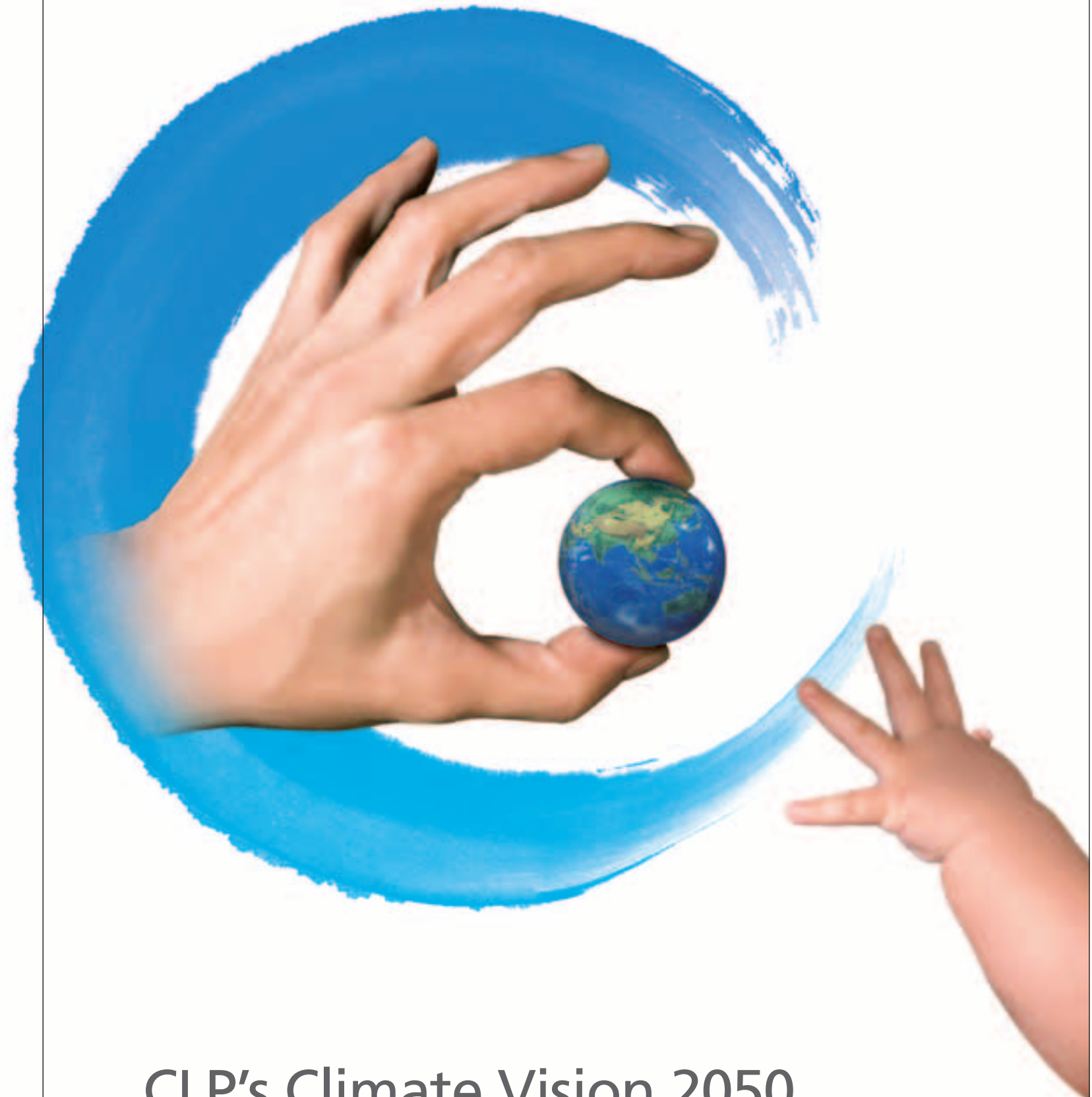


None of us can defeat the threat of global warming  
on our own – but together we can cool the climate and realise our  
Climate Vision 2050.



The world is in our hands.

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## CLP's Climate Vision 2050

Our Manifesto on Climate Change

## Our Business

CLP is one of the largest investor-owned power businesses in Asia.

In Hong Kong, we operate a vertically integrated electricity generating, transmission and distribution business serving 80% of Hong Kong’s population. We also have interests in the power sector throughout the Asia-Pacific region, where we are one of the largest external investors in the electricity industries of the Chinese mainland, Australia, India, Thailand and Taiwan.

Our portfolio of generating assets throughout the region totals over 10,000 equity MW, using a wide range of fuels from renewable sources, coal and gas through to nuclear. Our renewable energy capacity includes hydro-electric, wind and biomass plants and projects.

## Our Values

CLP’s values, explained in our value framework “From Vision to Reality”, include a commitment to the principles of sustainable development and our pride in being a leader in environmental management.

## Our Commitments

In this Manifesto, we commit ourselves to playing our part in the collective response to the threat of global warming by setting specific targets to reduce the greenhouse gas intensity of our generating portfolio from 0.84kg CO<sub>2</sub>/kWh today to

- 0.8kg CO<sub>2</sub>/kWh by 2010
- 0.7kg CO<sub>2</sub>/kWh by 2020
- 0.45kg CO<sub>2</sub>/kWh by 2035
- 0.2kg CO<sub>2</sub>/kWh by 2050

If similar goals are met by ourselves and others throughout the global economy, it should be sufficient to limit the extent of global climate change to an adaptable range.

We intend to achieve these goals by increasing our engagement, including through major investments, in the fields of

- energy savings in both the production and use of electricity
- renewable energy
- natural gas
- nuclear power
- clean coal

Turning CLP’s Climate Vision 2050 into reality will need the support of governments, shareholders, staff and all our stakeholders. To earn that support, we will report openly and honestly on our progress towards our goals.



The world is in our hands.

