural soils 4D-2 (sheet 3): N<sub>2</sub>O emissions due to manure application  
Agricultural soils 4D-2 (sheet 4): Annual N<sub>2</sub>O emissions from agricultural (cultivated) soils

Animals k	Waste deposited M <sub>ijkl</sub> (Gg N)	Emission factor E <sub>ijk</sub> (%)	Conversion factor C <sub>i</sub>	N <sub>2</sub> O emission Total <sub>ijkl</sub> (Gg N <sub>2</sub> O)
Cattle				
beef	0.00	1.80	1.57	0.00
dairy	29.42	1.80	1.57	0.83
feedlot	82.10	1.80	1.57	2.32
Sheep	0.00	1.80	1.57	0.00
Pigs	34.37	1.80	1.57	0.97
Poultry	58.39	1.80	1.57	1.65
Other	NA	1.80	1.57	NA
Total	204.29			5.78

Process	Emission (Gg N <sub>2</sub> O)
Soil disturbance	22.84
Fertilizer application	20.00
Animal waste	19.97
Total	62.81

Source

<sup>1</sup> Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture



Nominated $Y_m$	Year	State							
		NSW	Tas	WA	SA	Vic	Qld	NT	ACT
		$A_{jkl}$ (ha)							
$Y_{m-8}$	1994	382,398.00	7,574.00	14,990,000.00	207,875.00	17,900.00	6,300,000.00	18,700,000.00	0.00
$Y_{m-7}$	1995	89,112.00	28,134.00	14,790,000.00	88,338.00	17,502.00	6,300,000.00	22,900,000.00	0.00
$Y_{m-6}$	1996	90,480.00	18,662.28	19,382,000.00	3,707.00	7,564.00	7,500,000.00	25,000,000.00	0.00
$Y_{m-5}$	1997	131,068.00	2,585.00	13,658,703.22	191,670.00	15,131.00	3,802,000.00	17,773,000.00	0.00
$Y_{m-4}$	1998	NE	5,017.40	22,248,007.04	26,000.00	7,965.00	4,619,892.00	20,123,786.03	0.00
$Y_{m-3}$	1999	16,380.00	1,428.10	10,517,400.00	24,600.00	18,979.00	4,392,000.00	15,486,900.00	0.00
$Y_{m-2}$	2000	5,528.00	14,177.00	21,392,300.00	441,168.00	11,776.00	8,683,800.00	20,980,500.00	0.00
$Y_{m-1}$	2001	NE	9,198.00	41,933,500.00	18,680.00	32,925.00	7,276,300.00	35,078,700.00	0.00
$Y_m$	2002	NE	7,623.00	17,052,500.00	13,036.00	21,912.00	13,898,700.00	38,129,200.00	0.00
$Y_{m+1}$	2003	NE	NE	14,430,700.00	48,671.00	NE	6,904,000.00	26,567,000.00	0.00
ave $Y_m$	2002	119,161.00	10,488.75	19,039,511.03	106,374.50	16,850.44	6,967,669.20	24,073,908.60	0.00
									50,333,963.53

Sources

<sup>1</sup> Satellite Remote Sensing Services, Department of Land Administration, WA<sup>2</sup> Country Fire Authority, Victoria<sup>3</sup> Forests Tasmania<sup>4</sup> Parks Tasmania<sup>5</sup> National Parks Service of NSW<sup>6</sup> State Forests of NSW

State l	Area Burnt $A_{jkl}$ (ha)	Fuel Load $Fl_{jkl}$ (Mg/ha)	Burning efficiency $Z_{jk}$	Mass of Fuel Burnt $M_{jkl}$ (Gg)
NSW	119,161.00	6.90	0.72	591.99
Tas	10,488.75	9.00	0.72	67.97
WA	19,039,511.03	7.70	0.72	105,555.05
SA	106,374.50	3.00	0.72	229.77
Vic	16,850.44	11.70	0.72	141.95
Qld	6,967,669.20	3.00	0.72	15,050.17
NT	24,073,908.60	5.80	0.72	100,532.64
ACT	0.00	11.10	0.72	0.00
Total	50,333,963.53			222,169.53

Source:

<sup>1</sup> Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks 2002: Agriculture

Gas i	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOC
Mass of fuel burnt (M <sub>f</sub> Gg)	222,169.53	222,169.53	222,169.53	222,169.53	222,169.53
Carbon mass fraction (CC <sub>j</sub> )	0.46	0.46	0.46	0.46	0.46
Elemental N:C ratio (NC <sub>j</sub> )		0.02	0.02		
Emission factor (E <sub>ij</sub> )	0.00	0.01	0.21	0.08	0.01
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
<b>Emission Total<sub>ij</sub> (Gg)</b>	<b>476.92</b>	<b>24.41</b>	<b>1,410.33</b>	<b>18,600.03</b>	<b>1,085.00</b>

Nominated Year	Year	Production $P_{jkl}$ (Gg/year)	Residue to Crop Ratio $R_{jk}$	Fraction of Residue Remaining at Time of Burning $S_{jk}$	Dry Matter Content $DM_{jk}$	Burning Efficiency $Z_{jk}$	Fraction Burnt $F_{jk}$	Mass of Residue $M_{jkl}$ (Gg)
$Y_{m-1}$	2001	22,108.08	1.50	0.50	0.90	0.96	0.23	3,294.99
$Y_m$	2002	24,299.33	1.50	0.50	0.90	0.96	0.23	3,621.57
$Y_{m+1}$	2003	NE	1.50	0.50	0.90	0.96	0.23	NA
ave $Y_m$	2002	23,203.71						3,458.28

Sources:

<sup>1</sup> Agstats 2001, Agstats 2002, Australian Bureau of Statistics

Gas i	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOC
Mass of fuel burnt (M <sub>f</sub> Gg)	3,458.28	3,458.28	3,458.28	3,458.28	3,458.28
Carbon mass fraction (CC <sub>j</sub> )	0.40	0.40	0.40	0.40	0.40
Elemental N:C ratio (NC <sub>j</sub> )		0.01	0.01		
Emission factor (E <sub>ij</sub> )	0.00	0.01	0.21	0.08	0.01
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
<b>Emission Total<sub>ij</sub> (Gg)</b>	<b>6.46</b>	<b>0.13</b>	<b>7.64</b>	<b>251.76</b>	<b>14.69</b>

Nominated Year	Year	Production $P_{jkl}$ (Gg/yr)	Residue to Crop Ratio $R_{jk}$	Fraction of Residue Remaining at Time of Burning $S_{jk}$	Dry Matter Content $DM_{jk}$	Burning Efficiency $Z_{jk}$	Fraction Burnt $F_{jk}$	Mass of Residue $M_{jkl}$ (Gg)
$Y_m$								
$Y_{m-1}$	2001	12,557.81	1.50	0.50	0.80	0.96	0.23	1,663.66
$Y_m$	2002	14,239.97	1.50	0.50	0.80	0.96	0.23	1,886.51
$Y_{m+1}$	2003	NE	1.50	0.50	0.80	0.96	0.23	NA
ave $Y_m$	2002	13,398.89						1,775.09

Source:

<sup>1</sup> Agstats 2001, Agstats 2002, Australian Bureau of Statistics

Gas i	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC
Mass of fuel burnt (M <sub>f</sub> Gg)	1775	1775	1775	1775	1775
Carbon mass fraction (CC <sub>j</sub> )	0.40	0.40	0.40	0.40	0.40
Elemental N:C ratio (NC <sub>j</sub> )		0.01	0.01		
Emission factor (E <sub>ij</sub> )	0.00	0.01	0.21	0.08	0.01
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
<b>Emission Total<sub>ij</sub> (Gg)</b>	<b>3.31</b>	<b>0.07</b>	<b>3.92</b>	<b>129.23</b>	<b>7.54</b>

Crop	Year	Y <sub>m</sub>		Production P <sub>jk1</sub> (Gg/yr)	Residue to Crop Ratio R <sub>jk</sub>	Fraction of Residue Remaining at Time of Burning S <sub>jk</sub>	Dry Matter Content DM <sub>jk</sub>	Burning Efficiency Z <sub>jk</sub>	Fraction Burnt F <sub>jk</sub>	Mass of Residue M <sub>jk1</sub> (Gg)
		2001	2002							
Wheat	2002	22,108.08	24,299.33	NE	1.50	0.50	0.90	0.96	0.23	3,458.28
Barley	2002	6,743.46	8,279.77	NE	1.50	0.50	0.80	0.96	0.23	995.14
Maize	2002	344.93	453.85	NE	1.50	1.00	0.80	0.96	0.30	138.03
Oats	2002	1,049.83	1,433.65	NE	1.50	0.50	0.80	0.96	0.23	164.51
Rye	2002	NE	NE	NE	1.50	0.50	0.80	0.96	0.23	NE
Rice	2002	1,643.40	1,192.20	NE	1.31	1.00	0.80	0.96	0.82	1,162.11
Millet	2002	26.95	25.31	NE	1.50	0.50	0.80	0.96	0.23	3.46
Sorghum	2002	1,935.14	2,020.84	NE	1.50	0.50	0.80	0.96	0.23	262.04
Triticale	2002	841.05	859.65	NE	1.50	0.50	0.80	0.96	0.23	112.65
<b>Total</b>										<b>6,296.23</b>

Crop	Year	Emissions (Gg)						
		C emitted	N emitted	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM <sub>2</sub> VOC
Wheat	2002	1,383.31	11.07	6.46	0.13	7.64	251.76	14.69
Barley	2002	398.06	3.18	1.86	0.04	2.20	72.45	4.23
Maize	2002	57.97	1.04	0.27	0.01	0.71	10.55	0.62
Oats	2002	65.80	0.53	0.31	0.01	0.36	11.98	0.70
Rye	2002	NE	NE	NE	NE	NE	NE	NE
Rice	2002	488.09	7.55	2.28	0.09	5.21	88.83	5.18
Millet	2002	1.38	0.01	0.01	0.00	0.01	0.25	0.01
Sorghum	2002	104.82	0.84	0.49	0.01	0.58	19.08	1.11
Triticale	2002	45.06	0.36	0.21	0.00	0.25	8.20	0.48
<b>Total</b>				<b>11.87</b>	<b>0.29</b>	<b>16.96</b>	<b>463.10</b>	<b>27.01</b>

