PROGRESS REPORT

FOR

Hydro Tasmania

Prepared for Reporting Period

1 July 2004 - 30 June 2005

Hydro Tasmania has used its best endeavours to ensure that the information contained in this report is correct and accepts that this report may be subject to independent verification. We remain committed to abating greenhouse gas emissions and will continue to seek opportunities for further abatement. We shall continue to promote our Greenhouse Challenge commitment to suppliers and customers and encourage them to adopt similar measures.

For and on behalf of Hydro Tasmania

Chief Executive Officer

Dated:

Item 1. CONTACT DETAILS

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Item 2. GREENHOUSE GAS EMISSIONS INVENTORY

Table 1. Hydro Tasmania 2004/05 Greenhouse Gas Emissions Inventory

SUMMARY ALL SITES/ACTIVITIES 2004/05						
Fuel/process	Consumption (Units)		Conversion factor		CO_2-e (Tonnes) Point source	CO_2-e (Tonnes)[1] Full Fuel Cycle
Electricity	156,350,979	kWh	0.006	kg CO_2-e/kWh	938	938
Natural Gas (non-transport)	9,268,446	GJ	N/A	kg CO_2-e/GJ	587619	587619
Petroleum Products						
Petrol/Gasoline	452	kL	2.5	t CO_2/kL	1130	1266.4
Automotive Diesel Oil	235	kL	2.7	t CO_2/kL	634.5	709.3
LPG - transport	8	kL	1.6	t CO_2/kL	13	15.1
Industrial diesel fuel	4,241	kL	69.7	kg CO_2/GJ	11706	13017
Aviation Turbine	42.4	kL	2.6	t CO_2/kL	110	123
Waste						
Co-mingled		t	1.2	t CO_2-e/t		
Paper and paper board	110	t	2.8	t CO_2-e/t	309	309
Oil [2]	126.9	kL	39.6	kg CO_2-e/GJ	389	389
Synthetic gases						
SF6	9.1	kg	23900[3]	t CO_2-e/t	219	219
HFC's	170.3	kg	1300	t CO_2-e/t	221	221
Other						
GROSS EMISSIONS					603289	604826
Offsets						
TOTAL OFFSETS						
NET EMISSIONS					603289	604826
TOTAL EMISSIONS					603289	604826

[1] These figures have been calculated using the AGO full fuel cycle emissions factors which are higher than the point source emissions factors. Because full fuel source emissions factors are used for all other calculations, for consistency they have been included here even though AGO recommends point source factors for petroleum products. Note: all percentages and calculations in this report are based on the full fuel cycle emissions calculations.

[2] The inclusion of waste oil figures is additional to the required reporting as this oil is collected and transported offsite to be recycled. Under the GHG accounting methods, this should be included in the end use business GHG profile, however, Hydro Tasmania is currently improving the tracking of such waste and until that time will report on the waste oil totals as part of the organizational accounting boundaries of the company.

[3] This figure is still used by the Australian Greenhouse Office despite revision of the global warming potential to 22,200 by the International Panel on Climate Change in 2001

Table 2. Comparison of Greenhouse Gas Emissions Profile and KPI Summary 2003-2005

Facility/Activity	2003/04 KPIs		2004/05 KPIs	
	Greenhouse Gas Emissions t CO_2-e /annum	Greenhouse Intensity t CO_2-e/GWh gen	Greenhouse Gas Emissions t CO_2-e/annum	Greenhouse Intensity t CO_2-e/GWh gen
Total Hydro Tasmania	529,700	48.8	604,826	56.1
Bell Bay	512,734	644.4	587,619	629.1
Total Hydro Tasmania excluding Bell Bay	16,967	1.7	17,207	1.7
Total Diesel Generation	13,051	816	13,017	839

Table 1 and 2 show that Bell Bay continues to dominate Hydro Tasmania's emissions profile, producing more than 97% of total emissions. This is followed by the Bass Strait Islands diesel generation, vehicle fleet and internal consumption as the top four greenhouse gas emissions sources.

Bell Bay power station was developed for backup generation in years when low water yields occur due to significantly less than average rainfall. 2004/05 was the eighth straight year of below average water yields. During 2004/05 water yields dropped to around 75 percent of the average and, with the exception of July 2004, below average yields were recorded for each month during that period. The shortfall in water availability is met from a combination of drawing on the long term storages (ie. Great Lake and Lake Gordon) and utilising Bell Bay power station. Hydro storage levels in 2004/5 declined from 38.2% (1/07/04) to 22.7% (01/07/05).