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Message  
from our CEO

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LEADERSHIP





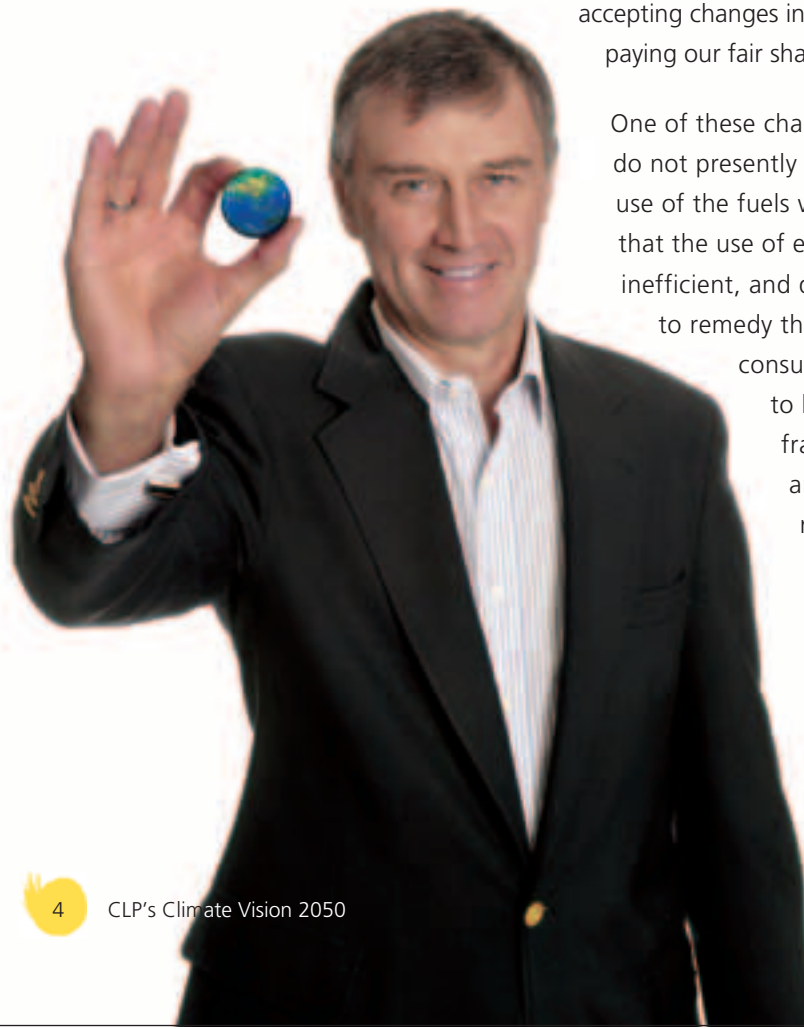
## Showing Leadership

CLP will shoulder its part of the collective responsibility to address the risk and effects of climate change.

There can be no serious doubt that CO<sub>2</sub> levels in the atmosphere are increasing due to human activity and that the climate will change significantly as a direct result. The consequences will generally be damaging in nature. They will include disturbance to the ecological balance, wider extremes of weather, and rising sea levels. They threaten the health and well-being of people across the world, including those in the developed and developing societies of Asia. It is possible that the effects of climate change will occur sooner and be of greater magnitude than many expect. Some significant damage to living environments and economies is now unavoidable, but it is still possible to mitigate the ultimate outcome.

Addressing the problems associated with CO<sub>2</sub> emissions requires a collective effort from society, both from today's and future generations. It also requires an open and constructive debate on the choices to be made. These choices are difficult and complex – the steps needed to reduce emissions must take into account other global challenges such as economic development, poverty eradication and public health improvement. And the uncomfortable truth is that these choices will involve all of us accepting changes in our way of life and doing business, as well as paying our fair share of the economic cost of reducing emissions.

One of these changes will be recognition that electricity prices do not presently reflect the long-term consequences of the use of the fuels which generate that electricity. The result is that the use of energy in society and industry is wasteful and inefficient, and demand is excessive. Policy makers will need to remedy this through price signals which will moderate consumption patterns. These price signals will need to be created by clear and stable regulatory frameworks which properly measure the costs and benefits of energy efficiency and carbon reduction. These must fairly allocate incentives and share rewards amongst all those involved in the energy chain, right down to the customers, to promote efficiency gains and emissions reductions being achieved in the most effective ways.



Tackling global warming involves all of us accepting changes in our way of life and doing business. CLP is playing its part.

Governments will also need to create a new international regime, in effect a new Kyoto Protocol, establishing effective and enforceable international agreements and structures which will drive a reduction in carbon emissions on terms which allow developing nations to meet their growing energy needs, without undermining the living standards achieved in the developed world. This regime must promote the development of new technologies to generate electricity more cleanly and use it more efficiently, and must encourage the rapid spread of these technologies. It must also provide mechanisms and support to help developing countries bear the added cost of reducing and avoiding emissions.

Responsibility to society, current and future, rests with all of us. In shouldering our part of that responsibility, CLP is setting ambitious, difficult and demanding targets. In this Manifesto, CLP undertakes to make deep reductions in the carbon emissions intensity of our power generation capacity. We also bind ourselves to embark on a wide range of other actions and initiatives to reduce the carbon footprint of our business and to help our stakeholders reduce their own footprints. This is our contribution to a collective effort to manage the threat of climate change by stabilising the concentration of greenhouse gas in the upper atmosphere at less than 550 ppm by 2050 – our Climate Vision 2050.

We believe that if everyone takes an approach like this, the magnitude of global warming may be limited to approximately 2°C to 3°C, so that the most catastrophic effects of climate change may be warded off.

The commitments we are making will, over time, call for major changes in the way we conduct our affairs. With the support of our Board, our shareholders and all the stakeholders in our business, our targets are achievable. I am confident that we will have this support, so that CLP can help our own and future generations to safeguard our planet, our shared home.

A handwritten signature in black ink that reads "Andrew Brandler". The script is cursive and fluid.

Andrew Brandler  
Chief Executive Officer  
December, 2007

挑戰

TACKLE



A Global Challenge



# A Global Challenge



The world faces the challenge of adapting to serious and irreversible climate change if global average temperature rises exceed 2°C.

The concentration in the earth's atmosphere of carbon dioxide, methane and nitrous oxide (collectively known as greenhouse gases) has increased markedly as a result of human activity since 1750 and now far exceeds pre-industrial levels going back many thousands of years. The global increases in carbon dioxide concentrations are now attributed primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture.

The Intergovernmental Panel on Climate Change's 4<sup>th</sup> assessment on the physical science of February 2007 confirmed "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level". The Stern Review in the UK, published in October 2006, warned that "the scientific evidence points to increasing risks of serious, irreversible impact from climate change associated with business-as-usual paths for emissions" and pointed out the threat that this posed to the basic elements of life for people around the world – access to water, food production, health and use of land and the environment.