Source:

<sup>1</sup> Agstats 2001, Agstats 2002, Australian Bureau of Statistics



Nominated Year	Year	Production  $P_{jkl}$ (Gg/yr)	Residue to Crop Ratio  $R_{jk}$	Fraction of Residue Remaining at Time of Burning  $S_{jk}$	Dry Matter Content  $DM_{jk}$	Burning Efficiency  $Z_{jk}$	Fraction Burnt  $F_{jk}$	Mass of Residue  $M_{jkl}$ (Gg)
$Y_m$								
$Y_{m-1}$	2001	28,387.60	0.25	1.00	0.20	0.96	0.43	590.83
$Y_m$	2002	32,229.34	0.25	1.00	0.20	0.96	0.40	619.90
$Y_{m+1}$	2003	37,758.81	0.25	1.00	0.20	0.96	0.37	671.52
ave $Y_m$	2002	32,791.92	0.25	1.00	0.20	0.96	0.40	627.42

Source:

- <sup>1</sup> Agstats 2001, Agstats 2002, Australian Bureau of Statistics
- <sup>2</sup> Canegrowers Association of Australia
- <sup>3</sup> NSW Canegrowers Association

Gas <sub>i</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC
Mass of fuel burnt (M <sub>f</sub> Gg)	627.42	627.42	627.42	627.42	627.42
Carbon mass fraction (CC <sub>i</sub> )	0.40	0.40	0.40	0.40	0.40
Elemental N:C ratio (NC <sub>i</sub> )		0.03	0.03		
Emission factor (E <sub>ij</sub> )	0.00	0.01	0.21	0.08	0.01
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
<b>Emission Total<sub>ij</sub> (Gg)</b>	<b>1.17</b>	<b>0.07</b>	<b>4.33</b>	<b>45.68</b>	<b>2.66</b>

# APPENDIX TABLE 4 LAND USE CHANGE AND FORESTRY

	PAGE
5A. CHANGES IN FOREST AND OTHER WOODY BIOMASS STOCKS	B-164
5B. FOREST AND GRASSLAND CONVERSION	B-167
5D. CO <sub>2</sub> EMISSIONS AND REMOVALS FROM SOILS	B-167
5E. OTHER	B-168

Module		Land Use Change and Forestry				
Submodule		Changes in Forest and Other Woody Biomass Stocks				
WORKSHEET 5-1						
SHEET 1 of 3						
STEP 1						
	A	B	C	D	E	
	Area of Forest/ Biomass Stocks (kha)	Annual Growth Rate (t dm/ha)	Annual Biomass Increment (kt dm)  C=(AxB)	Carbon Fraction of Dry Matter	Total Carbon Uptake Increment (kt C)  E=(Cx D)	
State Forests and Other Tenure						
Forest Type	Rainforests	1,332.88	1.15	1,536.45	0.50	768.23
	Tall Dense Eucalypt	3,234.70	4.81	15,545.69	0.50	7,772.84
	Medium Dense	6,705.19	1.90	12,716.10	0.50	6,358.05
	Medium Sparse	2,029.25	0.35	715.82	0.50	357.91
	Callitris	294.93	0.51	149.86	0.50	74.93
	Coniferous Plantation	987.86	7.10	7,011.27	0.50	3,505.63
	Broadleaf Plantation	638.34	8.65	5,518.89	0.50	2,759.45
	Other Forests	1,288.79	0.47	605.95	0.50	302.98
Total	16,511.94		43,800.04			21,900.02
					CO2-e	80,300.06

Module Land Use Change and Forestry								
Submodule Changes in Forest and Other Woody Biomass Stocks								
WORKSHEET 5-1								
SHEET 2 of 3								
STEP 2								
	F	G	H	I	J	K	L	M
	Commercial Harvest (if applicable) (1000 m <sup>3</sup> roundwood)	Biomass Conversion/ Expansion Ratio (if applicable) (t dm/m <sup>3</sup> )	Total Biomass Removed in Commercial Harvest in Inventory Year <sup>a</sup> (kt dm)	Total Traditional Fuelwood Consumed (kt dm)	Total Other Wood Use (kt dm)	Total Biomass Consumpt. (kt dm)	Wood Removed from Forest Clearing (kt dm)	Total Biomass Consumpt. from Stocks (kt dm)
Harvest Categories (specify)			H=(F×G)			K=(H+I+J)		M=K-L
Hardwood	10,556.00	1.31	13,785.97		NE			
Softwood	13,766.00	0.80	11,053.35		NE			
Total	24,322.00		24,839.32	7,169.35		32,008.67	114.35	31,894.32

a. The Australian methodology applies different decay times to different woodproducts.

Module		Land Use Change and Forestry		
Submodule		Changes in Forest and Other Woody Biomass Stocks		
WORKSHEET 5-1				
SHEET 3 of 3				
		STEP 3		STEP 4
N Carbon Fraction		O Annual Carbon Release (kt C)	P Net Annual Carbon Uptake (+) or Release (-) (kt C)	Q Convert to CO <sub>2</sub> Annual Emission (-) or Removal (+) (Gg CO <sub>2</sub> )
		O=(MxN)	P=(E-O)	Q=(Px[44/12])
	0.50	15,947.16	5,952.86	21,827.14
CO2-e		58,472.93		

Module	Land Use Change and Forestry		
Submodule	Pasture Improvement and Minimum Tillage		
WORKSHEET	5-4		
SHEET	1 of 1 CO <sub>2</sub> Uptake from Pasture Improvement and Minimum Tillage		
A	B	C	D
Average Increase in Area of Minimum Tillage over 25 Years (kha/y)	Average Increase in Area of Pasture Over 25 Years Other than Associated with Forest and Grassland Conversion (kha/y)	Increase in Soil Carbon in Inventory Year (kt C/y)	Net Influx (Gg CO <sub>2</sub> /y)
		$C = A \times 50 \times 0.15 + B \times (62.5 - 50) \times 0.25$	$D = C \times 44/12$
129.00	59.00	1,151.88	4,223.54
		<b>CO<sub>2</sub>-e</b>	<b>4,223.54</b>

Nominated $Y_m$	Year	State								$A_{jkl}$ (ha)
		NSW	Tas	WA	SA	Vic	Qld	NT	ACT	
		Australia								
$Y_{m-8}$	1994	205,469.00	6,532.00	248,330.00	140.00	180,000.00	102,820.00	0.00	300.00	743,591.00
$Y_{m-7}$	1995	131,629.00	6,700.00	260,846.00	142.00	141,000.00	101,039.00	0.00	20.00	641,376.00
$Y_{m-6}$	1996	169,377.25	9,058.05	363,209.00	297.00	131,000.00	61,067.00	0.00	200.00	734,208.30
$Y_{m-5}$	1997	159,999.25	11,245.00	449,201.00	173.00	131,000.00	103,650.00	0.00	200.00	855,468.25
$Y_{m-4}$	1998	173,585.00	20,737.00	205,497.00	0.00	30,268.30	95,314.00	0.00	100.00	525,501.30
$Y_{m-3}$	1999	119,939.75	18,565.00	192,911.00	0.00	104,586.00	67,131.00	0.00	100.00	503,232.75
$Y_{m-2}$	2000	49,865.38	30,655.00	194,969.00	0.00	40,148.50	80,974.00	0.00	300.00	396,911.88
$Y_{m-1}$	2001	110,954.05	14,550.00	138,355.00	0.00	63,707.00	136,664.30	0.00	200.00	464,430.35
$Y_m$	2002	166,468.26	11,593.00	96,880.00	0.00	45,957.00	138,119.04	0.00	0.00	459,017.30
$Y_{m+1}$	2003	244,845.04	0.00	255,519.00	0.00	22,160.00	126,128.00	0.00	NE	648,652.04
ave $Y_m$	2002	153,213.20	12,963.51	240,571.70	75.20	88,982.68	101,290.63	0.00	157.78	597,254.69



State $I$	Area burnt $A_{jkl}$ (ha)	Fuel load $F_{jkl}$ (Mg/ha)	Burning efficiency $Z_{jk}$	Mass of fuel burnt $M_{jkl}$ (Gg)
NSW	153,213.20	18.20	0.42	1,171.16
Tas	12,963.51	20.00	0.42	108.89
WA	240,571.70	12.00	0.42	1,212.48
SA	75.20	9.60	0.42	0.30
Vic	88,982.68	17.90	0.42	668.97
Qld	101,290.63	9.70	0.42	412.66
NT	0.00	4.10	0.42	0.00
ACT	157.78	17.60	0.42	1.17
<b>Australia</b>	<b>597,254.69</b>			<b>3,575.64</b>

Gas i	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NM VOC
Mass of fuel burnt (M <sub>f</sub> Gg)	3,575.64	3,575.64	3,575.64	3,575.64	3,575.64
Carbon mass fraction (CC <sub>j</sub> )	0.46	0.46	0.46	0.46	0.46
Elemental N:C ratio (NC <sub>j</sub> )		0.01	0.01		
Emission factor (E <sub>ij</sub> )	0.01	0.01	0.15	0.09	0.02
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
<b>Emission Total<sub>ij</sub> (Gg)</b>	<b>11.84</b>	<b>0.22</b>	<b>8.92</b>	<b>349.24</b>	<b>42.22</b>

