

WE PROMOTE HIGH ACHIEVEMENT

Delta's environment policy commits the business to leadership in environmental care. Delta's promotion of high achievement has resulted in our accreditation to an international environmental standard. A comprehensive environmental management program targets compliance with all statutory environmental regulations and continual improvement of environmental performance.

COMPLIANCE WITH ENVIRONMENTAL LEGISLATION AND REGULATIONS

Delta's operations are subject to a range of statutory environmental regulations. There are a number of Acts that govern the general requirements for managing the impacts of the generation portfolio, and specific environmental licences with conditions for each power station. Compliance with these obligations is an environmental policy commitment of the business.

The governance of Delta's environmental management performance is through monitoring of environmental systems and regular reporting. The structure and process of reporting ensures the escalation of significant environmental issues, and the allocation of resources to implement corrective preventative actions.

A recent initiative to the governance arrangements is the entry of all environmental incidents into Delta's enterprise resource system. In this system, the remedial actions from environmental investigations are integrated with operations and maintenance procedures for each power station, reducing the risk of a repeat incident.

Another feature of Delta's approach to environment management is the reporting and investigation of incidents that are not breaches of licence conditions or statutory regulations. The findings from these lesser incidents are used to improve procedures and processes for better environmental performance.

Environmental incidents are classified into one of three categories as follows:

Category 1 issues involve a breach of licence conditions or other statutory regulations. These are considered the most serious and are reported at Board level.

Category 2 issues are those involving a near miss or potential licence or other statutory regulation breach. For example, this could involve a spill that was contained by a last line of protection, or some indication of a possible or potential breach.

Category 3 issues are minor incidents contained locally. They are monitored to assist in identifying areas where improvement in procedures or systems may be required.

Delta Electricity's 2004/05 environmental compliance performance relative to previous years is shown in Figure Three.

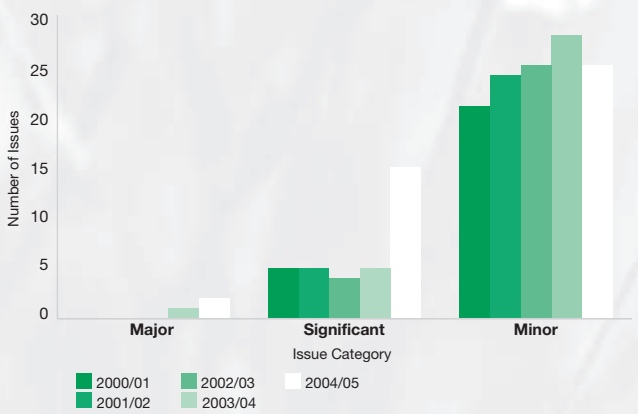
Licence Compliance

Delta has proved it can successfully manage the environmental licence conditions for each of its power stations. In the three years covering 2000/01 to 2002/03, no licence breaches occurred. However, the scale of the operations does result in occasional environmental incidents. Any environmental breach is thoroughly investigated to identify its cause and the remedial action necessary to prevent any recurrence.

There were two environmental licence breaches in the year. A technical breach arose from a contractor's failure to collect ambient nitrous oxides and oxides of sulfur data near Mt Piper Power Station in the last two months of 2004. A procedure was amended to ensure future compliance.

The other breach resulted from dust burden testing at Vales Point Power Station on 31 March and 1 April 2005. This testing showed the dust burden to be in excess of the licence limit. The installation of additional instruments and conservative operation of units has since maintained

FIGURE THREE: **ENVIRONMENTAL ISSUES**



Pictured left, left to right:

Gordon Deans, Environment Manager, and Brett Corderoy, Project Development Analyst.

New ash hoppers at Wallerawang Power Station improve environment impacts of ash disposal.

Re-vegetation of newly capped surface at Vales Point ash dam reduces wind–borne dust.

emission levels within licence limits. An extensive program of testing determined that the level of emissions was the result of a number of coincident factors and a subsequent engineering and commercial assessment has resulted in a decision to install fabric filters at the station in 2007. This technology is capable of removing all visible dust emissions and when fully installed is expected to resolve this issue.

Other Incidents

The increase in the number of Category 2 (near miss) incidents reported in the year all related to instrumentation indicating high dust emission levels at Vales Point. In all cases, the dust emission level was within licence limits but unit load was reduced to control emissions and prevent any possibility of a licence breach.