The current level of greenhouse gases in the atmosphere is estimated as equivalent to 430 ppm CO<sub>2</sub>. This has caused the world to warm by more than 0.5°C and will lead to at least a further half degree warming over the coming decades, because of the inertia in the climate system.



As we see it, the business-as-usual scenario in the Asia-Pacific region is that the vast majority of new electricity generating capacity will be conventional pulverised coal power generation. Indeed, this is also the trend in the United States and some other countries. Even with all the policy measures put in place recently, greenhouse gases in the atmosphere are projected to substantially exceed 550 ppm by 2050 if the world continues with "business-as-usual". We call this scenario the "1000 ppm Scenario".

At greenhouse gas concentrations above 550 ppm, it is likely that the global average temperature rise would exceed 2°C – a point beyond which the world faces the increasing difficulty of adapting to serious and irreversible climate change.

At its point of use electricity is the cleanest and most convenient carrier of energy, and its share of energy consumption is rising. It is a necessity of modern life and a basic requirement for social and economic development. However, the power sector produces around 40% of global CO<sub>2</sub> emissions from fuel consumption, or around 24% of total greenhouse emissions. Under a business-as-usual scenario, emissions from power generation are projected to more than double by 2030.

The challenge for governments, businesses, communities and electric utilities themselves is to move away from a business-as-usual approach. Large-scale and durable reductions in greenhouse gas emissions, including those from electricity generation, must be achieved. At the same time, we must safeguard the continued provision of a reliable electricity supply to the developed nations and bring accessible and affordable energy to the developing nations so that their people may continue to be brought out of poverty into power.

# A Regional Dilemma

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BALANCE





## A Regional Dilemma

There is no quick fix to reduce emissions from the Asia-Pacific power sector.

The people of the Asia-Pacific region need electricity to meet their legitimate aspirations for a better life. In 2002, 1.6 billion people in the world had no access to residential electricity. Over 1 billion of these live in South and East Asia. In India 80% of residential energy needs are still met by burning wood and dung. 46% of the world's increase in end-use energy demand between 2003 and 2020 is forecast to come from Asia, largely driven by economic growth and industrial development. Meeting this demand will require a major expansion in generation and transmission infrastructure throughout the region, particularly in countries such as China, Vietnam, Indonesia and India – all of which have large and growing populations.

Meeting the growth in demand for electricity in an environmentally sustainable way is tremendously difficult. This is because, due to considerations such as price, availability and security of supply, coal is the fuel of choice for large-scale electricity generation in Asia, and is likely to be the dominant fuel for a number of decades. In countries like China and India, coal accounts for the majority of electric power generation today and for most of the new facilities as well – on average one large new coal-fired generating plant is entering service every five days in the Chinese mainland. In countries such as Thailand and the Philippines, where the proportion of coal generation is relatively low, government strategy is to increase the use of coal to enhance diversity of supply and improve energy security. Throughout the developing countries of the region, affordability is a key factor in all decisions on the choice of fuel and the type of plant for new generating capacity.

What happens in our region is critically important to the success of a global effort to combat climate change. CO<sub>2</sub> emissions from China are now greater than those from all of Western Europe and will soon

exceed those from the United States. More than half of the increase in the world's CO<sub>2</sub> emissions by 2030 is projected to come from China and India alone.

A business-as-usual path for emissions is no more sustainable or acceptable in our region than anywhere else in the world. This is even more so since the impacts of climate change are not evenly distributed. The poorest countries and people, including those in Asia, will suffer earliest and the most. Further warming brings them high costs and few benefits. They are heavily dependent on agriculture (which is climate-sensitive) and low incomes and vulnerabilities make adaptation to climate change particularly difficult.

As a leading energy company in the region, CLP faces a grave dilemma. Many of the communities we serve are in urgent need of more power for economic growth and social development. We have the ability to provide it. But, almost invariably, the most affordable energy resource – coal – is also the one with the highest greenhouse gas emissions.

There is no easy answer. The best response we can offer is to continue to meet the growth in demand for electricity, but to do so in a way which is environmentally responsible and sustainable, and which will contribute to the stabilisation of greenhouse gases in the atmosphere at levels which avoid serious and irreversible climate change. We must operate our plant, facilities and systems in ways which maximise efficiency and reduce carbon emissions. We must be at the forefront of adopting emerging technologies which can support us in this objective.





# A Regional Dilemma

In the near term, there will be an increase in carbon emissions from the regional power sector, probably including from CLP itself, as the continuing demand for electricity outpaces the development of new technology (such as generating plant with carbon capture and storage), the ability of developing countries to pay the full cost of their carbon emissions and the implementation of effective international frameworks. Carbon finance (payments to encourage carbon emissions reductions and energy efficiency) and other financial support is urgently needed to accelerate action in developing countries. These international frameworks, which will involve the transfer of significant amounts of carbon finance from the developed world, must promote the early adoption of new technology by poorer nations – in effect “leap-frogging” or shortening the period during which growing electricity demand is met by conventional coal-fired generation.



“Climate change is a global problem caused by emissions from every country. The industrialised societies, to be sure, must take the lead in cutting emissions because they have caused most of the problem. But soon all countries will be expected to do their share, and that will pose large challenges for business because making deep cuts in emissions will not be free. Even the most socially conscious companies know that it will be hard to justify spending on the most advanced technologies, with the lowest emissions, if their rivals aren’t held to the same standard. Active policy support is needed, and in most of the world, governments have barely begun to focus on this problem. The power sector in Asia lies at the crossroads of this debate because power offers a great opportunity for cutting emissions and because the use of coal for electricity is growing faster in Asia than anywhere else on the planet.”