Hydro Tasmania electricity generation is required to meet an increasing electricity demand by Tasmanian users. Tasmanian electricity demand has increased to 10,770 GWh in the 2004/5 financial year from 10,725 GWh in the 2003/4 year. In the same period, due to low water yields, thermal generation has increased from 796GWh to 934GWh.

Hydro Tasmania is undertaking mitigation activities to maintain the electricity supply against the fluctuations in rainfall patterns. This includes cloud seeding which delivers on average 20MW of additional energy each year into the power system.

Energy efficiency and greenhouse management at Bell Bay power station is currently undertaken as part of core operational procedures for the site, separate to other Hydro Tasmania facility energy management.

Emissions Profile excluding Bell Bay Power Station

Of the remaining 2.5% of Hydro Tasmania emissions, 75% comes from the diesel power stations on King and Flinders Islands (see Figure 1), 12% from the vehicle fleet and 6% from internal energy consumption at Hydro Tasmania facilities.

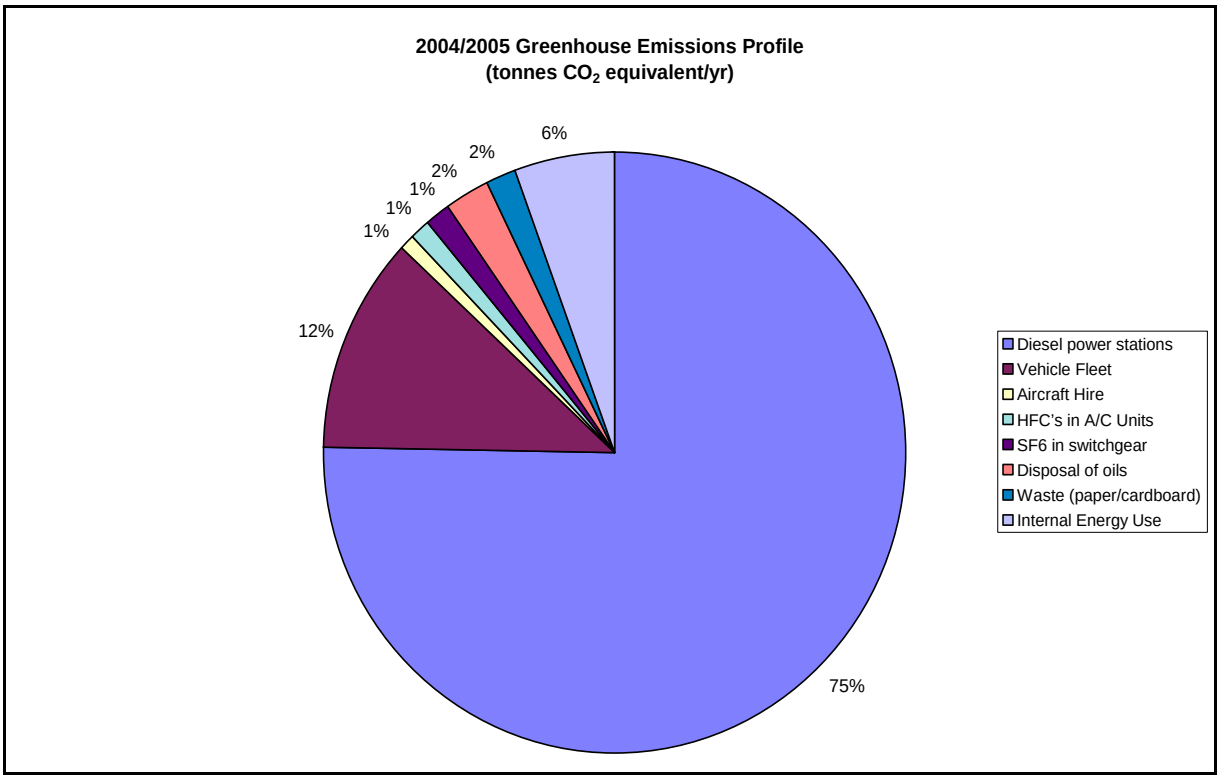

Figure 1. 2004/2005 Greenhouse Emissions Profile (excluding Bell Bay)

Diesel Generation and Bass Strait Islands

Total greenhouse gases emitted from diesel generation on the Bass Strait Islands (King and Flinders) have declined from 13,051 t CO_2-e in 2003/04 to 13,017 t CO_2-e in 2004/05. During 2004/05 emissions intensity from diesel generation was 839 t CO_2-e /GWh generated (see Table 3) while the energy efficiency value was 37 MWh consumed/GWh generated. This is compared with 816 t CO_2-e /GWh and 36 MWh consumed/GWh generated the previous year.