BEYOND COMPLIANCE

ISO 14001:2004

Delta was the first NSW electricity generator to gain accreditation to the international standard ISO 14001 Environmental Management System. The accreditation was received in 2001 and has been retained each year through an annual surveillance audit. The standard was revised in 2004 and some management aspects were strengthened. This year Delta undertook to upgrade its certification to the revised standard and accreditation was received in June 2005. The accreditation remains in force for the next three years, subject to ongoing surveillance audits.

Environmental Audits

Every two to three years Delta also undertakes voluntary audits of its facilities and processes and its compliance with licence conditions. This ongoing program involves independent external auditors reviewing environmental controls and systems, management practices and performance records.

Apart from detailed inspection of all facilities, the auditors rigorously check compliance with all licences, statutory obligations and industry Codes of Practice. Findings, recommendations and agreed action plans are reported to the Executive Environment Committee for endorsement, with a quarterly summary report to the Board.

The following audits have been conducted regularly since 2000:

- Facilities and Process
  (Physical protection systems and operating procedures);
- Legislative Compliance
  (Compliance with legislation, licences or other statutory requirements);
- Environmental Management
  (Systems and procedures used to identify and manage environmental risks);
- ISO 14001 Certification
  (Meets the requirements of JAS – ANZ Environmental Management Systems);
- ESAA Code of Environmental Practice
  (A voluntary code of the Energy Supply Association of Australia); and
- Due Diligence
  (A legal assessment of the effectiveness of the environmental management system)

Although there may be some subjectivity in the classification of recommendations between different audit teams, there has been a steady improvement. The total number of high and medium recommendations (Categories 1 and 2) has fallen from 79 in 2000, to 60 in 2002/03 and to 51 in 2005.

ESAA Code of Environmental Practice

As a member of the Energy Supply Association of Australia (ESAA), Delta has committed to the industry Code of Environmental Practice. This voluntary code covers the four policy areas of sustainable development, social responsibility, environmental management and resource management.

Compliance with the Code is audited every two years and the results scaled on a range of 1 – 5, where 5 represents industry leadership or best practice and 0 represents no evidence of Code compliance. Figure Four shows Delta's performance relative to the industry average as assessed in November 2004 by independent auditors.

ESAA Code of Sustainable Practice

This scoring system used in the ESAA Code of Environmental Practice is no longer contemporary as it does not incorporate economic and social factors and corporate governance, which are equally important for sustainable operations.

Accordingly, the ESAA has developed a Code of Sustainable Practice which incorporates these other dimensions. A series of guidelines, largely based on the Global Reporting Initiative have also been produced and are available from the ESAA web site at www.esaa.com.au. Delta has committed to this Code, and future reports will contain our performance against the Code of Sustainable Practice.

Monitoring Community Concerns

Delta has monitored and classified community concerns since its formation in 1996, with the results of the last five years shown in Figure Five. Where possible, measures are taken to address the public concerns in a timely manner.

Figure Five demonstrates a heightened concern in the community about stack dust emissions. Almost all these contacts from the community were in response to Vales Point stack emissions, where considerable difficulty was experienced in maintaining precipitator performance. A decision to install fabric filters at the station in 2007 has been welcomed by the community and the number of concerns is expected to reduce considerably in the future.

Management of Emergency Situations

Protection of the environment and minimisation of environmental impact have been given a high priority in the development of operational procedures. However, certain materials used on site still have the potential to create an environmental hazard. Environmental emergency response plans are in place to guide station personnel in preventing environmental damage or contamination should a spill of chemicals or oil products occur.

Training is an important element of the plans in maintaining staff awareness and skills. During the year, one environmental emergency response exercise was conducted in each region. Following the ISO 14001 audit recommendation, this will be increased to one exercise per power station site in 2005/06.

ENERGY AND RESOURCE CONSERVATION

Energy Efficiency and Conservation

Delta has produced a policy consistent with the NSW Government's "Cleaner NSW Government Fleet" designed to encourage the use of smaller, more fuel efficient vehicles. A number of electric/hybrid vehicles are being purchased for general transport uses and, where practical, a number of 4-wheel drive station vehicles are being progressively upgraded to more fuel-efficient 2-wheel drive models.

As part of the renewed Greenhouse Challenge Plus Program, Delta will be preparing a suite of potential energy savings measures for implementation over the next five years. These options include generation efficiency improvements and other measures to reduce energy use in the power stations. One measure currently being pursued is the replacement of existing fluorescent lighting with low energy fluorescent lights. This program will be implemented at Vales Point, with other sites to follow.