Nominated $Y_m$	Year	State							
		NSW	Tas	WA	SA	Vic	Qld	NT	ACT
		$A_{jkl}$ (ha)							
$Y_{m-8}$	1994	123,604.00	12,735.00	199,200.00	21.00	16,000.00	22,525.00	0.00	200.00
$Y_{m-7}$	1995	23,716.00	52,572.00	101,692.00	7.00	19,000.00	90,256.00	0.00	180.00
$Y_{m-6}$	1996	32,764.00	51,606.67	400,899.00	6.70	14,169.00	20,844.00	0.00	500.00
$Y_{m-5}$	1997	30,242.00	47,623.18	168,192.00	145.00	25,612.00	47,761.00	0.00	200.00
$Y_{m-4}$	1998	341,861.27	31,085.00	268,762.00	0.00	57,475.00	37,679.00	0.00	100.00
$Y_{m-3}$	1999	18,795.90	7,343.00	45,029.00	70.00	60,680.00	1,511.00	0.00	300.00
$Y_{m-2}$	2000	7,293.17	17,765.40	74,334.00	40.00	22,648.00	24,746.00	0.00	100.00
$Y_{m-1}$	2001	217,980.00	43,203.29	392,886.31	62.00	32,589.16	25,457.50	0.00	0.00
$Y_m$	2002	934,565.00	4,846.00	218,492.00	0.00	101,558.00	47,189.25	0.00	2,000.00
$Y_{m+1}$	2003	1,575,007.00	NE	1,513,894.20	335.00	253,259.00	46,933.70	0.00	170,000.00
ave $Y_m$	2002	330,582.83	29,864.39	338,338.05	68.67	60,299.02	36,490.25	0.00	17,358.00
									813,001.21

State <i>I</i>	Area burnt <i>A<sub>jkl</sub></i> (ha)	Fuel load <i>F<sub>jkl</sub></i> (Mg/ha)	Burning efficiency <i>Z<sub>jk</sub></i>	Mass of fuel burnt <i>M<sub>jkl</sub></i> (Gg)
NSW	330,582.83	36.40	0.72	8,663.91
Tas	29,864.39	40.00	0.72	860.09
WA	338,338.05	33.40	0.72	8,136.35
SA	68.67	19.20	0.72	0.95
Vic	60,299.02	35.80	0.72	1,554.27
Qld	36,490.25	19.40	0.72	509.70
NT	0.00	7.20	0.72	0.00
ACT	17,358.00	35.20	0.72	439.92
Total	813,001.21			20,165.20

Gas <sub>i</sub>	CH <sub>4</sub>	N <sub>2</sub> O	NO <sub>x</sub>	CO	NMVOC
Mass of fuel burnt (M <sub>f</sub> Gg)	20,165.20	20,165.20	20,165.20	20,165.20	20,165.20
Carbon mass fraction (CC <sub>f</sub> )	0.46	0.46	0.46	0.46	0.46
Elemental N:C ratio (NC <sub>f</sub> )		0.01	0.01		
Emission factor (E <sub>ij</sub> )	0.01	0.01	0.15	0.09	0.02
Elemental to molecular mass conversion factor (C <sub>i</sub> )	1.33	1.57	3.29	2.33	1.17
Emission Total <sub>ij</sub> (Gg)	66.79	1.23	50.29	1,969.60	238.08



## APPENDIX TABLE 5 WASTE

PAGE  
B-176  
B-177

6A. SOLID WASTE DISPOSAL ON LAND  
6B. WASTEWATER HANDLING

Module Waste												
Submodule Methane Emissions from Solid Waste Disposal Sites <sup>1</sup>												
WORKSHEET 6-1												
SHEET 1 of 1												
STEP 1		STEP 2		STEP 3				STEP 4				
A	B	C	D	E	F	G	H	J	K	L	M	N
Total Annual MSW Disposed to SWDSs (Gg MSW)	25 Year Average MSW Disposed to SWDSs (Gg MSW)	Fraction DOC in MSW	Fraction of DOC which Actually Degrades	Fraction of Carbon Released as Methane	Equation Constant	Potential Methane Generation Rate per Unit of Waste (litres CH <sub>4</sub> /kg MSW)	Realised (Country-specific) Methane Generation Rate per Unit of Waste (Gg CH <sub>4</sub> / Gg MSW)	Gross Annual Methane Generation (Gg CH <sub>4</sub> )	Recovered Methane per Year (Gg CH <sub>4</sub> )	Net Annual Methane Generation (Gg CH <sub>4</sub> )	One Minus Methane Oxidation Correction Factor	Net Annual Methane Emissions (Gg CH <sub>4</sub> )
								J=(BxFxG)		L=(J-K)		N=(LxM)
16,208.94	12,921.89	NA	NA	NA	0.82	79.00	NA	837.08	91.37	745.71	NA	745.71

1. The Worksheet has been modified to accord with the Australian Methodology.



Module	Waste				
Submodule	Indirect Nitrous Oxide Emissions from Human Sewage				
WORKSHEET	6-4				
SHEET	1 of 1				
	A	B	C	D	E
	Per Capita Protein Consumption (protein in kg/person/yr)	Population (millions)	Fraction of Nitrogen in Protein $Frac_{NPR}$ (kg N/kg protein)	Emission Factor $EF_6$ (kg $N_2O$ -N/kg sewage-N produced)	Total Annual $N_2O$ Emissions (Gg $N_2O$ /yr)
					$E = (A \times B \times C \times D) \times 44/28 \times 10^{-6}$
Total	36.28	19.64	0.16	0.01	1.79



## APPENDIX TABLE 6 SUMMARY 1A 1990–2001

	PAGE
1A Summary Report for National Greenhouse Gas Inventories—1990	B-180
1A Summary Report for National Greenhouse Gas Inventories—1991	B-183
1A Summary Report for National Greenhouse Gas Inventories—1992	B-186
1A Summary Report for National Greenhouse Gas Inventories—1993	B-189
1A Summary Report for National Greenhouse Gas Inventories—1994	B-192
1A Summary Report for National Greenhouse Gas Inventories—1995	B-195
1A Summary Report for National Greenhouse Gas Inventories—1996	B-198
1A Summary Report for National Greenhouse Gas Inventories—1997	B-201
1A Summary Report for National Greenhouse Gas Inventories—1998	B-204
1A Summary Report for National Greenhouse Gas Inventories—1999	B-207
1A Summary Report for National Greenhouse Gas Inventories—2000	B-210
1A Summary Report for National Greenhouse Gas Inventories—2001	B-213

Australia  
1990  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES																		
CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>		
				P	A		P	A		P	A							
(Gg)				CO <sub>2</sub> equivalent (Gg)											(Gg)			
Total National Emissions and Removals				363,230.98	0.00	5,805.22	77.08	NE	1,126.27	NE	3,938.28	NE	0.00	2,288.76	22,272.00	2,417.48	1,596.36	
1. Energy				258,622.51		1,197.86	7.95											
A. Fuel Combustion				0.00														
Reference Approach																		
Sectoral Approach																		
1. Energy Industries				252,659.80		113.77	7.84											
2. Manufacturing Industries and Construction				141,805.68		1.90	1.41											

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 1741.0 Gg CO<sub>2</sub>-e

Australia  
1990  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>				NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>				
						CO <sub>2</sub> equivalent (Gg)								(Gg)											
						P		A		P		A		P		A						P		A	
						P	A	P	A	P	A	P	A	P	A	P	A								
3. Solvent and Other Product Use		NA	NA		NE											NA	NA	152.95	NA						
4. Agriculture		NA	NA	3,578.97	64.25											791.77	10,569.39	616.55	NA						
A. Enteric Fermentation				3,212.78																					
B. Manure Management				71.82	1.70													NA							
C. Rice Cultivation				23.36														NA							
D. Agricultural Soils		NA	NA	NE	48.84													NA							
E. Prescribed Burning of Savannas				262.24	13.42											775.48	10,227.36	596.60							
F. Field Burning of Agricultural Residues				8.77	0.28											16.29	342.03	19.95							
G. Other				NA	NA											NA	NA	NA	NA						
5. Land-Use Change and Forestry		85,370.37	0.00	320.18	3.24											108.50	6,302.75	714.06	NA						
A. Changes in Forest and Other Woody Biomass Stocks		0.00	-24,598.42																						
B. Forest and Grassland Conversion		114,192.33	0.00	262.24	2.17											64.87	4,594.06	507.52							
C. Abandonment of Managed Lands		NA	0.00																						
D. CO <sub>2</sub> Emissions and Removals from Soil		0.00	-4,223.54																						
E. Other		0.00	0.00	57.94	1.07											43.63	1,708.69	206.54	NA						
6. Waste		0.00		704.92	1.56											NE	NE	2.90	NE						
A. Solid Waste Disposal on Land		NE		648.73													NE	2.61							
B. Wastewater Handling				56.19	1.56											NE	NE	0.29							
C. Waste Incineration		0.00		NA	NA											NE	NE	NE	NE						
D. Other		NA		NA	NA											NA	NA	NA	NA						
7. Other (please specify)		NA	NA	NA	NA			NA	NA		NA	NA				NA	NA	NA	NA						
NA		NA	NA	NA	NA			NA	NA		NA	NA				NA	NA	NA	NA						

Australia  
1990  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					P	A	CO <sub>2</sub> equivalent (Gg)	P	A	CO <sub>2</sub> equivalent (Gg)	P	A	CO <sub>2</sub> equivalent (Gg)				
Memo Items: <sup>(7)</sup>																	
International Bunkers	6,400.97		0.13	0.19										77.95	9.12	5.26	38.83
Aviation	4,345.12		0.02	0.13										23.27	7.20	3.56	0.82
Marine	2,055.85		0.11	0.06										54.68	1.92	1.70	38.01
Multilateral Operations	NE		NE	NE										NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass	15,112.99																