King Island diesel generation decreased from 12,000 MWh in 2003/04 to 11,110 MWh in 2004/05 while Flinders Island generation increased from 4,000 MWh to 4,267 MWh over the same period.

Overall trends show a decrease in emissions which can be primarily attributed to substitution of low-emission wind energy for diesel generation through the two 850 kW wind turbines added to the King Island wind farm during the previous reporting period. The turbines began operating in late 2003. The emissions decrease occurred despite an increase in emissions intensity at the King Island diesel station.

Actual energy efficiency and greenhouse gas emissions KPIs for the islands includes the 4.6GWh generated by the wind turbines on King Island. The KPIs reflect the inclusion of this low emission generation by bringing the total energy efficiency KPI down to 28.5 MWh/GWh generated consumed and the greenhouse KPI to 638 t CO_2-e /GWh generated. (This is compared with the 37.0 MWh of energy

consumed and 839 t CO_2-e / GWh generated which would have occurred without the extra wind generation).

Demand continues to increase on both islands, which is reflected in the increase in generation on Flinders Island. The King Island diesel power station emissions intensity also rose from 788 to 830 t CO_2-e/GWh (see Table 3) which is attributed to the efficiency drop in operation that occurs when running the plant at a lower load. The Flinders Island emissions intensity has declined from 899 to 889 t CO_2-e/GWh (see Table 3) during the same period. This is attributed to the increase in efficiency that occurs from running two of the newer generators at the higher load.

Research and development into alternative fuel supplies for the Islands is ongoing with the potential for a blended natural oil/diesel mix being investigated. The carbon block storage system research is also continuing which has the potential to increase the capacity to store renewable energy and thereby increasing total wind generation on King Island up to 75% of total generation.

Table 3. Comparison of Hydro Tasmania KPIs for Diesel Generation and Bass Strait Islands 2003-2005

Facility/Activity	2003/04 KPIs		2004/05 KPIs	
	Greenhouse Gas Emissions t CO2-e/annum	Greenhouse Intensity t CO2-e/GWh gen	Greenhouse Gas Emissions t CO2-e/annum	Greenhouse Intensity t CO2-e/GWh gen
King Island	9,454	788	9,223	830
Flinders Island	3,598	899	3,794	889
Total Diesel Generation	13,051	816	13,017	839
Total Islands Generation (diesel + wind)[4]			13,017	650

Vehicle Fleet

The Hydro Tasmania vehicle fleet currently consists of 280 vehicles. During the 2004/05 financial year, 90 new vehicles were purchased and 74 vehicles were disposed of, therefore bringing a total of 16 additional vehicles to the fleet. Table 4 outlines the total fuel consumption and KPI's for the vehicle fleet during the 2004/05 reporting period. A total of 696.3 KL of fuel (including ULP, diesel, premium) was consumed by the vehicle fleet and 7.34 million km traveled compared with 709.5 KL and 7.2 million km in 2003/04.

This reduction of 13,200 L occurred despite the increased number of vehicles in the fleet and an increase of 140,000 km traveled between 2003/04 and 2004/05. This efficiency increase is attributed to the vehicle fleet replacement policy which is moving Hydro Tasmania towards a 4 cylinder based fleet.

The majority of the new purchases were 4 cylinder vehicles and of the 74 vehicles replaced, 20 of the 6 cylinder vehicles were replaced by 4 cylinder vehicles. Also a fourth Toyota Prius petrol/electric hybrid was also purchased during this reporting period.

[4] Note the 2003/04 figures were not available.

The vehicle fleet greenhouse gas emissions are estimated at 1987 t CO_2-e per kL fuel consumed or 1981 t CO_2-e per GJ[5] of energy in the fuel consumed. This has declined from the previous year's totals of 1826 t CO_2-e per GJ in 2003/04.

The greenhouse intensity for 2004/05 of the vehicle fleet is 0.27 kg CO_2-e/km traveled.

Table 4. Hydro vehicle fleet emissions and emissions intensity for 2004/05.