Dr. David Victor – Director of the Programme on Energy and Sustainable Development, Stanford University, USA

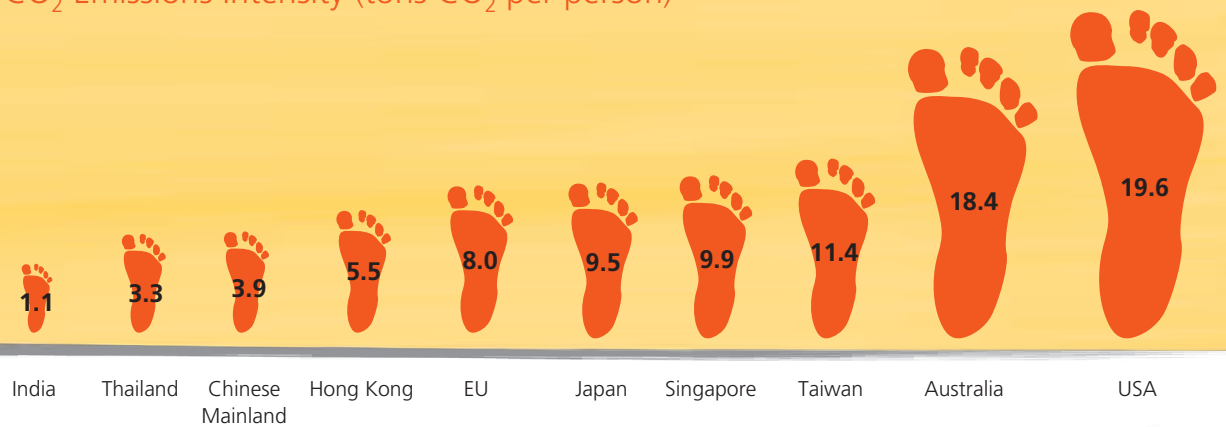


## Starting Now – A Change In The Way We Do Business

Even if our actions take some time to work through we must make a start now along a path or “trajectory” which will first slowdown, then stabilise and finally reverse the rise in emissions from the developing countries of Asia. CLP will start its own actions along that path. The way will be hard. It will involve major changes in the way we do business.

### The carbon footprints of people in our region and across the world differ widely

CO<sub>2</sub> Emissions Intensity (tons CO<sub>2</sub> per person)



Source: Key World Energy Statistics 2007, International Energy Agency, and Environmental Protection Department, the Hong Kong SAR Government

CLP’s business, especially its generating plant, spans a range of countries which differ greatly – including in terms of their social and economic development, the quality of their electricity infrastructure, the availability and cost of fuel resources and the regulation of their electricity sectors. The path that we follow, and the progress we make, in reducing the carbon intensity of our operations will vary according to local conditions. But whatever approach we take will always be consistent with contributing to meeting peoples’ need for reliable and affordable power while continuing on a path towards climate stabilisation.



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TRANSFORMATION



Our Commitments



Our Commitments

Our Ultimate Goal

CLP’s Climate Vision 2050 – reduce the carbon emissions intensity of our generating portfolio by 75% by 2050.



CLP’s ultimate goal is to conduct its business in such a way that our carbon emissions are brought down to a level which will be compatible with the global objective of stabilising the concentration of greenhouse gases in the upper atmosphere below 550 ppm between now and 2050 – a level at which the global temperature rise could be limited and the most catastrophic effects of global warming could be avoided.

To do this, our goal is a carbon emissions intensity of 0.2 kilograms of CO<sub>2</sub> per kilowatt hour by 2050. With this goal, no matter what our market share, we will be on our track to support a global objective of less than 550 ppm of greenhouse gases in the upper atmosphere. This goal will simultaneously help us contribute to improvements in local air quality.

Our goal of 0.2 kilograms of CO<sub>2</sub> per kilowatt hour is a major departure from business-as-usual. The emissions intensity of our portfolio is approximately 0.84 kilograms of CO<sub>2</sub> per kilowatt hour today. Aiming for a reduction of about 75% in our emissions intensity requires an entirely new view of our business and our facilities.

If similar reductions can be achieved throughout the global economy the rising trend in emissions could be reversed, and the extent of global climate change could be limited to a range in which adaptation measures are more likely to be successful.

“We are at a tipping point for the awareness of the energy and climate challenges. The world is realising that we need to utilize energy more efficiently and with less carbon emissions than in the past. In this lies also a huge opportunity for the companies that can deliver solutions to these challenges.

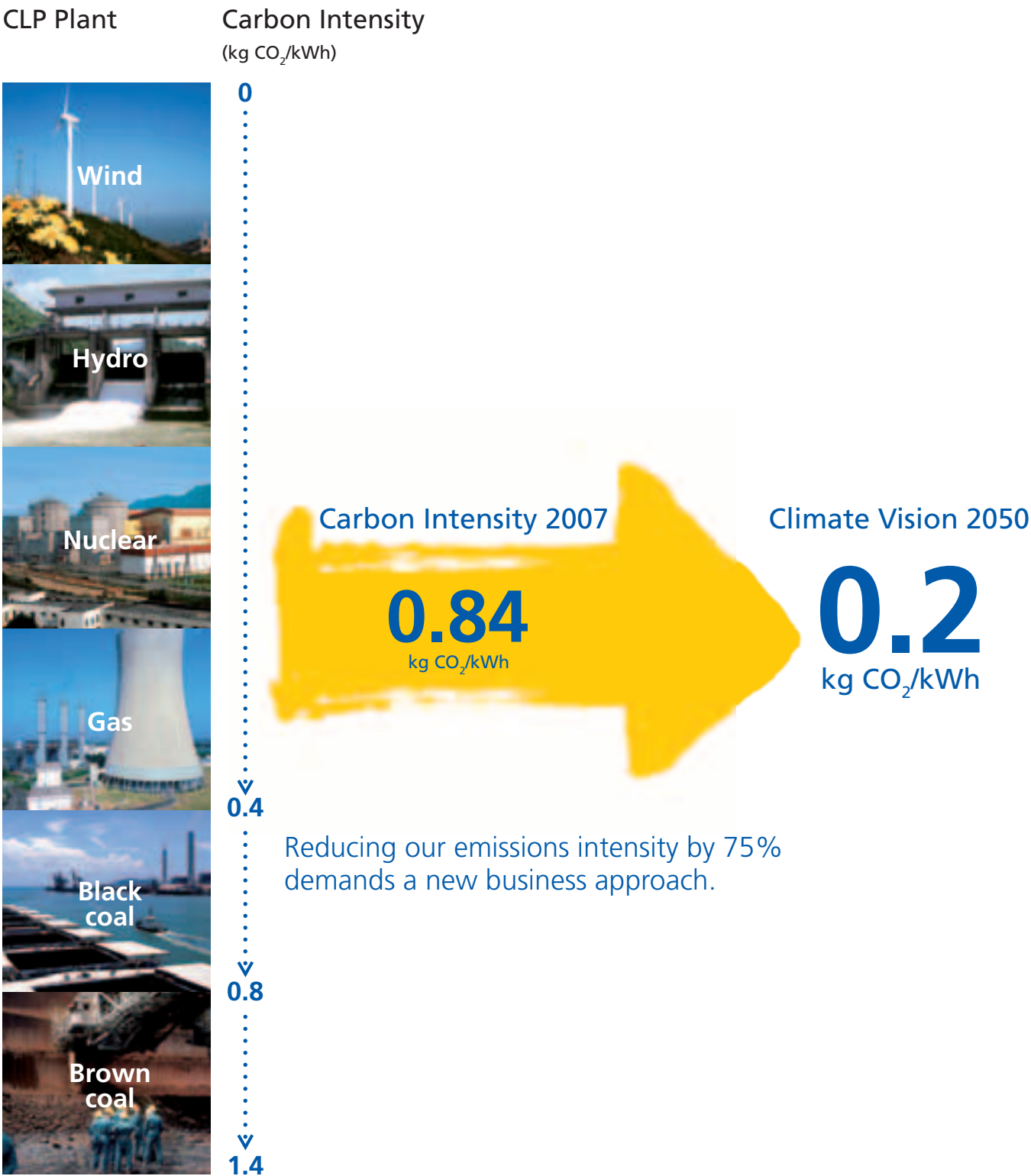
Business is the main source of innovation, technology, capital and management capability that are needed for a low carbon future.