Innovation

Wallerawang cooling towers use a mixture of water from a number of different sources. In order to prevent corrosion and scaling in the cooling water circuits and to meet stringent water quality limits for cooling tower blowdown, it is necessary to use a significant quantity of the high quality Fish River supply water. By installing automation on the cooling tower makeup and blowdown, it has been possible to reduce Fish River water use.

Resource Reuse and Recycling

During a severe drought period, ash dam water from Wallerawang ash dam was progressively used in the cooling towers. By carefully blending this water with the other supplies, it was possible to reuse approximately 1,000 megalitres of otherwise unusable water.

In an agreement with Centennial Coal, construction of a pipeline from Springvale mine to Wallerawang has commenced. This will allow mine water discharges to be redirected for use at the station, significantly increasing water security. It will also allow the dam to refill at a faster rate when normal rainfall conditions return, which will allow the normal environmental flow regime to be re-established.

Both Vales Point and Mt Piper power stations use a blend of re-refined oil and diesel for boiler light up and mill changes. The recycled component equates to approximately 2,460 tonnes of new diesel fuel saved.

GREENHOUSE GAS REDUCTION STRATEGIES

Generator Efficiency Standard

In March 2001, Delta became Australia's first electricity generator to join the Federal Government's Generator Efficiency Standards (GES) program. The standards encourage businesses to achieve movement towards best practice in fossil fuel generation performance and, as a result, reduce greenhouse gas emissions.

Delta's performance under the Commonwealth Government's GES is shown in Figure Six. All sites are operating at or near the lower emission level bound, which defines best practice for plant type, plant age and plant output factor (average in service load compared to maximum possible).

FIGURE FOUR: **CODE OF ENVIRONMENTAL PRACTICE AUDIT SCORES**

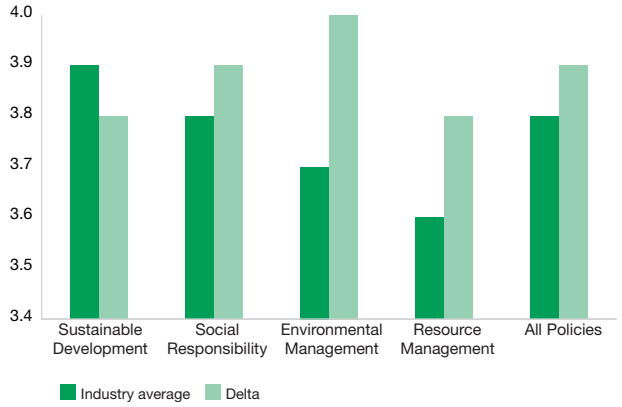
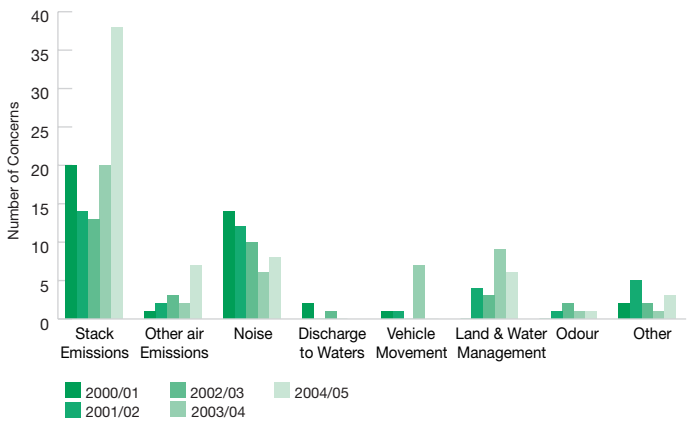


FIGURE FIVE: **COMMUNITY ENQUIRIES**



As the five year agreement ends in early 2006, a number of projects to further improve efficiency are being considered for inclusion in the next Greenhouse Challenge Plus agreement. For example, it may be possible to increase both the capacity and efficiency of the units at Mt Piper, already the most efficient power station in NSW, to rival the efficiency of some newer super-critical plant in other states.

Research into New Power Generation Options

Delta continues to support the COAL 21 Research initiative that aims to develop "breakthrough technologies" for coal fired generation with minimal emissions. This program is targeted at long-term improvements.

