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You can either fill out our online feedback form by clicking the Feedback Form link or contact us in one of the ways listed below.

#### **Submit the Feedback Form Online**

Fax us (852) 2678 8453

Email us SRfeedback@clp.com.hk

#### Write to us

CLP Holdings Limited, 8 Laguna Verde Avenue Kowloon, Hong Kong



#### **ABOUT THIS REPORT**

This *In Essence Sustainability Report* covers CLP Group's sustainability performance for the calendar year ending 31 December 2016. It is a summary report that focuses on the 'most material' topics identified through our materiality assessment for the company boundaries as defined in the more extensive online Sustainability Report that was prepared in accordance with the Core option of the new Global Reporting Initiative's (GRI) Sustainability Reporting Standards and the "comply or explain" provisions as well as "recommended disclosures" of the Hong Kong Stock Exchange Environmental, Social and Governance (ESG) Reporting Guide (ESG Guide).

This report is published at the same time as our Integrated Annual Report, which references the <IR> guidelines published by the International Integrated Reporting Council (IIRC). This year, as we continue to work towards a more integrated approach to reporting, we have aligned the performance-related chapters of the online Sustainability Report with the Capital sections of the Integrated Annual Report. This report also follows this convention whereby the performance-related sections correspond to the Capitals covered in the Integrated Annual Report.

As in previous years, for every feedback we receive on our Annual Report, our Sustainability Report and / or our Annual Report snapshot online, we will donate HK\$60 to a designated charity or charities, up to a maximum cumulative amount of HK\$350,000. This year, the benefitting charities are Early Psychosis Foundation and Direction Association for the Handicapped.

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"We look forward to working together with governments, businesses and civil society to create the new capabilities and solutions needed to achieve a sustainable net zero carbon future."

With all the unpredictable events that occurred across the world in 2016, from the UK to the US to China, it will likely be remembered as a year of uncertainty. We are not immune to the implications of these events, nor to the global forces behind them. However, we have managed to continue to operate our businesses steadily and reliably, delivering dependable growth across the portfolio. We have achieved this by consistently identifying and adapting to the challenges ahead.

#### The Global Trends

The next challenge we will be facing over the next decade is driven by the two global trends of climate change and technological evolution.

We are glad to see that the Paris agreement on climate change has been adopted and ratified in record time. However, this is just the beginning. For a transition of the energy sector towards a low carbon future, we need to have in place a sustainable set of regulatory structures that facilitate the transition to a cleaner energy mix, financing

mechanisms to support that change, as well as conventional and renewable energy sources that are reliable and affordable. We must also accept that different parts of the world will require different solutions and so we look forward to continued and active involvement with governments and communities to help formulate the regulations required to facilitate this energy transition.

The digital revolution is changing the face of our industry and offers many exciting opportunities. Our business in the next five





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to ten years may be very different to what it is today. We will be part of the smart infrastructure in the city and we need to be proactive in playing that role. We have already set up an innovation team to work on these areas and with the launch of the Smart Charge initiative with HKT as an example, we believe we have made good progress thus far. With the formation of our new innovation team, we are set to look at a range of potential technology applications and business models. We believe the review of our "Climate Vision 2050" will also support CLP to meet the objectives set out in the Paris Agreement, as we pursue these new business models.

As we navigate through the challenge, we believe that customer-centricity will be the key to our success. We, along with the rest of our industry, must respond in a timely manner in order to avoid or mitigate the potential risks and materialise on the exciting business opportunities that these trends will pose. Leveraging our years of retail experience in two very different markets, Hong Kong and Australia, we believe we are in a strong

position to continue to strengthen our customer-centric capabilities.

