

CLP and our Environment



CLP has a duty to manage responsibly the environmental impact of all our operations and projects. We also have a duty to report honestly and openly on our environmental performance, which is a matter of considerable interest to our shareholders and many of our other stakeholders.

The extent and detail of the disclosures we aim to make on the environmental management of our business is such that our duty to inform can no longer be discharged within the constraints of the Annual Report itself. Instead, these matters are more fully addressed and explained in the [CLP Group's Social and Environmental Report 2004](#) which is published at the same time as this Annual Report and dispatched to shareholders, as well as being widely distributed to stakeholders such as regulators, environmental organisations and community groups with a particular interest in this aspect of CLP's activities.

In December 2004, the CLP Group published "[Our Manifesto on Air Quality and Climate Change](#)" – recognising that these were the aspects of our environmental performance of most pressing concern to our stakeholders, above all in Hong Kong. The Manifesto is available on our website or by writing to our Group Public Affairs Department at our Head Office.

In this section of the Annual Report, we focus briefly on the three key issues covered in the Manifesto, namely, air quality, climate change and energy conservation. We invite readers to refer to the Manifesto itself and, for further information on our environmental performance in 2004, to turn to the Social and Environmental Report 2004 on our website.

Air Quality

Despite an increase of over 65% in local electricity sales since 1990, CLP's total emissions in Hong Kong in 2004 were lower than our 1990 levels, with SO₂, NO_x and particulate emissions having dropped by approximately 35%, 80% and 68% respectively.

However, the use of more coal in 2004 as compared with our historical low in 2001-2 has resulted in an increase in our total air emissions, as illustrated in the table on page 85. This was due to the continuing demand for power, as well as the need for moderate consumption of gas from the Yacheng-13 field in order to maintain sufficient gas supply to cover the period necessary to bring on-stream a replacement supply of LNG.



Hong Kong's air quality is deteriorating quickly and you are one of the biggest polluters in Hong Kong. Are you doing anything to correct this problem?

Mr. Bob van den Oord
General Manager, Eaton Hotel, Hong Kong
Business Customer

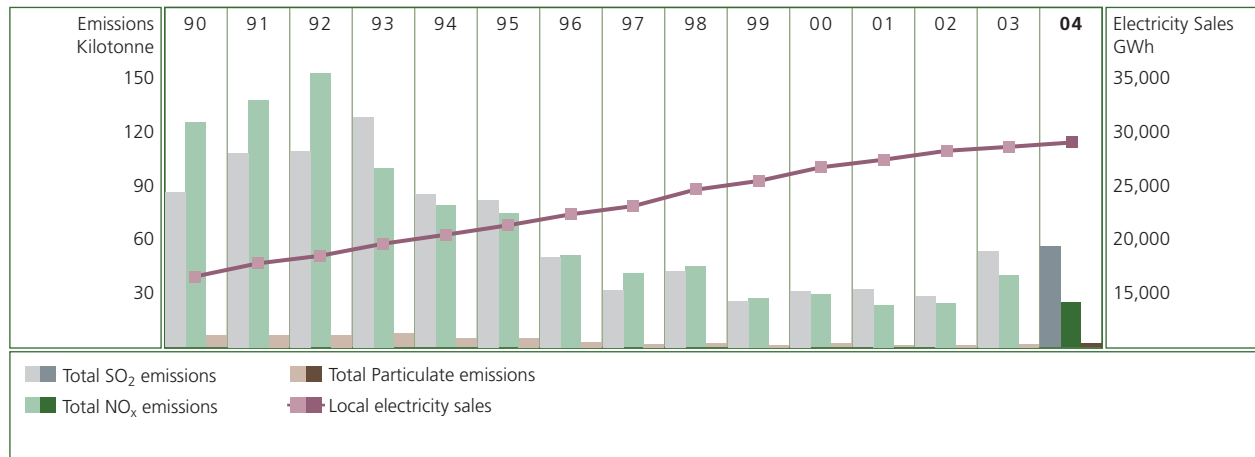
Yes. While CLP's own emissions account for only a small proportion of those which affect Hong Kong, we are committed to making our contribution to the overall effort which will be needed to improve Hong Kong's air quality over the years to come.