Facility/Emission Source	Total fuel consumed (L)	Total km traveled	Greenhouse Gas Emissions t CO_2-e/annum	Greenhouse Intensity kg CO_2-e/km traveled
Vehicle Fleet	696,314	7,340,000	1,987[6]	0.27

Internal Energy Consumption

After the Islands diesel generation and the vehicle fleet, consumption of electricity at buildings and facilities forms the largest emission of greenhouse gases accounting for 6% (excluding Bell Bay) of emissions. Hydro Tasmania has control of a multitude of facilities, buildings and assets. Recorded emissions from this group have fluctuated since 1997, with internal energy use not being factored into the Hydro Tasmania's emissions profile before 1999, presumably attributable to a lack of or inconsistent data rather than no actual consumption.

Emissions from facilities and buildings are relatively small considering the number of facilities and total kWh consumption of electricity. This is largely as a result of the majority of the electricity being generated from hydropower which has been assigned a low emissions factor of 0.002 kg CO_2-e/kWh by the AGO. Internal electricity consumption is dominated by the Hobart head office (Davey and Elizabeth St) and Moonah office, the Lake Pedder Chalet and swimming pool, and the Waddamana museum. These sites are being targeted first for energy efficiency activities.

There are two significant considerations with emissions from internal electricity consumption. Firstly, with entry into the NEM, the emissions factor for Tasmanian electricity consumption (calculated by the AGO) is likely to increase. For example Hydro Tasmania's 2004/05 internal electricity consumption of 1.56GWh equates to only 938 t CO_2-e emitted using the current emissions factor for Tasmania of 0.006 kg CO_2-e/kWh. However, following entry into the NEM this will be recalculated and it is likely that this figure will increase. For example, an increased emissions factor for Tasmania such as 1.392 kg CO_2-e/kWh currently used by Victoria (brown coal dominant), applied to calculate Hydro Tasmania's current electricity consumption would increase internal consumption greenhouse gas emissions from 938 to 217,643 t CO_2-e. This results in an increase in Hydro Tasmania emissions of approximately 36% (not considering actual increase in consumption). Offsets such as purchasing green power could contribute to mitigating impacts, however it is not clear at this stage the extent of the impact and possible management solutions.

[5] Point source emissions factors give a total of 1790 t CO2-e/GJ and 1779 t CO2-e/ KL. See AGO Factors & Methods Workbook at http://www.greenhouse.gov.au/workbook/index.html

[6] This figure is calculated using full fuel cycle emissions factors.

Secondly, due to inconsistent data tracking and management of emissions across such a variety of complex facilities it is likely that significant room for improvement in efficiency of usage and management exists and actions will be further identified as the knowledge base continues to grow within the organisation.

Item 3. MAJOR GREENHOUSE GAS EMISSION ABATEMENT INITIATIVES

Since joining the Greenhouse Challenge Program Hydro Tasmania has undertaken a range of initiatives which have reduced emissions compared with business as usual activities. Table 5 indicates some of the major savings generated. It does not include all activities which may have reduced emissions due to difficulty in quantifying many smaller initiatives which lack solid baseline data.

Table 5. Estimated CO2-e savings from some major projects since joining the Greenhouse Challenge.

Reporting Period		CO_2-e Savings (tonnes/annum)						Total
Start	End	KIREX	Cloud Seeding	Bell Bay Oil to Gas	Woolnorth	Mini Hydro	Hybrid Vehicles	
Jul 96	Jun 97	0	0	0	0	0	0	0
Jul 97	Jun 98	537	0	0	0	0	0	537
Jul 98	Jun 99	1,726	0	0	0	0	0	1,726
Jul 99	Jun 00	1,903	0	0	0	0	0	1,903
Jul 00	Jun 01	1,776	0	0	0	0	0	1,776
Jul 01	Jun 02	1,691	71,166	0	0	0	4	72,861
Jul 02	Jun 03	1,975	71,166	44,520	26,311	1,715	4	145,691
Jul 03	Jun 04	2,936	112,908	81,571	61,223	4,202	7	262,846
Jul 04	Jun 05	3,633	110,217	110,111	142,453	8,564	7	374,985

Details and assumptions associated with quantifying the major abatement initiatives outlined in Table 5 are described below:

1. KIREX includes phases 1 and 2 of the King Island renewable energy project. Phase 1 being 3 x 250kW wind turbines installed in 1997/98, Phase 2 being 2 x 850kW wind turbines & 200kW Vanadium Redox Battery installed in 2003/04. Savings are estimated assuming the value of wind generated replaced diesel use on the island.
2. Cloud seeding for 04/05 and 03/04 is calculated based on an assumed average 20MW saving over the year (or 175GWh/yr) from the 2001 GHC Cooperative Agreement. There is a margin of variation associated with these figures due to assumptions. Production is assumed to replace generation at Bell Bay from gas, therefore underestimating savings for the years when Bell Bay was running on oil (see point 3 below). The figure does not include aircraft fuel for the cloud seeding flights which could overestimate emissions savings attributed to this activity, however, emissions associated with fuel consumption are calculated and included separately in each year's progress report. Note: cloud seeding savings per financial year before 2001 have not been included here in this table due to the error margin associated with the data.
3. Bell Bay oil to gas involved the replacement of 2 oil generators with gas generators, the first in Sept 2002, and second in November 2003. The gas used was converted to electricity produced and back calculated to find oil equivalent using 2002 oil generator data. Benefits from Bell Bay optimisation and supplementary generation projects have not been quantified as they are still in progress.
4. Woolnorth includes Stages 1 and 2 of the wind farm. Stage 1 being 6 x 1.75MW turbines installed in 2002, Stage 2 being 31 x 1.75MW turbines installed in 2004. It is assumed that the energy produced replaces Bell Bay production from gas.
5. Mini Hydro includes Parangana and Butlers Gorge (Nieterana) developments installed in 2002 and 2003/04 respectively. It is assumed that energy produced replaces generation at Bell Bay from gas.

6. Hybrid vehicles included are 3 Toyota Prius petrol/electric hybrid vehicles, purchased in 2001, 2002 and 2004. Their benefit is calculated based on reduced petrol consumption compared to a standard petrol only vehicle.

A range of ongoing projects and new initiatives continue to provide a foundation for reducing greenhouse emissions from Hydro Tasmania activities. Table 6 outlines these initiatives.

Table 6. Other abatement initiatives progressed during 2004/05.

FACTOR	DETAILS
Island wind/thermal energy storage.	Continued progress for the provision of a wind/thermal energy storage (carbon block) solution to meet the growing demand for renewable energy on King Island. Currently King and Flinders Island diesel power stations are the principal sources of HT's emissions after Bell Bay Power Station. This cutting edge research has the potential to increase the capacity to reduce diesel to around 25% of demand and increasing wind generation on King Island up to 75%. The Vanadium REDOX battery which was commissioned in the 2003/04 reporting period has been under repair during this reporting period and is expected to be operating again in late 2005.
Renewable Energy Research Development Demonstration & Commercialisation	Ongoing research and development into Increased storage capacity to support renewable energy sources such as wind and commercialisation of these technologies is also being undertaken. Investigation into alternative fuels such as biodiesel is also ongoing. Potential outcomes are a hydrogen vehicle program for Tasmania and low emission fuel replacement for the Bass Strait Islands diesel power stations.
Energy & Greenhouse Program	An internal energy efficiency and greenhouse program is in the early design stages to address the coordination of energy data, information, management and capacity building within the organisation and to align energy management issues with core business activities. It is anticipated that this Program will achieve significant long-term energy savings through the consideration of a number of options for reducing energy consumption and greenhouse emissions. These may include: • High level energy policy and procedures to facilitate energy management in activities; • Investigation into alternative fuels and offsetting of transport fuels and diesel generation, • Implementing a staff education and awareness program, • Energy efficient building initiatives, • Improved metering and monitoring of data, and • Internal and external communications strategy.
Sustainable Office Initiatives	Hydro Tasmania continues to use the refurbishment program at the Elizabeth St, Hobart, office as an opportunity to improve energy management and consumption at the site. Floors have been refitted with efficient lighting and reflectors with timers in meeting rooms. Investigations into further waste management and minimization at offices continues to determine energy use management at these sites. An outcome of the energy and greenhouse program also is expected to be improved measurement of actual energy reductions from office initiatives.

Vehicle Fleet Efficiency Initiatives	The vehicle replacement policy adheres to Best Practice Fleet Management, cost effective fleet utilisation, improved safety and lower running costs and recognises the emissions profile as a contribution to Hydro Tasmania's sustainable business image. Continued improvement of fleet efficiency performance is being conducted through replacement of 6 cylinder vehicles with 4 cylinder vehicles and purchase of Toyota Prius electric/petrol hybrid vehicles where possible. Emissions savings from the hybrid vehicles are currently estimated at 7 tonnes CO_2-e p.a
Power Station Upgrade Program	The upgrades and refurbishments program continues to deliver efficiency gains as a core component of the larger generation assets. The establishment of process to quantify such energy and emissions savings is an aim of the Energy and Greenhouse Program during the 2005/06 reporting period.