Delta is a participant in the Cooperative Research Centre for Coal in Sustainable Development. The Centre brings together coal and electricity companies, universities and the CSIRO to:

- improve understanding of the place of coal in the transition to sustainable development in a changing world, through responsive and collaborative research, technology transfer, and education and training;
- conduct scientific research to:
  - improve environmental performance of current technologies;
  - reduce the risk inherent in adopting emerging clean coal technologies; and
- identify appropriate transition paths and policies for coal use.

To be in a position to implement readily deployable solutions to any potential energy shortage in the short to medium term, Delta is developing a number of possible gas fired generation sites. The sites, at Munmorah Power Station, Bamarang near Nowra and near Marulan on the Southern Highlands, were selected due to access to transmission lines, gas supplies and environmental suitability. Table Three provides details of all Delta's current development projects.

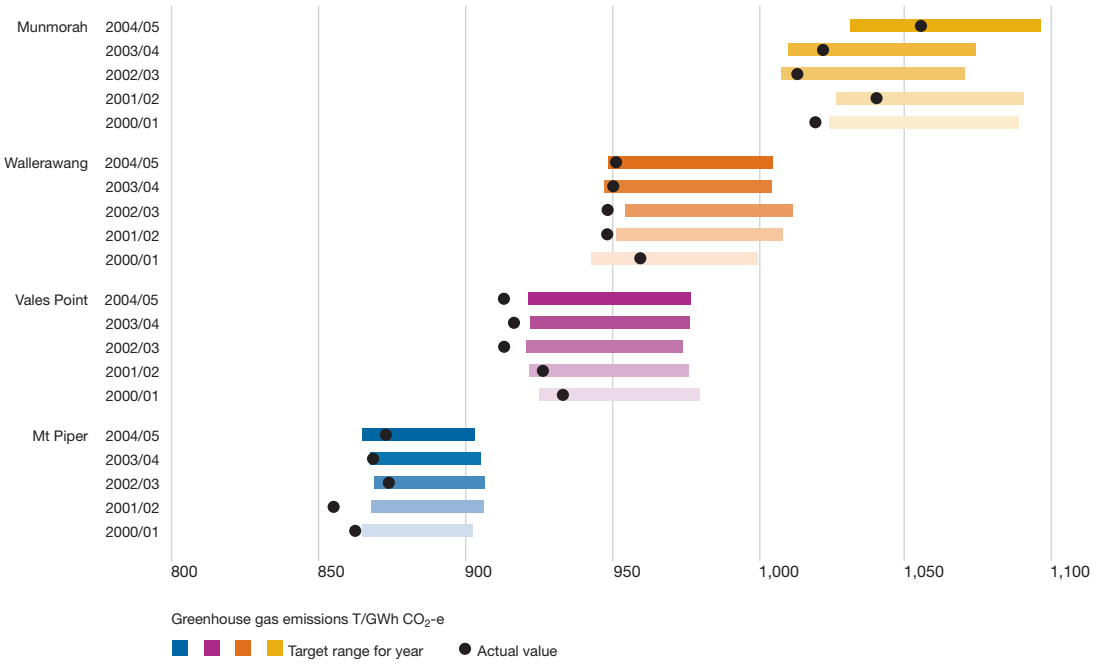
Renewable Energy Development

Delta generated 25.6 GWh of renewable energy in 2004/05, slightly less than the previous year. Mt Piper, Chichester and Dungog mini-hydros performed well and sustainable biomass co-firing was increased at Vales Point and Wallerawang power stations. This was offset by a discontinuation of co-firing at Mt Piper when investigations determined that the ball mills at Mt Piper are not suitable for processing biomass material.

Committed new projects include two 30 MW co-generation plants at the Condong and Broadwater sugar mills and two mini-hydros at Glennies Creek Dam and Windamere Dam. These mini-hydro projects remain on hold due to continuing low water levels in these dams. The sugar mill projects have proceeded to financial close and construction is expected to commence in September 2005. Table Three provides details of all Delta's current development projects.

The Federal Government has decided that the Mandatory Renewable Energy Target will not be increased, indexed with inflation or extended beyond 2020. This significantly affects the viability of renewable energy projects, in particular the Gunning Wind Farm, which require long and certain price paths to enable the higher up-front capital costs to be recovered.