Emissions trading has been raised as an option to help cut regional emissions, but there are major issues that would need to be worked out in order to achieve this outcome such as:

- Manner of involvement of all sectors;
- Building a comprehensive emissions inventory;
- Coordinating and verifying across different jurisdictions; and
- Standardisation of different environmental standards and enforcement approaches.

It is CLP's view that, as matters stand, real reductions in emissions are made through investments and that directing these investments to our existing facilities is the most direct route towards emissions reductions.

Total Emissions and Local Electricity Sales in Hong Kong (1990-2004)



Elsewhere, at GPEC, we were able to begin replacing naphtha fuel with natural gas some two years ago. We have now reinforced this change in fuel by the start of an LNG supply, making GPEC the first power station in India to use LNG.

At Yallourn Energy in Australia, a major five year refurbishment of Electrostatic Precipitators (ESP) on two 380MW operating units is nearing completion. Over 80% of the ESP zones have been upgraded, resulting in a significant reduction in the concentration of particulates emissions to air during 2004. This trend will continue with completion of all remaining zones in 2005.

The Ho-Ping plant in Taiwan, commissioned in 2002, continues to set the highest standard in the CLP Group's

coal-fired portfolio for air emissions reduction capabilities. It has both FGD and selective catalytic reduction (SCR) in service to reduce SO₂ and NO_x respectively and provides experience to the Group in the use of these technologies.

In line with our commitment to incorporate SO₂ emission reduction capability (such as FGD) into the planning of all greenfield coal-fired projects in which the CLP Group has a controlling interest, the BLCPP project is being constructed with FGD and low NO_x combustion systems to minimise atmospheric emissions. FGD is already being incorporated in the equipment design and procurement processes for CLP's newest greenfield project, at Fangchenggang.

CLP has committed itself in the Manifesto to improving the environmental performance of our electricity generation activities in Hong Kong, both by promoting the use of natural gas as fuel and by applying innovative technologies to reduce emissions from coal-fired generation. In the former respect, we are working to develop the infrastructure needed to assure the availability of natural gas in Hong Kong. In the latter respect, we plan to install flue gas desulphurisation (FGD) facilities to reduce SO₂ emissions and particulates at Castle Peak Power Station. To further reduce NO_x emissions, we will also introduce a selective catalytic reduction (SCR) plant. On completion of this work around the turn of the decade, SO₂ and NO_x emissions per unit of electricity produced will be reduced by over 90% and 80% respectively from current levels. Particulate emissions, of which 99.4% are already captured, will be further reduced.

We are working hard with Government to obtain the approvals necessary for this work to start, and to establish the economic regulations and environmental limits which will apply to these investments. In the meantime, other environmental improvement initiatives have been progressed. In 2004, an enhancement project was completed for all precipitators of the 680MW coal-fired generating units at Castle Peak to further reduce dust emissions. The boiler optimisation system introduced during the year has reduced NO_x emissions in the typical load range through enhanced combustion controls.



Betty Yuen
Managing Director,
CLP Power Hong Kong

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Climate Change

CLP considers climate change to be a significant issue for our business. We recognise that it is a source of business risk, both from a regulatory perspective, and because of the direct and other indirect impacts climate change may have on our assets and operations. Climate change may also impact our key stakeholders, including employees, customers and the communities in which we live and work. At the same time, climate change can present new business opportunities to provide low-carbon energy.

CLP has committed to develop a climate strategy in 2005 for implementation in 2006. Work is underway and we will be rolling it out at the end of the year.

CLP is the only Hong Kong based company to participate in both rounds of the Carbon Disclosure Project (CDP), an investor-led initiative to identify climate impacts on publicly traded companies. We have already agreed to participate in the third round as well. Our disclosures are available at the CDP website, as well as on our own website.

The CLP Group has already started to invest in renewable energy in our commitment to address global climate change. And in our Manifesto, we committed ourselves to the target of developing generating capacity from renewable energy sources, such that by 2010 this would represent approximately 5% of our total generating capacity.