Item 4. OTHER MAIN FACTORS INFLUENCING EMISSIONS LEVELS

Developments in a range of key areas which may influence Hydro Tasmania's emissions profile are monitored as part of the commitment to the Greenhouse Challenge. These are associated with influences on current emissions, and also identification of new emissions sources.

Climate variations:

- Rainfall patterns are currently the largest key influence on Hydro Tasmania emissions with drought periods requiring Bell Bay power station to be run frequently over the past five years (as discussed in Item 2) contributing to the majority of emissions.

Changes to business operations:

- Entry into the NEM may increase emissions in the future, close monitoring of the system is taking place as part of regulatory requirements and commitments.
- Expanding business operations contributing to increased energy consumption and emissions such as an increase in staff numbers, and an increase in non-renewable assets.

Increased scientific understanding of the processes which cause climate change:

- Changes to emissions factors may occur as greater understanding is generated in the national and international scientific community.

Technology development:

- In addition to renewables research and development carried out at Hydro Tasmania, technological development is increasing efficiencies in many industrial processes such as in pump systems, lighting, HVAC, alternative fuels etc. Hydro Tasmania is monitoring these developments which have the potential to provide energy and greenhouse savings particularly in internal consumption emissions figures.

Item 5. KEY PERFORMANCE INDICATORS

The agreed key performance indicator used for the purposes of Greenhouse Challenge Plus progress reporting is emissions intensity of production: ***tonnes of CO_2-e emissions per unit of production***. On this basis, the greenhouse gas emissions intensity for Hydro Tasmania for the financial year 2004-2005 have increased from 49.4 t CO_2-e/GWh (for the 2003-2004 financial year) to ***56.1 t CO_2-e/GWh***, which represents a percentage change of 14.3 % (see Table 8). As discussed previously this is primarily due to increased use of the gas-fired Bell Bay power station to supply electricity during periods of low water storages. In years when the Bell Bay power station is not used, this figure has historically been about 2 t CO_2-e/GWh (the national average for electricity is about 1000 t CO_2-e/GWh reflecting the predominant use of fossil fuels).

Emissions from Hydro Tasmania activities excluding Bell Bay power station have declined 0.1 t CO2-e/GWh since 2003/04 to 1.6 t CO2-e/GWh.

Table 7. Key Performance Indicators for 2004/05

Greenhouse Gas Emissions t CO_2-e/annum		Greenhouse Intensity t CO_2-e/GWh gen
Total Hydro	604,826	56.1
Bell Bay	587,619	629.1
Total Hydro excluding Bell Bay	17,207	1.6

During 2002/03 the variance of total emissions increased 479% per unit generated (Table 8) and 482% per unit sent out (Table 9) which reflects the larger component of thermal generation compared to renewable energy in the generation mix due to increased use of Bell Bay. However in 2003/04 the increase is 48.8% and 48.7% respectively. Similarly, 2003/04 emissions intensity variance for Bell Bay (Table 10) shows a 10% reduction from the previous year's emissions intensity. Previously the emissions intensity was also declining, but only by between 6 and 7%. These trends are attributed primarily to the conversion of Bell Bay power station from oil to gas which involved the replacement of 2 oil generators with gas generators, the first in Sept 2002, and second in November 2003. Impacts of this conversion on emissions totals impacted minimally during the 2002/03 period, but more so during 2003/04 after both units were completed.

Table 8. Emission intensity for entire Hydro Tasmania operations per unit generated (GWh generated)

Tonnes of CO_2-e	Total units of measure	KPI value t CO_2-e / GWh	Last reported KPI t CO_2-e / GWh	KPI variance
2001/02:	57,761 t CO_2-e 10,213 GWh	5.7	6.8	-16.2%
2002/03:	344,536 t CO_2-e 10,455 GWh	33.0	5.7	+479%
2003/04:	526,445 t CO_2-e 10,725 GWh	49.1	33.0	+48.8%
2004/05:	604,826 t CO_2-e 10,770 GWh	56.1	49.1	+14.3%