FIGURE SIX: **GENERATOR EFFICIENCY STANDARD PERFORMANCE**



ENVIRONMENTAL EDUCATION AND TRAINING

Delta Electricity's environmental training program was developed in conjunction with Bathurst TAFE and consists of eight modules as follows:

1 Environmental Policy and Standards
2 Emergency Response Procedures
3 Waste Minimisation
4 Environmental Legislation
5 Understanding the Environmental Management System
6 Power Station Environmental Aspects and Impacts
7 Pollution Control Equipment and Systems
8 Environmental Issue Investigation Techniques

All staff are required to complete the first three modules. As well as finishing the first three modules, staff with identified environmental responsibilities are required to undertake any of the additional modules appropriate to their role and position. In 2004/05, the environmental awareness program has continued, with all site staff and most corporate office staff now having completed the first three modules.

SITE REHABILITATION AND CONSERVATION PROGRAMS

The ash dam at Vales Point is being filled in discrete segments, with each segment isolated from the main dam by a water permeable fence. As a segment is completely filled, the ash discharge point is relocated to a new segment and the filled area capped and revegetated. This ensures that a minimum area of ash is exposed to winds, reducing wind-borne dust. In the year, ash capping of approximately 10 hectares of a 100 hectare segment was completed. Revegetation of the newly capped surface with native grasses will commence in the next year.

Nine bushfire management zones have been created in Vales Point and Munmorah buffer areas and hazard reduction burning was carried out. This program ensures that residential zones are protected from serious bushfires whilst allowing native flora and fauna to move to nearby sanctuary areas.

A new underground coal conveyor has been constructed, linking the recently established Mandalong coal mine to Vales Point coal rail unloader conveyor. The route from the mine to the existing conveyor has avoided any impact on flora and fauna. A monitoring program has commenced at the conveyor connection site to ensure that the significant flora and fauna in this area are not impacted adversely.

TABLE THREE: **DEVELOPMENT PROJECTS**

Project	Description	Status
Sunshine Electricity Joint Venture	60 MW with plant to be operational by mid-2007.	Financial close reached and construction commenced.
Gunning Wind Farm	62 MW plant consisting of 31 turbines.	Development consent granted in November 2004.
Munmorah Gas Turbines	600 MW open cycle gas turbines with operation possible for 2008/09.	Preparation of environmental assessment.
Bamarang Gas Turbines	400 MW of combined cycle gas plant with operation possible for 2008/09.	Preparation of environmental assessment.
Marulan Gas Turbines	400 MW of combined cycle gas plant with operation possible for 2009/10.	Preparation of environmental assessment.
Mt Piper Extension	Two air-cooled, super critical 750 MW units by 2011-2013.	Preparation of environmental assessment.
Mt Piper Upgrade	Increase capacity of the existing two units from 660 MW to 750 MW planned for 2008/09.	Preparation of environmental assessment.
Munmorah and Vales Point Capacity Upgrade	Dependant on outcome of feasibility studies	Feasibility studies in progress.

ENVIRONMENTAL PERFORMANCE INDICATORS

The information presented in Tables Four and Five conform to the Environmental Performance Indicator Guidelines recommended for the Australian Electricity Industry by the Energy Supply Association of Australia. For further details on these guidelines refer to the ESAA website at http://www.esaa.com.au

TABLE FOUR: **MANAGEMENT INDICATORS**

Total number of incidents reported to legislators	2
Warnings, infringement notices and prosecutions	Nil
Penalties for non-compliance	Nil

ESAA Code of Environmental Practice Audit Results (Maximum score in each category is 5)	**Delta Score**	**Industry Average**
Code Policy A – Sustainable development	3.8	3.9
Code Policy B – Social responsibility	3.9	3.8
Code Policy C – Environmental management	4.0	3.7
Code Policy D – Resource management	3.8	3.6
All Policies	3.9	3.8
Fraction of activity with EMS to ISO 14001:2004	100% of thermal generating sites	