However, technologies and government policies go hand in hand. We need policies that are adapted to the respective types of technology we want to see developed and deployed. We also urgently need more clarity from governments on their ambition levels for emission reductions going forward so that our actions can be aligned with the societal ambitions. Otherwise we risk building an inefficient future energy infrastructure that will be with us for a long time.”

Björn Stigson – President, World Business Council for Sustainable Development (WBCSD)



The Carbon Intensity of CLP’s Generating Portfolio



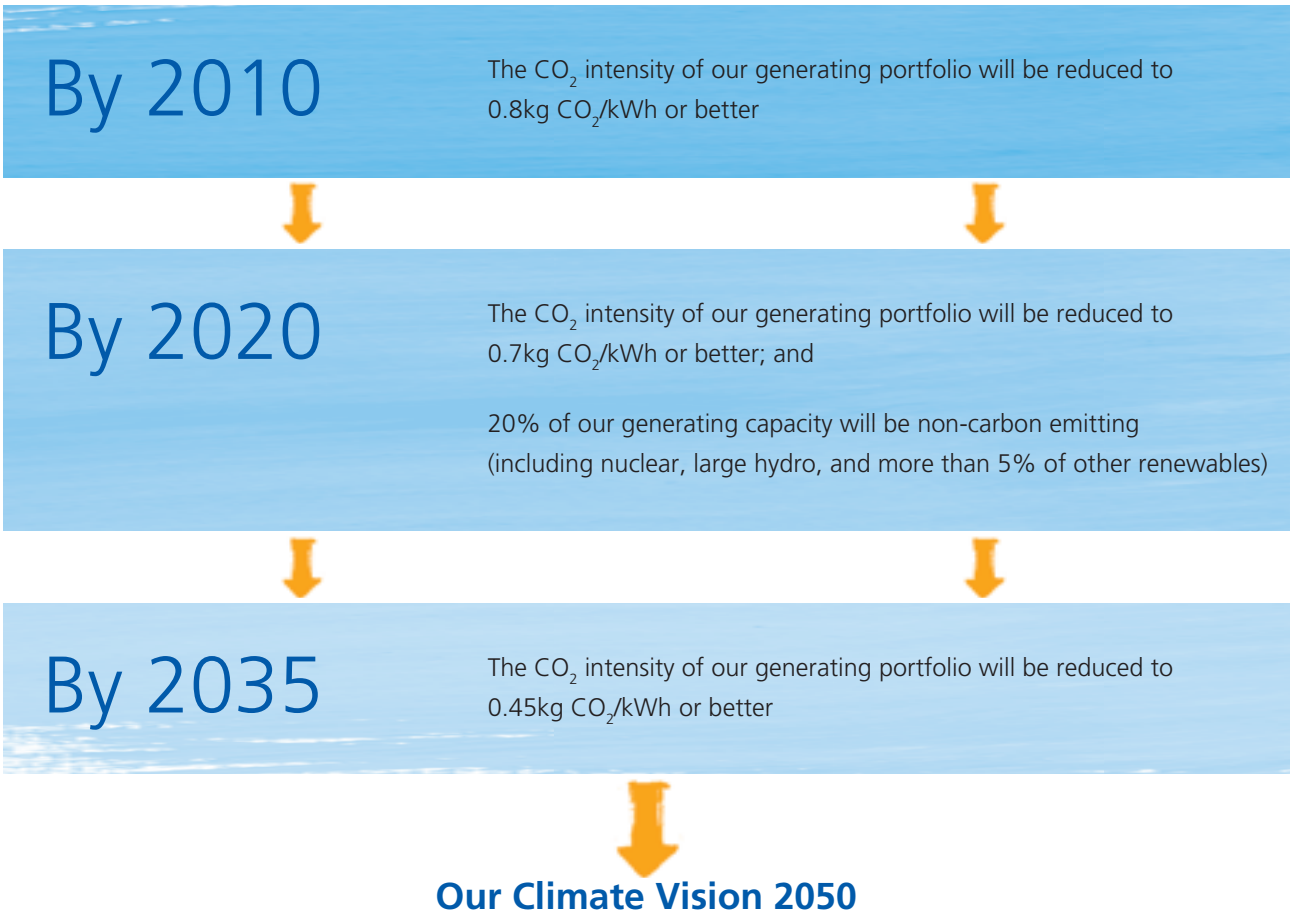
# Our Commitments

## Our Intermediate Goals

We are setting milestones on the path to achieving our Climate Vision 2050.

- In order to
- reinforce the credibility of our Climate Vision 2050;
  - establish goals which are relevant today to the Directors, management, staff, shareholders and stakeholders of CLP; and
  - allow ourselves and others to track our progress towards our Climate Vision 2050,

we are committing to a number of intermediate milestones which focus on CO<sub>2</sub> intensity and generating portfolio mix.