Table 9. Emission intensity for entire Hydro Tasmania operations per GWh sent out[7]

Tonnes of CO_2-e	Total units of measure	KPI value t CO_2-e / GWh	Last reported KPI t CO_2-e / GWh	KPI variance
2001/02:	57,761 t CO_2-e 10,165 GWh	5.7	6.9	-17.4%
2002/03:	344,536 t CO_2-e 10,390 GWh	33.2	5.7	+482%
2003/04:	526,445 t CO_2-e 10,666 GWh	49.4	33.2	+48.7%
2004/05:	604,826 t CO_2-e 10,682 GWh	56.6	49.4	+14.6%

Table 10. Emission intensity for Bell Bay Power Station (full fuel cycle)

Tonnes of CO_2-e	Total units of measure	KPI value t CO_2-e / GWh	Last reported KPI t CO_2-e / GWh	KPI variance
2001/02:	46,752 t CO2-e 62 GWh	758	812[8]	-6.7%
2002/03:	327,363 t CO2-e 460 GWh	712	758	-6.1%
2003/04:	510,319 t CO_2-e 796 GWh	641	712	-10.0%
2004/05:	587,620 t CO_2-e 934 GWh	629	641	-1.9%

Site and process specific Energy Performance Indicators (where applicable) are being developed as part of the internal Energy Efficiency and Greenhouse Program. These will assist in benchmarking energy and greenhouse performance at a more detailed level and allow targeted energy and greenhouse reduction initiatives.

[7] Energy sent out is total energy less local consumption in power stations and pumping load. Figure for 2003/04 is consistent with the previous years average internal use and loss rate of 0.55% which translates to 59 GWh.
[8] 2000/01 figure assumed power station efficiency of 36.5%. Subsequent years intensity based on measure of actual fuel burned indicates that the assumed efficiency may have caused underestimation of emission total, and that the emission factor should have been closer to 760.

Item 6. SITE-BY-SITE REPORTING (OPTIONAL)

Table 11 shows the total emissions and emissions intensity for 2004/05 of the three top greenhouse gas emitters in Hydro Tasmania's profile which account for 99.84% of total emissions.

Table 11. Hydro Tasmania total emissions and emissions intensity 2004/05 for major emitters

Facility/Activity	2004/05 KPIs	
	Greenhouse Gas Emissions t CO_2-e/annum	Greenhouse Intensity t CO_2-e/GWh generated
Total Hydro Tasmania	604,826	56.1
Bell Bay	587,619	54.5
Total Hydro Tasmania excluding Bell Bay	17,207	1.6
King Island	9,223	830
Flinders Island	3,538	889
Total Diesel Generation	13,017	839
Total Islands Generation (diesel + wind)	13,017	650
Vehicle Fleet	1,987[9] 1,779[10]	0.27 kg CO_2-e/km traveled

[9] The top figure is calculated using the emissions per KL full fuel cycle emissions factors.
[10] The bottom figure is calculated using the emissions per KL point source emissions factors.

Item 7. PUBLIC STATEMENT

Company Operations

Hydro Tasmania contributes about 60 percent of Australia's renewable energy through hydro power stations in Tasmania with increasing commercial involvement nationally and internationally. We have three major business interests. The Energy business manages and operates power stations and related hydro infrastructure for the generation and trading of electricity. The Consulting business provides specialised services to clients in Australia and overseas. Hydro Tasmania also has a 50 percent interest in Roaring 40s - a joint venture with CLP Power Asia Limited to pursue renewable energy developments in Australia and overseas. The changes in Roaring 40s ownership occurred outside the 2004/05 reporting year, therefore, any impacts on greenhouse gas emissions profiles due to organisational changes will be reported in the 2005/06 Greenhouse Challenge Plus Progress Report.

For the 2004/05 reporting year Hydro Tasmania assets included twenty-nine hydro-electric power stations, a gas-fired thermal power station at Bell Bay, two small diesel power stations on King and Flinders Islands, five wind turbines on King Island at the Huxley Hill wind farm, the Woolnorth wind farm in the state's north west and offices, buildings and pumping stations. Total installed generating capacity was 2,570MW. Tasmanian electricity demand increased to 10,770 GWh in the 2004/05 financial year from 10,725 GWh in the 2003/04 year. In the same period, due to low water yields, thermal generation increased from 796GWh to 934GWh. Hydro Tasmania entered the National Electricity Market (NEM) in May 2005. Basslink, an interconnection of the Tasmanian and eastern seaboard electricity grids, in is expected to be completed by the end of April 2006.