TABLE FIVE: **PERFORMANCE INDICATORS**

Greenhouse gas emissions (tonnes, t/GWh sent out)	Mt Piper	8,273,237 t	873 t/GWh
	Wallerawang	4,651,404 t	952 t/GWh
	Vales Point	5,952,313 t	913 t/GWh
	Munmorah	893,633 t	1,056 t/GWh
	Delta total	19,770,587 t	909 t/GWh
NOx emissions (tonnes, t/GWh sent out @ 7% O_2)	Mt Piper	27,263 t	2.88 t/GWh
	Wallerawang	11,549 t	2.36 t/GWh
	Vales Point	15,896 t	2.43 t/GWh
	Munmorah	1,868 t	2.21 t/GWh
	Delta total	56,576 t	2.60 t/GWh
SOx emissions (tonnes, t/GWh sent out @ 7% O_2)	Mt Piper	39,947 t	4.21 t/GWh
	Wallerawang	23,119 t	4.72 t/GWh
	Vales Point	22,799 t	3.49 t/GWh
	Munmorah	2,848 t	3.37 t/GWh
	Delta total	88,713 t	4.08 t/GWh
PM10 dust emissions (tonnes, t/GWh sent out)	Mt Piper	268 t	0.03 t/GWh
	Wallerawang	838 t	0.17 t/GWh
	Vales Point	1,553 t	0.24 t/GWh
	Munmorah	92 t	0.11 t/GWh
	Delta total	2,751 t	0.13 t/GWh
CO emissions (tonnes, t/GWh sent out)	Mt Piper	1,043 t	0.11 t/GWh
(calculated by default emission factors)	Wallerawang	539 t	0.11 t/GWh
	Vales Point	719 t	0.11 t/GWh
	Munmorah	93 t	0.11 t/GWh
	Delta total	2,393 t	0.11 t/GWh
Net water used by source (ML, ML/GWh sent out)	*Direct extraction from river systems (see below)*		
	Mt Piper	14,056 ML	1.48 ML/GWh
	Wallerawang	7,664 ML	1.57 ML/GWh
	Domestic (treated) water from council supply		
	Vales Point	828 ML	0.13 ML/GWh
	Munmorah	416 ML	0.49 ML/GWh
	Delta total	22,964 ML	1.06 ML/GWh
Influence on water flows (surface or groundwater)	**Coxs River System**		
	Natural inflows		15,411 ML
	Non-natural inflows (STP, mines)		2,135 ML
	Environmental flows		-2,075 ML (13.5% of natural inflow)
	Evaporation and losses		-2,128 Ml
	Extracted by power stations		-16,762 ML
	Change in storage ML		-3,419 ML
	Fish River System		
	Extracted by power stations		-4958 ML

Pictured right, left to right:

The Working Bodies program promotes healthy eating, exercise and lifestyle change.

Alex Colvin, 1st Year Apprentice, Delta Maintenance.

Restoration of St John's Church Wallerawang which Delta has supported.

		Black Coal	**Fuel Oil**
Energy consumption by fuel source			
	Mt Piper	92.0 PJ	0.08 PJ
	Wallerawang	53.2 PJ	0.09 PJ
	Vales Point	66.3 PJ	0.18 PJ
	Munmorah	9.9 PJ	0.04 PJ
	Delta total	221.4 PJ	0.39 PJ
Thermal efficiency (% sent out)	Mt Piper	37.0%	
	Wallerawang	33.1%	
	Vales Point	35.3%	
	Munmorah	30.7%	
	Delta total	35.4%	
Consumption of recycled fuels (waste oil, RDF, sawdust, C&D material) (% by energy content)	0.19% of total fuel consumed		
Energy consumed in station (GWh, % of generated)	Mt Piper	501 GWh	5.0%
	Wallerawang	384 GWh	7.3%
	Vales Point	318 GWh	4.6%
	Munmorah	66 GWh	7.3%
	Delta total	1,269 GWh	5.5%
Ash beneficially used (tonnes, % of total)	Mt Piper	159,388 t	18 %
	Vales Point	90,835 t	15%
	Delta total	250,223 t	12%
Total waste by type	Non-hazardous waste to landfill		282 t
	Ash to landfill		1,858,114 t
Lubricating oil received (kilolitres)	Mt Piper		9.7 kL
	Wallerawang		36.3 kL
	Vales Point		18.7 kL
	Munmorah		0.8 kL
	Delta total		65.6 kL
Waste oil recycled	100% of collected wastes		
PCBs (scheduled and non-scheduled, released to environment, removed, captured or destroyed	200 L non-scheduled PCB waste oil removed and destroyed		
Amount of land used for power generation (excluding buffer land)	Not available		
Ratio of land rehabilitated to land used	Not available		
Compliance with water discharge licence conditions	One non-compliance identified in Mt Piper self audit. Time and details of person conducting sampling not included on water samples.		
Renewable energy generation (GWh by source)	**Sustainable biomass**		
	Mt Piper	3.1 GWh	
	Wallerawang	9.6 GWh	
	Vales Point	11.8 GWh	
	Mini-hydros		
	Mt Piper	0.7 GWh	
	Chichester	0.3 GWh	
	Dungog	0.1 GWh	
	Delta total	25.6 GWh	