#### Safety Performance

Safety is our first priority and our goal is to have zero injuries at each of our sites. We continued to reduce our injury rates in 2016, although sadly three of those injuries were fatal incidents at sites under our operating control. All involved contractors with two of the incidents relating to falls from height and the other an assault on a security guard at a remote location. Even one life lost is one too many and we would like to take this opportunity to express our deepest sympathies to the families of all those men. We would also like to express our sincere condolences to the family of a contractor worker who lost his life at Castle Peak Power Station in late February while carrying out cleaning work. We investigate all of these incidents thoroughly to learn the lessons which we hope will help us to avoid similar incidents in the future.

#### **Moving Forward**

Amidst all the uncertainties we face, there is one certainty that exists – a sustainable net zero carbon future cannot be achieved by business alone. It will undoubtedly require collaboration across all sectors and we look forward to working together with governments, businesses and civil society to create the new capabilities and solutions needed to achieve this global goal.

The Honourable Sir Michael Kadoorie

Chairman

CLP Holdings Limited

Ah Lah

Richard Lancaster
Chief Executive Officer
CLP Holdings Limited

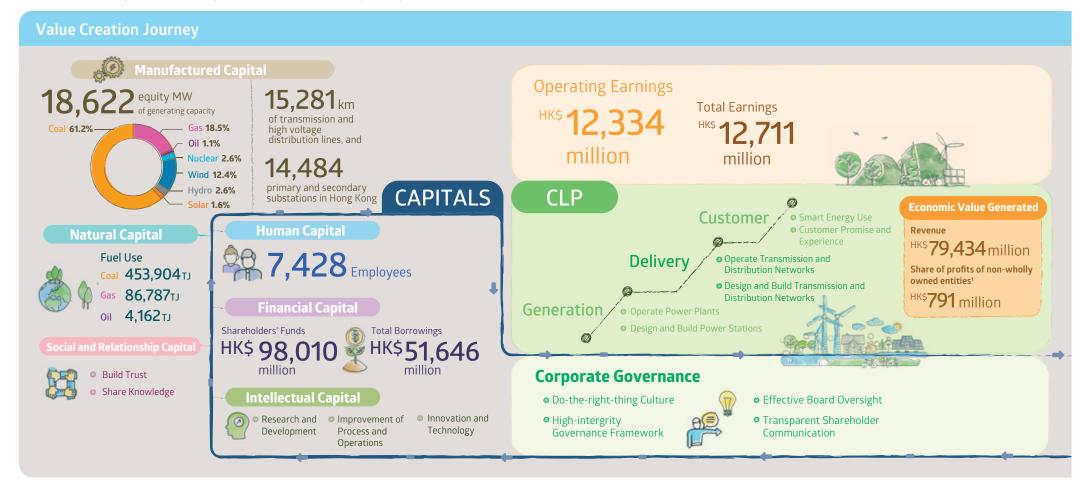
Hong Kong, 27 February 2017



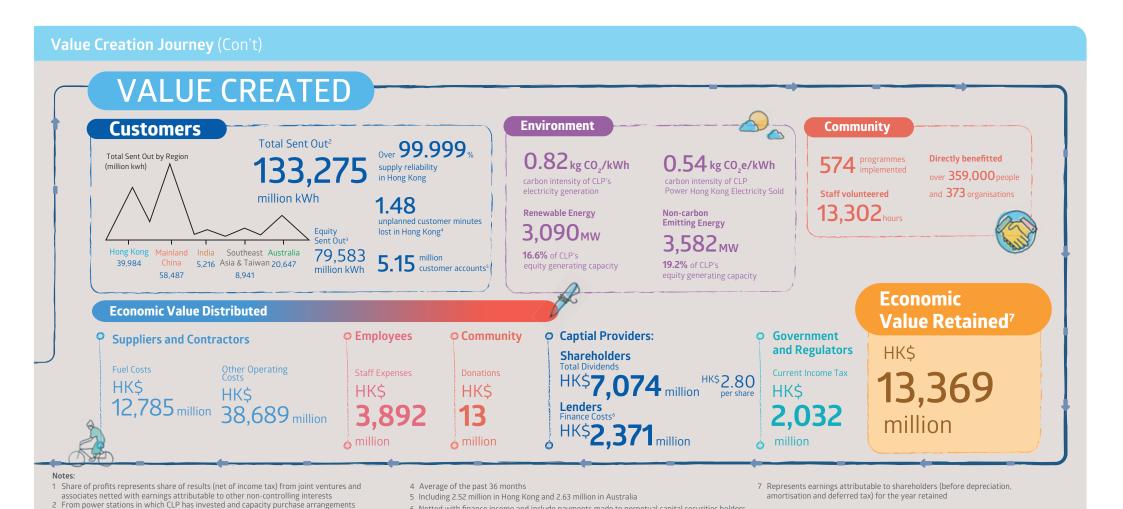
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#### **OUR PURPOSE**