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1991  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)			(Gg)			(Gg)						
						P	A		P	A		P	A					
Total National Emissions and Removals		341,284.72	0.00	5,774.26	78.27	NE	1,126.27	NE	3,941.47	NE	0.00		2,255.48	21,355.22	2,307.68	1,638.33		
1. Energy		260,716.76		1,173.98	8.85								1,320.41	5,117.59	842.89	634.63		
A. Fuel Combustion		0.00																
Reference Approach																		
Sectoral Approach																		
1. Energy Industries		254,971.64		115.33	8.75								1,318.40	5,105.97	686.71	634.63		
2. Manufacturing Industries and Construction		145,296.14		1.92	1.47								470.48	42.74	6.75	449.90		
3. Transport		36,829.60		1.52	0.66								283.68	227.04	10.17	114.87		
3. Transport		59,076.56		25.74	6.35								487.11	3,846.63	538.81	60.30		
4. Other Sectors		12,558.60		86.11	0.25								73.60	982.85	130.29	9.26		
5. Other		1,210.75		0.04	0.01								3.54	6.71	0.69	0.30		
B. Fugitive Emissions from Fuels		5,745.12		1,058.65	0.11								2.01	11.62	156.19	NE		
1. Solid Fuels		NE		760.91	NE								NE	NE	NE	NA		
2. Oil and Natural Gas		5,745.12		297.75	0.11								2.01	11.62	156.19	NE		
2. Industrial Processes <sup>(1)</sup>		18,882.92		3.03	0.09	NE	1,126.27	NE	3,941.47	NE	0.00	48.39	8.83	51.47	1,003.70			
A. Mineral Products		4,477.14		NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	14.53	NE			
B. Chemical Industry		C		0.40	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE			
C. Metal Production		14,405.78		2.63	0.09				3,941.47		0.00	48.39	8.83	0.11	1,003.70			
D. Other Production		NE										NE	NE	36.83	NE			
E. Production of Halocarbons and SF <sub>6</sub>									NO		NO							
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	NE	NE	NE	NE	NE							
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 1602.97 Gg CO<sub>2</sub>-e

Australia  
1991  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs <sup>(1)</sup>			PFCs <sup>(1)</sup>			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)			CO <sub>2</sub> equivalent (Gg)			CO <sub>2</sub> equivalent (Gg)						
					P	A	G	P	A	G	P	A	G				
3. Solvent and Other Product Use	NA			NE										NA	145.85		NA
4. Agriculture	NA	NA	3,589.60	64.77										785.46	10,484.82	611.61	NA
A. Enteric Fermentation			3,224.01														
B. Manure Management			71.81	1.88												NA	
C. Rice Cultivation			24.94													NA	
D. Agricultural Soils	NA	NA	NE	49.29												NA	
E. Prescribed Burning of Savannas			260.34	13.33										769.87	10,153.35	592.28	
F. Field Burning of Agricultural Residues			8.50	0.27										15.59	331.47	19.34	
G. Other			NA	NA										NA	NA	NA	NA
5. Land-Use Change and Forestry	61,685.04	0.00	287.03	2.98										101.22	5,743.98	652.89	NA
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-24,084.18															
B. Forest and Grassland Conversion	89,992.76	0.00	227.26	1.88										56.22	3,981.31	439.82	
C. Abandonment of Managed Lands	NA	0.00															
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54															
E. Other	0.00	0.00	59.77	1.10										45.01	1,762.66	213.07	NA
6. Waste	0.00		720.62	1.58										NE	NE	2.96	NE
A. Solid Waste Disposal on Land	NE		663.71											NE	NE	2.67	
B. Wastewater Handling			56.91	1.58										NE	NE	0.29	
C. Waste Incineration	0.00		NA	NA										NE	NE	NE	NE
D. Other	NA	NA	NA	NA										NA	NA	NA	NA
7. Other (please specify)	NA	NA	NA	NA										NA	NA	NA	NA
NA	NA	NA	NA	NA										NA	NA	NA	NA



**APPENDIX 6—2002**

1991 Summary 1.A Summary report for National  
Greenhouse Gas Inventories (IPCC Table 7A)  
(Sheet 3 of 3)

**NATIONAL GREENHOUSE GAS INVENTORY 2002**

Australia  
1991  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)								NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					HFCs				PFCs		SF <sub>6</sub>					
					P	A	P	A	P	A						
Memo Items: <sup>(7)</sup>																
International Bunkers	6,378.80		0.11	0.19							73.83	9.16	5.25	36.01		
Aviation	4,520.39		0.02	0.13							24.21	7.50	3.70	0.85		
Marine	1,858.42		0.09	0.05							49.62	1.66	1.55	35.16		
Multilateral Operations	NE		NE	NE							NE	NE	NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass	14,965.58															

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1992  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)										
						HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>	
						P	A	P	A	P	A					
Total National Emissions and Removals		327,936.56	0.00	5,721.31	78.01	NE	1,053.94	NE	3,935.10	NE	0.00	2,215.78	20,049.79	2,171.16	1,744.81	
1. Energy		265,401.81		1,225.86	9.65							1,327.47	4,999.89	827.25	628.96	
A. Fuel Combustion		0.00														
Sectoral Approach		259,560.87		117.87	9.55							1,325.44	4,988.32	673.35	628.96	
1. Energy Industries		148,512.17		2.01	1.50							479.24	42.47	6.75	445.88	
2. Manufacturing Industries and Construction		36,707.28		1.47	0.60							285.03	205.67	10.35	113.51	
3. Transport		60,194.18		26.02	7.18							482.49	3,726.60	522.26	60.16	
4. Other Sectors		12,894.80		88.32	0.25							74.65	1,006.92	133.27	9.08	
5. Other		1,252.43		0.04	0.01							4.03	6.65	0.71	0.33	
B. Fugitive Emissions from Fuels		5,840.95		1,108.00	0.11							2.03	11.57	153.90	NE	NA
1. Solid Fuels		NE		791.41	NE							NE	NE	NE	NA	NA
2. Oil and Natural Gas		5,840.95		316.59	0.11							2.03	11.57	153.90	NE	NE
2. Industrial Processes <sup>(1)</sup>		16,642.72		3.30	0.07	NE	1,053.94	NE	3,935.10	NE	0.00	40.47	7.38	47.10	1,115.85	NE
A. Mineral Products		4,299.14		NA	NA							NE	NE	13.83	NE	NE
B. Chemical Industry		NE		0.41	0.00	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE	NE
C. Metal Production		12,343.58		2.89	0.07				3,935.10		0.00	40.47	7.38	0.09	1,115.85	NE
D. Other Production		NE										NE	NE	33.18	NE	NE
E. Production of Halocarbons and SF <sub>6</sub>							1,053.94		NO		NO					
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	NE	NE	NE	NE	NE					
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 1754.48 Gg CO<sub>2</sub>-e

Australia  
1992  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs						PFCs						SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>			
					CO <sub>2</sub> equivalent (Gg)						CO <sub>2</sub> equivalent (Gg)						CO <sub>2</sub> equivalent (Gg)									
					P		A		P		A		P		A		P							A		
3. Solvent and Other Product Use	NA	NA		NE													NA	NA	143.89	NA						
4. Agriculture	NA	NA	3,522.37	64.12													759.77	10,149.77	592.07	NA						
A. Enteric Fermentation			3,163.37																							
B. Manure Management			73.22	2.07															NA							
C. Rice Cultivation			25.53																NA							
D. Agricultural Soils	NA	NA	NE	48.90															NA							
E. Prescribed Burning of Savannas			251.59	12.88													743.98	9,811.90	572.36							
F. Field Burning of Agricultural Residues			8.66	0.27													15.79	337.87	19.71							
G. Other			NA	NA													NA	NA	NA	NA						
5. Land-Use Change and Forestry	45,892.02	0.00	240.75	2.57													88.06	4,892.75	557.82	NA						
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-24,543.87																								
B. Forest and Grassland Conversion	74,659.43	0.00	184.37	1.52													45.61	3,229.96	356.82							
C. Abandonment of Managed Lands	NA	0.00																								
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54																								
E. Other	0.00	0.00	56.38	1.04													42.46	1,662.79	201.00	NA						
6. Waste	0.00		729.02	1.60													NE	NE	3.03	NE						
A. Solid Waste Disposal on Land	NE		671.42														NE	NE	2.73							
B. Wastewater Handling			57.61	1.60													NE	NE	0.29							
C. Waste Incineration	0.00		NA	NA													NE	NE	NE	NE						
D. Other	NA		NA	NA													NA	NA	NA	NA						
7. Other (please specify)	NA	NA	NA	NA													NA	NA	NA	NA						
NA	NA	NA	NA	NA													NA	NA	NA	NA						

Australia  
1992  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>						
																	P	A	P	A	P	A
(Gg)																						
Memo Items: <sup>(7)</sup>																						
	International Bunkers	6,584.40		0.11	0.19								73.35	9.58	5.41	34.31						
	Aviation	4,795.71		0.02	0.14								25.68	7.94	3.93	0.90						
	Marine	1,788.69		0.09	0.05								47.66	1.63	1.48	33.41						
Multilateral Operations	NE		NE	NE									NE	NE	NE	NE						
CO <sub>2</sub> Emissions from Biomass	13,665.67																					

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1993  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)		CO <sub>2</sub> equivalent (Gg)					
						P	A	P	A	P	A				
Total National Emissions and Removals		332,695.42	0.00	5,662.78	80.80	NE	1,446.59	NE	2,833.07	NE	0.00	2,272.11	20,731.25	2,236.92	1,796.29
1. Energy		268,804.61		1,186.31	10.55							1,347.25	4,955.58	821.68	632.56
A. Fuel Combustion		0.00													
Reference Approach															
Sectoral Approach															
1. Energy Industries		262,957.26		119.16	10.44							1,345.22	4,944.41	662.97	632.56
2. Manufacturing Industries and Construction		149,790.74		2.06	1.49							489.35	43.07	6.82	454.02
3. Transport		37,143.37		1.58	0.67							292.93	235.92	11.26	112.13
4. Other Sectors		61,358.05		26.64	8.01							481.92	3,638.58	509.86	57.00
5. Other		13,375.86		88.84	0.26							77.19	1,020.08	134.33	9.09
B. Fugitive Emissions from Fuels		1,289.24		0.04	0.01							3.83	6.76	0.71	0.32
1. Solid Fuels		5,847.35		1,067.14	0.10							2.03	11.17	158.71	NE
2. Oil and Natural Gas		NE		791.02	NE							NE	NE	NE	NA
3. Industrial Processes <sup>(1)</sup>		5,847.35		276.12	0.10							2.03	11.17	158.71	NE
A. Mineral Products		16,706.14		3.33	0.07	NE	1,446.59	NE	2,833.07	NE	0.00	39.53	7.21	60.03	1,163.73
B. Chemical Industry		4,507.25		NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	15.44	NE
C. Metal Production		C		0.32	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
D. Other Production		12,198.89		3.01	0.07				2,833.07		0.00	39.53	7.21	0.09	1,163.73
E. Production of Halocarbons and SF <sub>6</sub>		NE										NE	NE	44.50	NE
F. Consumption of Halocarbons and SF <sub>6</sub>							1,446.59		NO		NO				
G. Other		NA		NA	NA	NE	NE	NE	NE	NE	NE	NE	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2308.45 Gg CO<sub>2</sub>-e