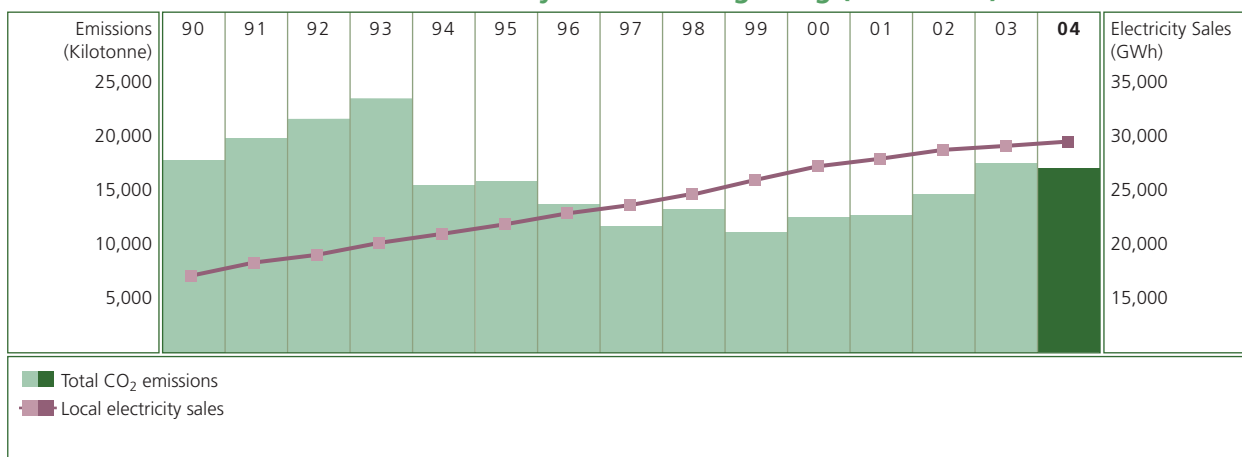
Our policy of active involvement and encouragement of renewable energy sources has already led CLP to:

- hold a 41.5% shareholding in, and contribute to the development of, 98MW of small hydro plants in Huaiji, Guangdong Province;
- take a 45% stake in 2004 for the development of 27MW of windpower at Changdao in Shandong;
- launch the site selection, wind measurement and environmental studies necessary for a commercial grade wind turbine demonstration project in Hong Kong; and
- continue the CLP Renewable Energy Initiative in Hong Kong. This is a programme, launched in 2003, focusing on renewable resource assessment, renewable energy projects, education and community support.

Looking forward, CLP is currently undertaking wind measurement work in respect of windpower projects in the Mainland at Hailing Island, Guangdong and at Wenchang in Hainan. In addition, we have signed a letter of intent with Huaneng for the joint development of a 19.5MW wind project at Weihai in Shandong. Further afield, GPEC is working with its local government to set up a wind farm so that its remotely located river water pump house may be powered by renewable energy. In Australia, we are also pursuing wind power projects. We hope to be able to make progress on these during 2005.

In Hong Kong, CLP's strategy to diversify into climate-friendlier fuels has substantially lowered our greenhouse gases emissions per unit of electricity produced. In particular, and as the following table illustrates, diversification of our fuel mix has allowed CLP to hold our

Total CO₂ Emissions and Local Electricity Sales in Hong Kong (1990-2004)



annual total CO₂ emissions in Hong Kong to below our 1990 level from 1994 through to 2003, despite an increase of over 65% in local electricity sales since 1990, the reference year for the Kyoto Protocol.

Energy Conservation

Energy conservation helps both air quality and climate change. Through education, stakeholder engagement and practical implementation, CLP has been promoting the careful use of energy:

- CLP's PowerWise programme in Hong Kong promotes practical ways to use energy efficiently. We work with local organisations to promote PowerWise concepts and tips through education seminars, games and outreach activities.
- In 2002, we introduced an energy management tool "Montage" to identify opportunities for sustainable energy savings at our power stations in Hong Kong. In 2003, such savings amounted to 29.7GWh, with major savings arising from process optimisation. A

further improvement of 12.6% was achieved in 2004 amounting to savings of 33.4GWh.

- CLP provides advice to its customers on energy saving measures. CLP advisory services have led to significant cost and energy savings for customers ranging from hospitals, hotels to academic institutions.

In 2005 and beyond, CLP needs to increase its efforts in energy conservation across the Group and, in Hong Kong where we have a retail electricity business, to help our customers better understand how to use energy more wisely. To do so, we will

- set an example by reducing energy consumption in our own business;
- continue to participate in the education and information of our fellow citizens on the opportunities and benefits of energy saving; and
- share our experience with the community, including technical advice on reducing energy consumption.



Local school students present their designs of renewable energy models at CLP's Renewable Energy Community Projects Workshop