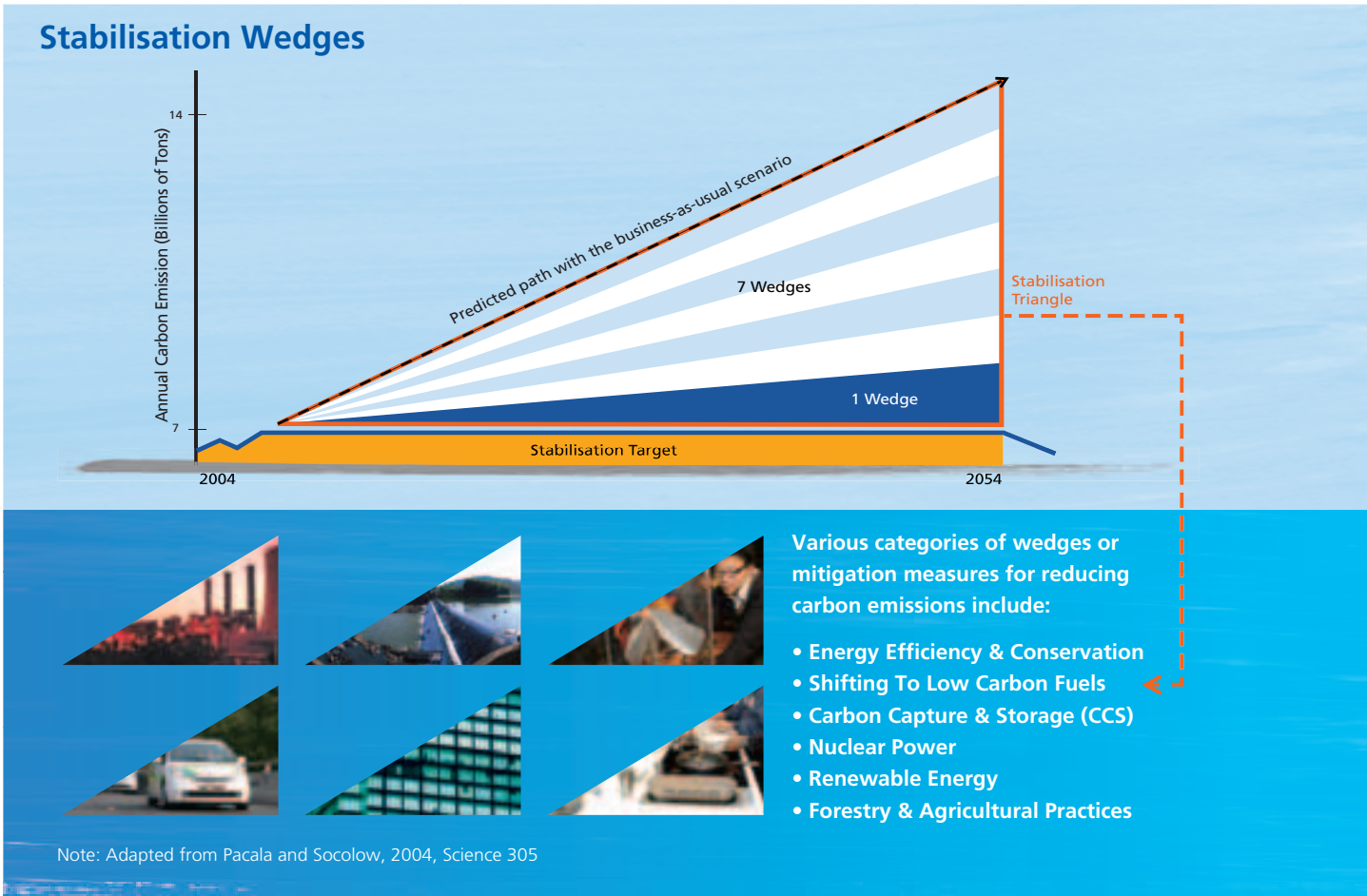


## Pulling Out The “Wedges”

In communicating our ultimate goal of reducing our carbon emissions intensity, CLP has taken note of the concept of “stabilisation wedges” introduced by Professors Pacala and Socolow of Princeton University. They presented a “business-as-usual” scenario (i.e. the predicted rapid growth of emissions through to 2050) as a diagonal line in the chart below. They also showed a stabilisation scenario in which emissions remain constant and begin to decline in about 2050. The space between these two lines is the “stabilisation triangle” of emissions to be avoided. By 2050, stabilisation would require annual global emissions to be held at 7 billion tons of carbon (equal to 26 billion tons of CO<sub>2</sub>), compared to 14 billion tons which will be emitted if a business-as-usual scenario is followed.

The stabilisation triangle can be divided into “wedges” corresponding to different mitigation measures. A “wedge” is defined as a new activity that starts now and, through increased implementation, will avoid 1 billion tons of carbon emissions each year by 2050. Pacala and Socolow identified 15 separate strategies for wedges based on existing technology. The wedges come in many forms, including reduced vehicle use and improved management of forests and soils. A number of wedges relate to the electricity sector including clean coal (with carbon capture and storage), renewables, nuclear, natural gas (as a substitute for coal) and far greater efficiency and conservation in the production and use of electricity.

CLP is already active in all these areas. We commit to do more to pull out the wedges and to help avoid annual carbon emissions doubling by mid-century.