Australia  
1993  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)													
					P	A	P	A	P	A	P	A						
3. Solvent and Other Product Use	NA			NE										NA	NA	146.27	NA	
4. Agriculture	NA	NA	3,471.66	65.89										793.84	10,608.71	618.84	NA	
A. Enteric Fermentation			3,095.01															
B. Manure Management			76.12	2.32												NA		
C. Rice Cultivation			28.51													NA		
D. Agricultural Soils	NA	NA	NE	49.83												NA		
E. Prescribed Burning of Savannas			262.73	13.45										776.93	10,246.40	597.71		
F. Field Burning of Agricultural Residues			9.29	0.29										16.91	362.31	21.13		
G. Other			NA	NA										NA	NA	NA	NA	
5. Land-Use Change and Forestry	47,184.67	0.00	256.68	2.69										91.50	5,159.74	587.01	NA	
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-24,154.58																
B. Forest and Grassland Conversion	75,562.79	0.00	201.29	1.66										49.79	3,526.39	389.57		
C. Abandonment of Managed Lands	NA	0.00																
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54																
E. Other	0.00	0.00	55.39	1.02														
6. Waste	0.00		744.81	1.61										41.70	1,633.36	197.44	NA	
A. Solid Waste Disposal on Land	NE		686.63											NE	NE	3.09	NE	
B. Wastewater Handling			58.17	1.61										NE	NE	0.30		
C. Waste Incineration	0.00		NA	NA										NE	NE	NE	NE	
D. Other	NA		NA	NA										NA	NA	NA	NA	
7. Other (please specify)	NA	NA	NA	NA										NA	NA	NA	NA	
NA	NA	NA	NA	NA										NA	NA	NA	NA	

**APPENDIX 6—2002**

1993 Summary 1.A Summary report for National Greenhouse Gas Inventories (IPCC Table 7A)  
(Sheet 3 of 3)

**NATIONAL GREENHOUSE GAS INVENTORY 2002**

Australia  
1993  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)						(Gg)			SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	
					P	A	P	A	P	A				
Memo Items: <sup>(7)</sup>														
International Bunkers	6,987.84		0.11	0.20							75.49	10.26	5.74	34.28
Aviation	5,199.38		0.02	0.15							27.85	8.62	4.26	0.98
Marine	1,788.46		0.09	0.05							47.64	1.64	1.48	33.30
Multilateral Operations	NE		NE	NE							NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass	15,318.35													

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1994  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES																				
	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>				NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)				(Gg)				(Gg)							
					P	A	P	A	P	A	P	A	P	A	P	A				
Total National Emissions and Removals					340,556.46	0.00	5,596.06	82.84	NE	936.01	NE	1,847.57	NE	0.00	2,317.58	21,127.39	2,277.76	1,864.40		
1. Energy					272,700.18	0.00	1,174.69	11.44							1,361.15	4,906.35	825.71	637.86		
A. Fuel Combustion																				
Reference Approach																				
Sectoral Approach																				
1. Energy Industries					267,127.62		117.66	11.35							1,359.28	4,896.31	653.11	637.86		
2. Manufacturing Industries and Construction					150,850.78		2.09	1.51							489.08	43.92	6.94	457.48		
3. Transport					38,645.38		1.63	0.68							304.94	246.24	11.71	117.06		
4. Other Sectors					62,765.30		27.43	8.89							481.14	3,591.68	501.89	53.81		
5. Other					13,491.90		86.46	0.26							79.43	1,007.48	131.82	9.13		
B. Fugitive Emissions from Fuels					1,374.24		0.05	0.02							4.69	6.98	0.75	0.38		
1. Solid Fuels					5,572.57		1,057.04	0.09							1.86	10.04	172.59	NE		
2. Oil and Natural Gas					NE		777.46	NE							NE	NE	NE	NA		
2. Industrial Processes <sup>(1)</sup>					5,572.57		279.58	0.09							1.86	10.04	172.59	NE		
A. Mineral Products					18,615.55		3.72	0.08	NE	936.01	NE	1,847.57	NE	0.00	43.72	7.98	62.55	1,226.54		
B. Chemical Industry					5,210.39		NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	16.73	NE		
C. Metal Production					C		0.40	C		NA	NA	NA	NA	NA	NE	NE	NE	NE		
D. Other Production					13,405.16		3.32	0.08				1,847.57		0.00	43.72	7.98	0.10	1,226.54		
E. Production of Halocarbons and SF <sub>6</sub>					NE										NE	NE	45.73	NE		
F. Consumption of Halocarbons and SF <sub>6</sub>										811.70		NO		NO						
G. Other					NA		NA	NA	NE	124.31	NE	NE	NE	NE	NA	NA	NA	NA		

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2459.67 Gg CO<sub>2</sub>-e



Australia  
1994  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES														
	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)						(Gg)			
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
	P	A	P	A	P	A	P	A						
3. Solvent and Other Product Use	NA			NE						NA	NA	150.12		NA
4. Agriculture	NA	NA	3,411.52	66.97						820.69	10,952.38	638.89		NA
A. Enteric Fermentation			3,023.12											
B. Manure Management			78.71	2.56								NA		
C. Rice Cultivation			28.87									NA		
D. Agricultural Soils	NA	NA	NE	50.21								NA		
E. Prescribed Burning of Savannas			271.68	13.91						803.39	10,595.41	618.07		
F. Field Burning of Agricultural Residues			9.15	0.30						17.30	356.96	20.82		
G. Other			NA	NA						NA	NA	NA		NA
5. Land-Use Change and Forestry	49,240.72	0.00	264.27	2.72						92.02	5,260.69	597.34		NA
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-23,173.16												
B. Forest and Grassland Conversion	76,637.42	0.00	211.55	1.75						52.33	3,706.17	409.43		
C. Abandonment of Managed Lands	NA	0.00												
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54												
E. Other	0.00	0.00	52.71	0.97						39.69	1,554.52	187.91		NA
6. Waste	0.00		741.86	1.63						NE	NE	3.15		NE
A. Solid Waste Disposal on Land	NE		683.07								NE	2.86		
B. Wastewater Handling			58.79	1.63						NE	NE	0.30		
C. Waste Incineration	0.00		NA	NA						NE	NE	NE		NE
D. Other	NA		NA	NA						NA	NA	NA		NA
7. Other (please specify)	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA
NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA		NA

Australia  
1994  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)								(Gg)			
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>		
					P	A	P	A	P	A						
Memo Items: <sup>(7)</sup>																
International Bunkers	7,365.97		0.13	0.22							82.33	10.70	6.05	38.70		
Aviation	5,353.94		0.02	0.16							28.68	8.88	4.38	1.01		
Marine	2,012.03		0.10	0.06							53.65	1.83	1.67	37.69		
Multilateral Operations	NE		NE	NE							NE	NE	NE	NE	NE	
CO <sub>2</sub> Emissions from Biomass	15,435.31															

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1995  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						P	A	P	A	P	A				
CO <sub>2</sub> equivalent (Gg)															
(Gg)															
Total National Emissions and Removals		338,396.03	0.00	5,658.61	84.20	NE	977.42	NE	1,309.06	NE	0.00	2,383.85	21,488.00	2,273.39	1,758.63
1. Energy		282,424.83		1,290.37	12.39							1,359.75	4,870.55	828.15	679.05
A. Fuel Combustion		0.00													
Reference Approach															
Sectoral Approach															
1. Energy Industries		276,710.00		115.84	12.29							1,357.89	4,860.18	645.23	679.05
		156,807.47		2.25	1.55							454.40	44.86	7.27	493.80
2. Manufacturing Industries and Construction		39,169.22		1.76	0.74							313.30	273.41	13.14	113.53
3. Transport		65,366.69		28.42	9.72							502.22	3,547.78	495.67	63.25
4. Other Sectors		13,961.17		83.36	0.25							81.64	986.76	128.33	7.97
5. Other		1,405.45		0.05	0.02							6.34	7.38	0.82	0.50
B. Fugitive Emissions from Fuels		5,714.83		1,174.53	0.09							1.86	10.37	182.93	NE
1. Solid Fuels		NE		832.39	NE							NE	NE	NE	NA
2. Oil and Natural Gas		5,714.83		342.14	0.09							1.86	10.37	182.93	NE
2. Industrial Processes <sup>(1)</sup>		18,596.36		3.80	0.08	NE	977.42	NE	1,309.06	NE	0.00	44.98	8.21	69.07	1,079.58
A. Mineral Products		5,008.05		NA	NA							NE	NE	16.31	NE
B. Chemical Industry		C		0.38	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
C. Metal Production		13,588.31		3.42	0.08				1,309.06		0.00	44.98	8.21	0.10	1,079.58
D. Other Production		NE										NE	NE	52.66	NE
E. Production of Halocarbons and SF <sub>6</sub>							NO		NO		NO				
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	977.42	NE	NE	NE	NE				
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2407.17 Gg CO<sub>2</sub>-e