Hydro Tasmania's current business environmental and sustainability framework is well advanced and guides energy and greenhouse gas management. The framework is supported by an Environment and Sustainability Management System certified to ISO14001. This includes a Sustainability Policy, an Environmental Policy, a number of environmental procedures and sustainability reporting. Sustainability performance was reported publicly in the *Hydro Tasmania Annual Report 2004/005 Incorporating the Inaugural Sustainability Report*. The organisation has also been involved in the development of the International Hydro Power Association Sustainability Guidelines and Compliance Protocol as well as the World Wind Energy Association Sustainability and Due Diligence Guidelines.

Emissions Update

Table 1. Hydro Tasmania total emissions and emissions intensity for 2004/05

Facility/Activity	2004/05 KPIs	
	Greenhouse Gas Emissions t CO_2-e/annum	Greenhouse Intensity t CO_2-e/GWh gen
Total Hydro Tasmania	604,826	56.1
Bell Bay	587,619	629.1
Total Hydro Tasmania excluding Bell Bay	17,207	1.6

In the 2004/05 reporting period, Bell Bay continued to dominate Hydro Tasmania's emissions profile, producing more than 97% of emissions. Bell Bay power station was developed for backup generation in

years when low water yields occur due to significantly less than average rainfall. 2004/05 was the eighth straight year of below average water yields. During 2004/05 water yields dropped to around 75 percent of the average and, with the exception of July 2004, below average yields were recorded for each month during that period. The shortfall in water availability is met from a combination of drawing on the long term storages (ie. Great Lake and Lake Gordon) and utilising Bell Bay power station. Hydro storage levels in 2004/05 declined from 38.2% (1/07/04) to 22.7% (01/07/05). The highest emission sources for Hydro Tasmania after emissions from the thermal station are from the Bass Strait Islands diesel power stations, followed by the vehicle fleet, then internal electricity consumption from facilities such as power stations, offices, telemetry and dwellings.

Hydro Tasmania is undertaking mitigation activities to maintain the electricity supply against the fluctuations in rainfall patterns. This includes cloud seeding which delivers on average 20MW of additional energy each year into the power system. A number of greenhouse gas reduction initiatives were carried out during 2004/05, increasing greenhouse gas emission savings to approximately 375,000 tonnes CO_2-e since joining the Greenhouse Challenge Program in 1997. These activities include:

- Addition of wind turbines on King Island, the change over of Bell Bay power station from oil to gas, electricity supplied by the Woolnorth Wind Farm and mini hydro developments.

- Internal Energy Management continues with the initial development of an internal Energy and Greenhouse Program across all Hydro Tasmania operations in 2004/05. This program will be further developed in 2005/06 to incorporate energy and greenhouse issues into the core business framework. It is anticipated that this Program will achieve significant long-term energy savings through a range of initiatives and organisational modifications.

- The vehicle fleet continues to improve efficiency through the vehicle purchasing policy which encourages 4 cylinder replacement of 6 cylinder vehicles. In 2004/05 the fourth Toyota Prius petrol/electric hybrid was added to the Hydro Tasmania fleet.

- Ongoing cutting-edge research and development projects such as large scale battery storage capacity to support renewable energy sources such as wind power on the Bass Strait Islands. Investigations into low emission fuel replacement for the Bass Strait Islands diesel power stations are also being conducted.

- There has been further progress in implementing cultural change with regard to energy efficiency through the office equipment purchasing policy and travel management program. Plans to support these initiatives through a coordinated program will provide means for monitoring and targeting savings.

Despite actions carried out to date, a number of challenges will remain for Hydro Tasmania's energy use and emissions profile:

- Increased use of the gas-fired thermal Bell Bay Power Station during low water storages in dry periods continues to increase greenhouse gas emissions.
- The Basslink interconnector between Tasmania and the Australian mainland will be completed during the next reporting period. This will ensure entry of Hydro Tasmania's energy supply into the National Electricity Market (NEM). It may lead to increased emissions through internal electricity consumption being sourced from a range of electricity suppliers including fossil fuel based sources, therefore this will need to be managed carefully.

Hydro Tasmania will endeavor to improve efforts to coordinate energy and greenhouse management under the Greenhouse Challenge Plus Program to provide practical and effective greenhouse reductions throughout the business while continuing to deliver a secure energy supply to Tasmanian consumers.