# Our Commitments

## CLP’s Early Actions

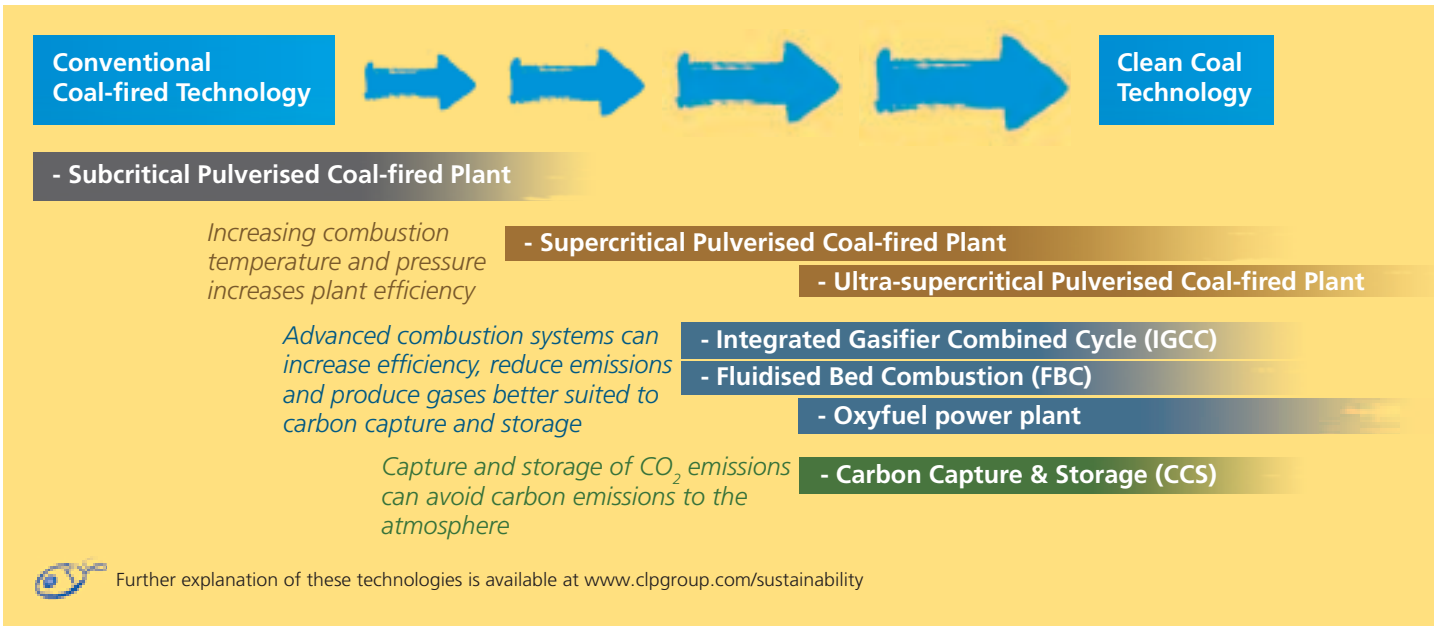
Since the beginning of the 1990s, CLP has invested in nuclear, gas and renewable energy generating plant – moving away from relying solely on conventional coal-fired generation. In doing so, we have already departed from a “business-as-usual” approach to carbon emissions and started to make our contribution to avoiding a “1000 ppm Scenario” and catastrophic climate change. But we must do more. On a country by country basis, we will plan our transition from conventional coal to more climate friendly fuels or technologies.

Our future investments will take account of emerging developments in coal-fired generating technology – see Coal Technology Road Map (right). Going forward, CLP will pursue initiatives in moving towards clean coal technology and in other areas where we can reduce carbon emissions, as explained below.



## Coal Technology Road Map

This chart maps out the route towards clean coal technology, which will need to be travelled to reduce emissions from this most widely available fuel for power generation.



## Energy Efficiency and Conservation

Energy saved means avoided emissions. Energy savings constitute the largest and best opportunity for reducing emissions. We are increasing our investment in public education and developing our skills in saving energy both at our own facilities and those of our customers. We will promote behavioural change, starting with our own management and staff.

## Renewable Energy

In 2004, CLP committed itself to achieving a target of 5% of its generating capacity coming from renewable energy sources by 2010. As at 30 September 2007, CLP had 462 equity MW of renewable energy, representing 4.6% of our generating portfolio, as compared to approximately 0.5% (53 equity MW) when that commitment was made. We are well ahead of schedule in meeting our renewable energy target – and our progress on this also gives us confidence in our ability to meet the new commitments we make as part of our Climate Vision 2050.

## Natural Gas

Natural gas is easily the cleanest fossil fuel for power generation. CO<sub>2</sub> emissions per unit of electricity generation are about 50% lower than those from today’s coal plants. We will continue to invest in gas-fired power generation as a substitute for coal. Liquefied Natural Gas (LNG) will play a particularly important role in our natural gas portfolio, as gas is not readily available in several of our service areas, including Hong Kong.

## Nuclear Energy

Nuclear power emits no CO<sub>2</sub> during operation. With the necessary policy support, CLP will continue and, if possible, increase its investment in nuclear generation, including in Mainland China and particularly South China where we can make use of our existing participation in Daya Bay nuclear power station. We recognise that nuclear power may not be right for all countries. However, nuclear power, where sustainable, must be on the table in climate change discussions.

## Clean Coal

Coal will inevitably play a role in the power sector of Asia, so reducing the carbon emissions from power generation demands a move from conventional coal-fired generation towards clean coal technology. This includes carbon capture and storage – a process that is not yet commercially viable or technically proven on a power plant scale. We will not build additional conventional coal-fired generating capacity in Hong Kong or in developed countries.

CLP began studying clean coal technologies in 2005. Though there are few such opportunities anywhere in the Asia Pacific region, we aim to identify a suitable project by 2010. We will screen our generating portfolio to review the scope for future Carbon Capture and Storage (CCS) installation. If this is not feasible, we aim to identify other opportunities to participate directly in clean coal technology deployment. And, in future, whenever we build conventional coal-fired generating plant in the developing world, we will ensure that the on-site planning and engineering takes into account the eventual fitting of carbon capture and storage equipment.

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COLLABORATION

Call for Urgent Action





## Call for Urgent Action



Strong and effective policy is needed to promote clean energy development. Beyond its own emissions reductions, CLP will also contribute to the effort needed to combat climate change through policy advocacy and participation in public debate, whether in Hong Kong, Asia or beyond. With a sense of urgency, we will promote policies and initiatives necessary to achieve our Climate Vision 2050, and to help others travelling in the same direction. Among these will be measures that set a proper cost of carbon emissions and reductions, and fairly allocate those costs.

The cost of stabilising greenhouse gas concentrations in the atmosphere is enormous, but the cost of doing nothing is far greater. To safeguard the health and well-being of our own and future generations, we must all bear the cost of reducing emissions. Because of the huge differences between the wealth of developed and developing nations, this burden cannot be shared equally – it must be shared equitably.