Australia  
1995  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)			(Gg)			(Gg)						
					P	A		P	A		P	A					
3. Solvent and Other Product Use	NA			NE									NA	NA	143.01	NA	
4. Agriculture	NA	NA	3,412.97	67.62									894.28	11,930.29	695.93	NA	
A. Enteric Fermentation			2,996.53														
B. Manure Management			79.64	2.65											NA		
C. Rice Cultivation			30.89												NA		
D. Agricultural Soils	NA	NA	NE	49.50											NA		
E. Prescribed Burning of Savannas			296.36	15.17									876.38	11,558.04	674.22		
F. Field Burning of Agricultural Residues			9.55	0.31									17.90	372.26	21.71		
G. Other			NA	NA									NA	NA	NA	NA	
5. Land-Use Change and Forestry	37,358.01	0.00	228.96	2.46									84.84	4,678.94	534.01	NA	
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-22,380.22															
B. Forest and Grassland Conversion	63,961.77	0.00	173.18	1.43									42.84	3,033.90	335.16		
C. Abandonment of Managed Lands	NA	0.00															
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54															
E. Other	0.00	0.00	55.78	1.03									42.00	1,645.05	198.85	NA	
6. Waste	16.83		722.51	1.65									NE	NE	3.22	NE	
A. Solid Waste Disposal on Land	NE		663.00												2.92		
B. Wastewater Handling			59.51	1.65									NE	NE	NE	0.30	
C. Waste Incineration	16.83		NA	NA									NE	NE	NE	NE	
D. Other	NA		NA	NA									NA	NA	NA	NA	
7. Other (please specify)																	
NA	NA	NA	NA	NA									NA	NA	NA	NA	
	NA	NA	NA	NA									NA	NA	NA	NA	

**APPENDIX 6—2002**

1995 Summary 1.A Summary report for National Greenhouse Gas Inventories (IPCC Table 7A)  
(Sheet 3 of 3)

**NATIONAL GREENHOUSE GAS INVENTORY 2002**

Australia  
1995  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)										NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					HFCs			PFCs			SF <sub>6</sub>							
					P	A		P	A		P	A						
Memo Items: <sup>(7)</sup>																		
International Bunkers	8,532.60		0.16	0.25									102.72	12.10	7.02	51.40		
Aviation	5,857.66		0.02	0.17									31.37	9.69	4.80	1.10		
Marine	2,674.93		0.14	0.07									71.36	2.41	2.22	50.30		
Multilateral Operations	NE		NE	NE									NE	NE	NE	NE		
CO <sub>2</sub> Emissions from Biomass	17,071.01																	

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1996  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs CO <sub>2</sub> equivalent (Gg)		PFCs CO <sub>2</sub> equivalent (Gg)		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
Total National Emissions and Removals		344,309.22	0.00	5,648.50	85.08	NE	602.54	NE	1,205.39	NE	0.00	2,473.00	21,605.51	2,201.94	1,816.58
1. Energy		292,173.10		1,279.15	13.22							1,423.46	4,815.12	820.13	694.49
A. Fuel Combustion	Reference Approach	0.00													
	Sectoral Approach	286,922.57		114.03	13.12							1,421.65	4,804.79	634.98	694.49
1. Energy Industries		163,334.69		2.29	1.61							493.18	47.35	7.25	508.33
2. Manufacturing Industries and Construction		40,314.68		1.78	0.75							321.73	267.03	13.15	111.55
3. Transport		67,710.68		29.43	10.49							516.21	3,515.63	488.78	66.22
4. Other Sectors		14,044.93		80.47	0.25							83.06	967.22	124.94	7.80
5. Other		1,517.59		0.06	0.02							7.47	7.56	0.87	0.59
B. Fugitive Emissions from Fuels		5,250.53		1,165.12	0.10							1.81	10.32	185.15	NE
1. Solid Fuels		NE		846.98	NE							NE	NE	NE	NA
2. Oil and Natural Gas		5,250.53		318.14	0.10							1.81	10.32	185.15	NE
2. Industrial Processes <sup>(1)</sup>		18,671.59		3.88	0.08	NE	602.54	NE	1,205.39	NE	0.00	44.74	8.16	16.45	1,122.09
A. Mineral Products		5,076.15		NA	NA							NE	NE	16.35	NE
B. Chemical Industry		C		0.45	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
C. Metal Production		13,595.44		3.43	0.08				1,205.39		0.00	44.74	8.16	0.10	1,122.09
D. Other Production		NE										NE	NE	0.00	NE
E. Production of Halocarbons and SF <sub>6</sub>							NO		NO		NO				
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	602.54	NE	NE	NE	NE				
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2592.87 Gg CO<sub>2</sub>-e

Australia  
1996  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs		SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>	
					CO <sub>2</sub> equivalent (Gg)				A		P		A					
					P	A	P	A	P	A	P	A						
					(Gg)													
3. Solvent and Other Product Use	NA	NA		NE									NA	NA	134.87	NA		
4. Agriculture	NA	NA	3,417.62	67.77									923.92	12,338.21	719.73	NA		
A. Enteric Fermentation			2,987.28															
B. Manure Management			80.53	2.71											NA			
C. Rice Cultivation			33.44												NA			
D. Agricultural Soils	NA	NA	NE	49.06											NA			
E. Prescribed Burning of Savannas			306.04	15.66									904.99	11,935.41	696.23			
F. Field Burning of Agricultural Residues			10.33	0.33									18.92	402.80	23.50			
G. Other			NA	NA									NA	NA	NA	NA		
5. Land-Use Change and Forestry	33,451.01	0.00	216.86	2.34									80.88	4,444.01	507.47	NA		
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-22,431.63																
B. Forest and Grassland Conversion	60,106.18	0.00	163.00	1.35									40.32	2,855.51	315.45			
C. Abandonment of Managed Lands	NA	0.00																
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54																
E. Other	0.00	0.00	53.86	1.00									40.56	1,588.51	192.02	NA		
6. Waste	13.53		731.00	1.67									NE	NE	3.29	NE		
A. Solid Waste Disposal on Land	NE		670.70											NE	2.98			
B. Wastewater Handling			60.29	1.67									NE	NE	0.31			
C. Waste Incineration	13.53		NA	NA									NE	NE	NE	NE		
D. Other	NA		NA	NA									NA	NA	NA	NA		
7. Other (please specify)	NA	NA	NA	NA									NA	NA	NA	NA		
NA	NA	NA	NA	NA									NA	NA	NA	NA		

Australia  
1996  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)										(Gg)				SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC						
					P	A	P	A	P	A									
Memo Items: <sup>(7)</sup>																			
International Bunkers	9,030.65		0.16	0.26									106.68	12.76	7.45		53.83		
Aviation	6,311.70		0.02	0.19									33.80	10.44	5.17		1.19		
Marine	2,718.95		0.14	0.08									72.88	2.32	2.27		52.64		
Multilateral Operations	NE		NE	NE									NE	NE	NE		NE	NE	
CO <sub>2</sub> Emissions from Biomass	17,114.32																		

<sup>(7)</sup> Memo Items are not included in the national totals.



Australia  
1997  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)		(Gg)		(Gg)					
						P	A	P	A	P	A				
Total National Emissions and Removals		348,489.26	0.00	5,757.68	90.32	NE	907.09	NE	1,050.67	NE	0.00	2,623.21	22,591.89	2,321.28	1,804.13
1. Energy		299,491.76		1,321.40	14.02							1,505.60	4,812.34	813.52	668.42
A. Fuel Combustion		0.00													
Reference Approach															
Sectoral Approach		294,443.08		115.57	13.95							1,503.97	4,803.31	625.23	668.42
1. Energy Industries		169,403.10		4.70	1.72							523.13	55.44	6.17	482.15
2. Manufacturing Industries and Construction		39,855.61		2.36	0.80							361.03	294.15	13.65	111.72
3. Transport		69,060.28		30.39	11.16							526.94	3,492.96	482.43	66.41
4. Other Sectors		14,585.63		78.06	0.25							85.37	953.08	122.10	7.54
5. Other		1,538.46		0.06	0.02							7.52	7.67	0.88	0.59
B. Fugitive Emissions from Fuels		5,048.68		1,205.83	0.07							1.62	9.03	188.29	NE
1. Solid Fuels		NE		865.54	NE							NE	NE	NE	NA
2. Oil and Natural Gas		5,048.68		340.28	0.07							1.62	9.03	188.29	NE
2. Industrial Processes <sup>(1)</sup>		18,661.15		3.80	0.08	NE	907.09	NE	1,050.67	NE	0.00	44.59	8.14	75.62	1,135.72
A. Mineral Products		5,008.60		NA	NA							NE	NE	17.12	NE
B. Chemical Industry		C		0.43	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
C. Metal Production		13,652.55		3.37	0.08							44.59	8.14	0.10	1,135.72
D. Other Production		NE										NE	NE	58.40	NE
E. Production of Halocarbons and SF <sub>6</sub>							NO				NO				
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	907.09	NE	NE	NE	NE				
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2564.16 Gg CO<sub>2</sub>-e

Australia  
1997  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals (Gg)	CH <sub>4</sub>	N <sub>2</sub> O	HFCs						PFCs						SF <sub>6</sub>				NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)						CO <sub>2</sub> equivalent (Gg)						CO <sub>2</sub> equivalent (Gg)							
					P		A		P		A		P		A		P		A					
3. Solvent and Other Product Use	NA			NE															NA	NA	138.29	NA	NA	
4. Agriculture	NA	NA	3,470.68	72.13															989.96	13,242.60	772.49	NA	NA	
A. Enteric Fermentation			3,012.87																					
B. Manure Management			83.88	2.82																	NA	NA		
C. Rice Cultivation			34.38																		NA	NA		
D. Agricultural Soils	NA	NA	NE	52.17																		NA		
E. Prescribed Burning of Savannas			327.82	16.78															969.42	12,785.14	745.80			
F. Field Burning of Agricultural Residues			11.73	0.36															20.53	457.46	26.69			
G. Other			NA	NA															NA	NA	NA	NA	NA	
5. Land-Use Change and Forestry	30,319.41	0.00	219.68	2.40															83.07	4,528.81	517.75		NA	
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-22,517.90																						
B. Forest and Grassland Conversion	57,060.86	0.00	162.87	1.35															40.29	2,853.25	315.20			
C. Abandonment of Managed Lands	NA	0.00																						
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54																						
E. Other	0.00	0.00	56.82	1.05															42.78	1,675.57	202.54		NA	
6. Waste	16.94		742.12	1.69															NE	NE	3.62	NE	NE	
A. Solid Waste Disposal on Land	NE		681.08																	NE	NE	3.30		
B. Wastewater Handling			61.04	1.69															NE	NE	0.33			
C. Waste Incineration	16.94		NA	NA															NE	NE	NE	NE	NE	
D. Other	NA		NA	NA															NA	NA	NA	NA	NA	
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

**APPENDIX 6—2002**

1997 Summary 1.A Summary report for National Greenhouse Gas Inventories (IPCC Table 7A)  
(Sheet 3 of 3)

**NATIONAL GREENHOUSE GAS INVENTORY 2002**

Australia  
1997  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs						PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOc	SO <sub>2</sub>															
	(Gg)				CO <sub>2</sub> equivalent (Gg)										(Gg)																		
					P		A		P		A		P		A																		
Memo Items: <sup>(7)</sup>																																	
International Bunkers																				9,020.41		0.16	0.26							101.92	13.08	7.41	48.08
Aviation																				6,501.21		0.03	0.19							34.82	10.77	5.32	1.22
Marine																				2,519.20		0.13	0.07							67.10	2.31	2.09	46.86
Multilateral Operations																				NE		NE	NE							NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass																				18,692.47													

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1998  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>			
						CO <sub>2</sub> equivalent (Gg)						(Gg)									
						P	A		P	A		P	A								
Total National Emissions and Removals		372,753.24	0.00	5,837.03	94.53	NE	1,311.25	NE	1,396.99	NE	0.00	0.00	2,677.83	22,566.97	2,292.53	1,792.93					
1. Energy		315,517.98		1,405.04	15.00								1,557.07	4,815.74	793.97	710.09					
A. Fuel Combustion		0.00																			
Sectoral Approach																					
1. Energy Industries		310,229.01		111.08	14.90								1,555.57	4,808.24	617.39	710.09					
2. Manufacturing Industries and Construction		184,779.29		5.03	1.92								589.37	59.15	8.66	532.63					
		40,222.52		2.43	0.81								364.10	311.52	14.51	107.52					
3. Transport		69,122.80		31.23	11.90								508.23	3,520.72	478.26	61.87					
4. Other Sectors		14,785.31		72.33	0.24								87.00	909.29	115.11	7.51					
5. Other		1,319.08		0.06	0.02								6.87	7.55	0.86	0.55					
B. Fugitive Emissions from Fuels		5,288.97		1,293.96	0.11								1.50	7.50	176.59	NE					
1. Solid Fuels		NE		954.70	NE								NE	NE	NE	NA					
2. Oil and Natural Gas		5,288.97		339.25	0.11								1.50	7.50	176.59	NE					
2. Industrial Processes <sup>(1)</sup>		18,943.26		3.96	0.08	NE	1,311.25	NE	1,396.99	NE	0.00	0.00	42.92	7.83	76.03	1,082.85					
A. Mineral Products		5,433.39		NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	16.68	NE					
B. Chemical Industry		C		0.35	C	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE					
C. Metal Production		13,509.87		3.60	0.08				1,396.99		0.00	0.00	42.92	7.83	0.10	1,082.85					
D. Other Production		NE											NE	NE	59.26	NE					
E. Production of Halocarbons and SF <sub>6</sub>							NO	NO	NO	NO	NO	NO									
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	1,311.25	NE	NE	NE	NE	NE									
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2784.44 Gg CO<sub>2</sub>-e

Australia  
1998  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)						(Gg)				NMVOC	SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO				
					P	A	P	A	P	A						
3. Solvent and Other Product Use	NA				NE						NA	NA	137.63	NA		
4. Agriculture	NA	NA	3,481.74	75.41							996.81	13,348.54	778.67	NA		
A. Enteric Fermentation			3,017.06													
B. Manure Management			87.91	3.14									NA			
C. Rice Cultivation			34.50										NA			
D. Agricultural Soils	NA	NA	NE	55.01									NA			
E. Prescribed Burning of Savannas			329.98	16.89							975.79	12,869.13	750.70			
F. Field Burning of Agricultural Residues			12.29	0.36							21.01	479.42	27.97			
G. Other			NA	NA							NA	NA	NA	NA		
5. Land-Use Change and Forestry	38,274.87	0.00	212.32	2.33							81.04	4,394.86	502.82	NA		
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-22,709.30														
B. Forest and Grassland Conversion	65,207.71	0.00	155.92	1.29							38.57	2,731.52	301.76			
C. Abandonment of Managed Lands	NA	0.00														
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54														
E. Other	0.00	0.00	56.40	1.04												
6. Waste	17.13		733.98	1.71							42.47	1,663.34	201.06	NA		
A. Solid Waste Disposal on Land	NE		672.20								NE	NE	3.42	NE		
B. Wastewater Handling			61.77	1.71							NE	NE	0.31			
C. Waste Incineration	17.13		NA	NA							NE	NE	NE	NE		
D. Other	NA		NA	NA							NA	NA	NA	NA		
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

Australia  
1998  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)								(Gg)			
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>		
					P	A	P	A	P	A						
Memo Items: <sup>(7)</sup>																
International Bunkers	9,473.01		0.14	0.28							98.44	13.96	7.80	43.35		
Aviation	7,232.89		0.03	0.22							38.71	11.93	5.94	1.36		
Marine	2,240.12		0.12	0.06							59.73	2.03	1.86	41.98		
Multilateral Operations	NE		NE	NE							NE	NE	NE	NE		
CO <sub>2</sub> Emissions from Biomass	19,321.49															

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
1999  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)						Gg					
						P	A	P	A	P	A						
Total National Emissions and Removals		369,594.83	0.00	5,819.61	100.27	NE	1,694.44	NE	981.99	NE	0.00	2,778.14	23,589.71	2,336.18	1,885.12		
1. Energy		324,580.67		1,298.78	15.88							1,562.27	4,712.94	785.32	732.90		
A. Fuel Combustion		0.00															
Reference Approach																	
Sectoral Approach		318,846.67		108.47	15.80							1,560.74	4,705.05	607.91	732.90		
1. Energy Industries		189,112.04		7.47	1.95							594.79	69.08	11.40	530.83		
2. Manufacturing Industries and Construction		43,600.70		2.43	0.82							380.27	294.92	13.70	135.77		
3. Transport		69,969.79		31.58	12.77							491.34	3,466.27	473.34	58.50		
4. Other Sectors		14,931.69		66.93	0.24							88.65	867.29	108.64	7.34		
5. Other		1,232.45		0.05	0.02							5.69	7.50	0.83	0.46		
B. Fugitive Emissions from Fuels		5,734.00		1,190.31	0.07							1.53	7.89	177.41	NE	NE	
1. Solid Fuels		NE		903.33	NE							NE	NE	NE	NE	NA	
2. Oil and Natural Gas		5,734.00		286.99	0.07							1.53	7.89	177.41	NE	NE	
2. Industrial Processes <sup>(1)</sup>		19,550.80		3.70	0.08	NE	1,694.44	NE	981.99	NE	0.00	45.00	8.21	70.46	1,152.22	NE	
A. Mineral Products		5,355.99		NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	16.73	NE	NE	
B. Chemical Industry		C		0.34	C		NA	NA	NA	NA	NA	NE	NE	NE	NE	NE	
C. Metal Production		14,194.80		3.36	0.08				981.99		0.00	45.00	8.21	0.10	1,152.22	NE	
D. Other Production		NE										NE	NE	53.63	NE	NE	
E. Production of Halocarbons and SF <sub>6</sub>							NO		NO		NO						
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	1,694.44	NE	NE	NE	NE	NE	NA	NA	NA	NA	
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2666.08 Gg CO<sub>2</sub>-e

Australia  
1999  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES																
CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
				P	A		P	A		P	A					
(Gg)				CO <sub>2</sub> equivalent (Gg)										(Gg)		
3. Solvent and Other Product Use	NA			NE									NA	NA	138.19	NA
4. Agriculture	NA	NA	3,553.24	80.33									1,092.86	14,616.79	852.65	NA
A. Enteric Fermentation			3,056.58													
B. Manure Management			89.93	3.37											NA	
C. Rice Cultivation			31.94												NA	
D. Agricultural Soils	NA	NA	NE	58.04											NA	
E. Prescribed Burning of Savannas			362.62	18.56									1,072.32	14,142.15	824.96	
F. Field Burning of Agricultural Residues			12.17	0.36									20.55	474.64	27.69	
G. Other			NA	NA									NA	NA	NA	NA
5. Land-Use Change and Forestry	25,445.88	0.00	206.20	2.25									78.01	4,251.76	486.09	NA
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-23,298.18														
B. Forest and Grassland Conversion	52,967.60	0.00	152.80	1.26									37.80	2,676.85	295.72	
C. Abandonment of Managed Lands	NA	0.00														
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54														
E. Other	0.00	0.00	53.40	0.99									40.21	1,574.91	190.37	NA
6. Waste	17.49		757.68	1.73									NE	NE	3.48	NE
A. Solid Waste Disposal on Land	NE		695.17										NE	NE	3.17	
B. Wastewater Handling			62.51	1.73									NE	NE	0.32	
C. Waste Incineration	17.49		NA	NA									NE	NE	NE	NE
D. Other	NA		NA	NA									NA	NA	NA	NA
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



Australia  
1999  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)										(Gg)			SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC					
					P	A	P	A	P	A								
Memo Items: <sup>(7)</sup>																		
International Bankers	9,752.78		0.15	0.29									105.62	14.05	8.05	49.91		
Aviation	7,268.09		0.03	0.22									38.89	11.98	5.97	1.37		
Marine	2,484.69		0.12	0.07									66.72	2.07	2.08	48.54		
Multilateral Operations	NE		NE	NE									NE	NE	NE	NE	NE	
CO <sub>2</sub> Emissions from Biomass	19,580.00																	