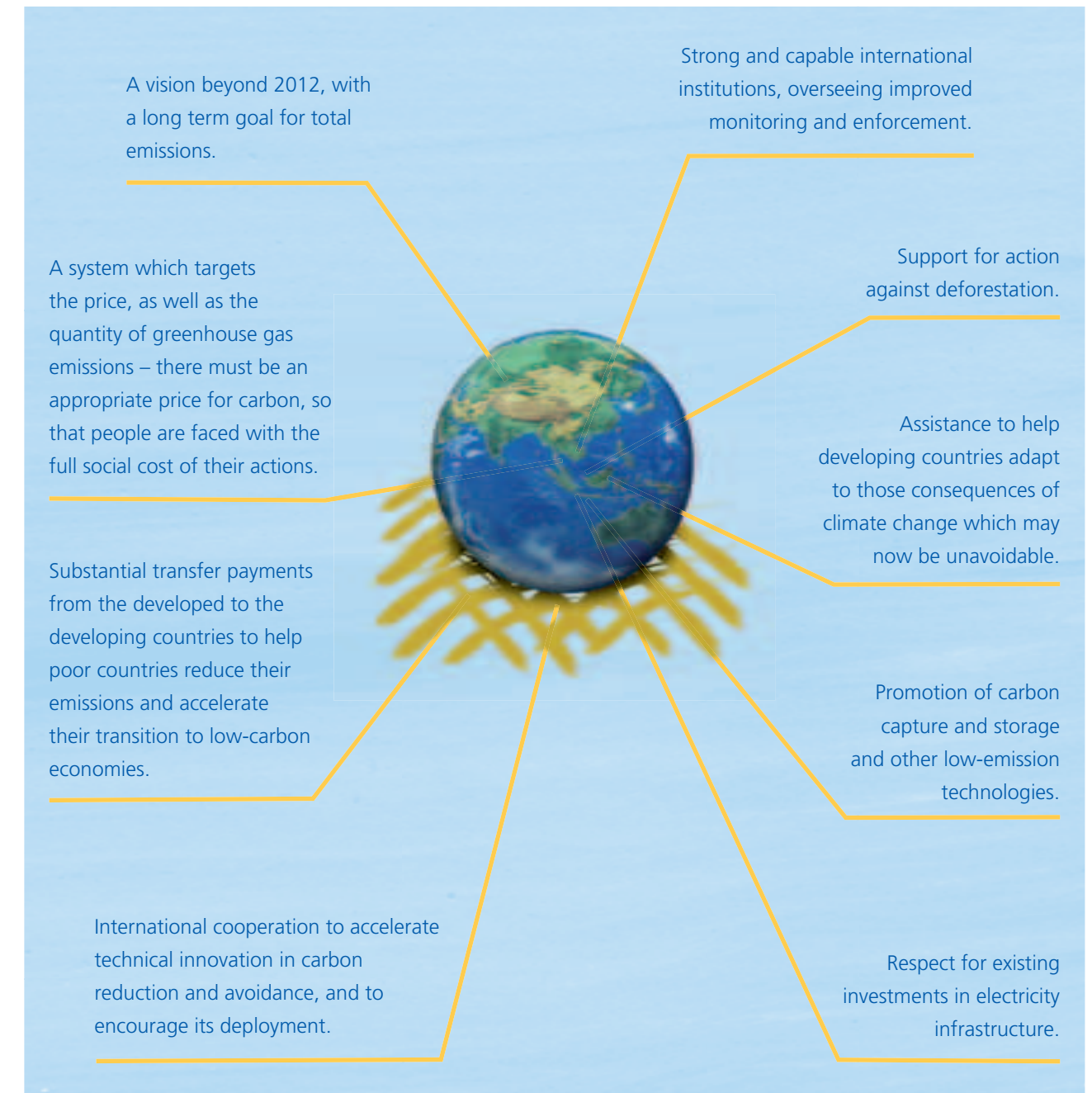
This can only be done through an effective international framework, within which the global effort needed to resolve a global problem can be formulated, financed and enforced. CLP calls for urgent action to build this framework – a “new Kyoto”.

“Companies that last are those that can deal successfully with both short and long term issues. Power utilities must think clearly about how the growing worldwide concern about climate change will pose both challenges as well as opportunities. Articulating a view early helps engage stakeholders in the dialogue. A utility may be profitable in the short-term based on the current regulatory framework but I suspect in the longer-term, profitability is going to depend on whether a utility operates in a jurisdiction with farsighted regulators. Systems that allow utilities to profit from energy conservation and efficiency efforts will in fact put them in a strong position to innovate in a new world favouring low-carbon emissions. Cities that are low-carbon will become more competitive. I also have a strong hunch that early movers will benefit as there will be a surge in interest and demand for such innovation.”

Christine Loh – Chief Executive Officer, Civic Exchange, Hong Kong



The nature of this framework will be decided among governments, each of them speaking on behalf of the people they represent, but all of them acting in the interests of the world as a whole. For its part, CLP proposes that this international framework should include:



We believe that such a framework will provide a context in which the efforts of CLP and others to mitigate carbon emissions can move forward.

## Call for Urgent Action

No matter what the policies are, CLP can only make good on its own commitments with the help of all the stakeholders in our business. We will need action and support:

### From the international community

- Cooperation on nuclear safety and non-proliferation. Nuclear generation and the entire nuclear fuel cycle can be made safe against everything but military or terrorist attack. We can make the technology safe, but governments will have to keep the peace.

### From national governments

- Strong policies which account for the costs and benefits of reducing and avoiding greenhouse gas emissions.
- Stable long term incentives to encourage power producers and industrial companies to develop and deploy low emissions technologies.
- Realistic and targeted incentives and rewards for achieving energy savings, fairly allocated between energy producers and users.
- Honesty in explaining to their people the costs and benefits of reducing carbon emissions and how this can be achieved in fair and realistic ways.

### From the research and development community

- Development and demonstration of commercially viable clean coal technology.
- Progress in the reduction of nuclear waste from power generation and the means of treatment and disposal.

### From our joint venture partners

- The willingness to work with CLP in agreeing and implementing measures to mitigate or avoid the carbon footprint of our shared assets and investments. Of the 18 fossil-fuel fired generating facilities in which CLP has an interest, 15 are owned in joint venture with other companies, to whom we must respect our existing obligations.

### From lenders

- The provision of long-term finance to support investments in carbon effective projects and technology.

### From communities

- Welcoming low carbon facilities and infrastructure in their neighbourhoods.

### From customers

- The willingness to accept the costs which must be borne in order to enjoy the benefits of reducing and avoiding greenhouse gas emissions.

## Accountability

CLP's Climate Vision 2050 trajectory is a substantial departure from "business-as-usual." We must report honestly and openly to our shareholders so that they can judge whether we have set a new course for our business.

We will account for all the savings we gain through energy efficiency, and all the emissions we avoid through low and zero carbon technology. We will measure the savings in relation to the business-as-usual 1000 ppm Scenario. We will create an indicator of our accumulated savings over time to communicate and motivate our progress towards a stable global climate. To reach our goal, CLP will need to save millions of tons of carbon emissions between now and 2050. It will be difficult. With your support, we can do it.

We welcome your views and questions on our Climate Vision 2050. Please contact:

Group Public Affairs  
Fax: (852) 2760 4448  
Email: [climatechange@clp.com.hk](mailto:climatechange@clp.com.hk)