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
2000  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>				NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
						CO <sub>2</sub> equivalent (Gg)				CO <sub>2</sub> equivalent (Gg)				(Gg)							
						P	A	P	A	P	A	P	A	P	A	P	A				
Total National Emissions and Removals		365,526.10	0.00	5,943.81	106.92	NE	2,084.83	NE	1,103.21	NE	0.00	0.00	2,964.25	25,181.96	2,441.61	2,391.16					
1. Energy		330,222.67		1,361.00	16.79								1,584.33	4,574.78	809.22	746.25					
A. Fuel Combustion		331,945.81																			
1. Energy Industries		192,390.72		105.10	16.71																
2. Manufacturing Industries and Construction		42,588.54		9.17	1.97																
3. Transport		72,095.17		2.46	0.79																
4. Other Sectors		15,383.96		31.58	13.69																
5. Other		1,275.82		61.83	0.23																
B. Fugitive Emissions from Fuels		6,488.46		0.05	0.02																
1. Solid Fuels		NE		1,255.90	0.09																
2. Oil and Natural Gas		6,488.46		935.15	NE																
2. Industrial Processes <sup>(1)</sup>		18,744.66		3.33	0.07	NE	2,084.83	NE	1,103.21	NE	0.00	46.39	7.91	76.58	1,644.91						
A. Mineral Products		5,150.78		NA	NA							NE	NE	18.24	NE	NE					
B. Chemical Industry		C		0.44	C	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE	NE					
C. Metal Production		13,593.88		2.90	0.07				1,103.21		0.00	46.39	7.91	0.10	1,644.91						
D. Other Production		NE										NE	NE	58.24	NE	NE					
E. Production of Halocarbons and SF <sub>6</sub>							NO		NO		NO										
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	2,084.83	NE	NE	NE	NE										
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 2765.12 Gg CO<sub>2</sub>-e

Australia  
2000  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES															
	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)						(Gg)			NMVOC	SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO			
					P	A	P	A	P	A					
3. Solvent and Other Product Use	NA			NE							NA	NA	144.36	NA	
4. Agriculture	NA	NA	3,631.21	86.35							1,266.08	16,912.12	986.54	NA	
A. Enteric Fermentation			3,071.22												
B. Manure Management			91.05	3.60									NA		
C. Rice Cultivation			35.30										NA		
D. Agricultural Soils	NA	NA	NE	60.84									NA		
E. Prescribed Burning of Savannas			421.13	21.55							1,245.33	16,423.97	958.06		
F. Field Burning of Agricultural Residues			12.52	0.36							20.74	488.15	28.48		
G. Other			NA	NA							NA	NA	NA	NA	
5. Land-Use Change and Forestry	16,542.46	0.00	179.21	1.95							67.46	3,687.14	421.36	NA	
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-23,349.21													
B. Forest and Grassland Conversion	44,115.21	0.00	133.47	1.10							33.02	2,338.21	258.31		
C. Abandonment of Managed Lands	NA	0.00													
D. CO <sub>2</sub> Emissions and Removals from Soil	0.00	-4,223.54													
E. Other	0.00	0.00	45.74	0.85											
6. Waste	16.30		769.05	1.75							34.44	1,348.94	163.06	NA	
A. Solid Waste Disposal on Land	NE		705.75								NE	NE	3.55	NE	
B. Wastewater Handling			63.30	1.75							NE	NE	0.32		
C. Waste Incineration	16.30		NA	NA							NE	NE	NE	NE	
D. Other	NA		NA	NA							NA	NA	NA	NA	
7. Other (please specify)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Australia  
2000  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
	(Gg)				CO <sub>2</sub> equivalent (Gg)														
					P		A		P		A		P		A				
					P	A	P	A	P	A	P	A							
Memo Items: <sup>(7)</sup>																			
International Bunkers	10,099.67		0.16	0.30										113.81	14.31	8.35	56.42		
Aviation	7,330.88		0.03	0.22										39.24	12.09	6.02	1.38		
Marine	2,768.79		0.13	0.08										74.57	2.22	2.33	55.04		
Multilateral Operations	NE		NE	NE										NE	NE	NE	NE	NE	
CO <sub>2</sub> Emissions from Biomass	19,290.31																		

<sup>(7)</sup> Memo Items are not included in the national totals.

Australia  
2001  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs			PFCs			SF <sub>6</sub>			NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>			
						CO <sub>2</sub> equivalent (Gg)															
						P		A		P		A		P					A		
Total National Emissions and Removals		371,236.02	0.00	5,916.45	113.87	NE	2,744.46	NE	1,507.17	NE	NE	NE	3,191.91	28,028.24	2,119.39	2,258.11					
1. Energy		339,809.39		1,225.98	17.49								1,613.25	4,381.06	787.61	206.05					
A. Fuel Combustion		325,167.49																			
Reference Approach		333,347.19																			
Sectoral Approach																					
1. Energy Industries		198,870.90		97.06	17.40								1,611.29	4,372.10	579.59	206.05					
2. Manufacturing Industries and Construction		43,248.67		9.18	2.02								671.27	74.39	8.76	33.76					
3. Transport		74,086.56		2.29	0.72								381.26	273.04	15.52	106.24					
4. Other Sectors		15,710.34		31.25	14.41								458.84	3,226.91	458.56	59.66					
5. Other		1,430.71		54.27	0.23								93.20	789.58	95.84	5.86					
B. Fugitive Emissions from Fuels		6,462.20		0.06	0.02								6.71	8.19	0.90	0.54					
1. Solid Fuels		NE		1,128.92	0.08								1.96	8.96	208.01	NE					
2. Oil and Natural Gas		6,462.20		831.25	NA								NA	NA	NA	NA					
2. Industrial Processes <sup>(1)</sup>		18,297.13		297.67	0.08								1.96	8.96	208.01	NE					
A. Mineral Products		5,179.52		3.08	0.07	NE	2,744.46	NE	1,507.17	NE	NE	NE	56.61	8.07	71.54	2,052.06					
B. Chemical Industry		C		NA	NA								NE	NE	17.64	NE					
C. Metal Production		13,117.61		0.36	C	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE					
D. Other Production		NE		2.72	0.07								56.61	8.07	0.10	2,052.06					
E. Production of Halocarbons and SF <sub>6</sub>													NE	NE	NE	NE					
F. Consumption of Halocarbons and SF <sub>6</sub>						NE	2,744.46	NE	NE	NE	NE	NE									
G. Other		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				

P = Potential emissions based on Tier 1 approach of the IPCC Guidelines.

A = Actual emissions based on Tier 2 approach of the IPCC Guidelines.

(1) Excludes confidential Soda Ash Production and Use, Ammonia Production, Magnesia Production and Nitric Acid Production emissions representing 3477.12 Gg CO<sub>2</sub>-e

Australia  
2001  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	HFCs				PFCs				SF <sub>6</sub>				NO <sub>x</sub>	CO	NMVOC	SO <sub>2</sub>
					CO <sub>2</sub> equivalent (Gg)				CO <sub>2</sub> equivalent (Gg)				(Gg)							
					P	A	P	A	P	A	P	A								
3. Solvent and Other Product Use	NA	NA		NE											NA	NA	141.87	NA		
4. Agriculture	NA	NA	3,672.16	92.03											1,431.62	19,108.81	1,114.68	NA		
A. Enteric Fermentation			3,058.55																	
B. Manure Management			95.51	4.44													NA	NA		
C. Rice Cultivation			28.12														NA	NA		
D. Agricultural Soils	NA	NA	NE	62.81													NA			
E. Prescribed Burning of Savannas			476.92	24.41											1,410.33	18,600.03	1,085.00			
F. Field Burning of Agricultural Residues			13.05	0.37											21.29	508.77	29.68			
G. Other			NA	NA											NA	NA	NA	NA		
5. Land-Use Change and Forestry	13,113.19	0.00	204.86	2.50											90.43	4,530.30	0.00	NA		
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-21,827.14																		
B. Forest and Grassland Conversion	39,163.87	0.00	126.23	1.04											31.23	2,211.46	NA			
C. Abandonment of Managed Lands	NA	NA																		
D. CO <sub>2</sub> Emissions and Removals from Soil	NE	-4,223.54																		
E. Other	NA	NA	78.63	1.45											59.21	2,318.85		NA		
6. Waste	16.30		810.38	1.79											NE	NE	3.69	NE		
A. Solid Waste Disposal on Land	NE		745.71													NA	3.36			
B. Wastewater Handling			64.67	1.79											NA	NA	0.33			
C. Waste Incineration	16.30		NE	NE											NE	NE	NE	NE		
D. Other	NA	NA	NA	NA											NA	NA	NA	NA		
7. Other (please specify) <div></div>	NA	NA	NA	NA											NA	NA	NA	NA		
NA	NA	NA	NA	NA											NA	NA	NA	NA		

**APPENDIX 6—2002**

2001 Summary 1.A Summary report for National Greenhouse Gas Inventories (IPCC Table 7A)  
(Sheet 3 of 3)

**NATIONAL GREENHOUSE GAS INVENTORY 2002**

Australia  
2001  
Submission 2004

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO <sub>2</sub> emissions	CO <sub>2</sub> removals	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> equivalent (Gg)						(Gg)			SO <sub>2</sub>
					HFCs		PFCs		SF <sub>6</sub>		NO <sub>x</sub>	CO	NMVOC	
					P	A	P	A	P	A				
Memo Items: <sup>(7)</sup>														
International Bunkers	11,100.74		0.13	0.33							113.98	15.61	9.30	52.66
Aviation	8,567.30		0.01	0.26							45.61	13.63	7.16	1.61
Marine	2,533.44		0.12	0.07							68.37	1.98	2.14	51.05
Multilateral Operations	NE		NE	NE							NE	NE	NE	NE
CO <sub>2</sub> Emissions from Biomass	17,600.23													

<sup>(7)</sup> Memo Items are not included in the national totals.