The purpose of our business is to power the sustainable development of the communities in which we operate. To deliver on this purpose, we strive to create and deliver value to society using the knowledge and expertise that we have and we work together with many stakeholders to make it happen. In return, we deliver or create value for them, whether they are our shareholders, lenders, employees, customers, suppliers and contractors, business partners, governments, regulators and the community at large.



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6 Netted with finance income and include payments made to perpetual capital securities holders

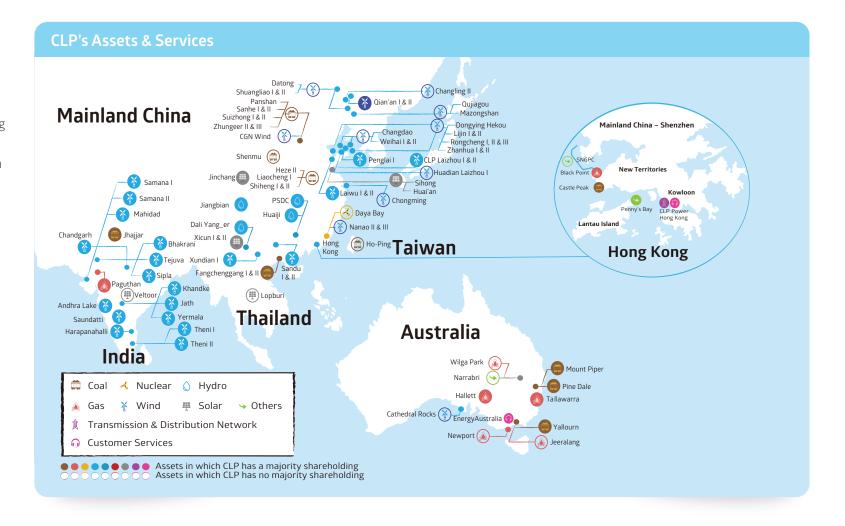
3 On equity basis and capacity purchase arrangements

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#### **OUR OPERATIONS**

CLP Holdings Limited is a publicly held company with a history in the electricity business dating back to 1901. Headquartered in Hong Kong, we are listed on the Hong Kong Stock Exchange and are currently one of the largest investor-operators of power assets in the Asia-Pacific region. We are also currently one of the largest foreign renewable energy investors in India and in Mainland China.



# OUR BUSINESS

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On 31 December 2016, employing 7,428 employees across the Asia Pacific region, our business included: ownership of 18,622MW of power generation and 5,159MW of capacity purchase across Hong Kong, Mainland China, India, Southeast Asia & Taiwan and Australia, ranging from coal, gas, nuclear, wind, hydro and solar; over 15,200 km of electricity transmission and distribution lines and over 14,400 substations in Hong Kong; and retail of electricity in Hong Kong and electricity and gas in Australia, serving a combined total of about 5.15 million customer accounts. As of 31 December 2016. our revenue was over HK\$79 billion and our market capitalisation was HK\$180 billion.

#### **2016 PORTFOLIO CHANGES**

Significant changes in our business portfolio that occurred in 2016 included:

#### In Mainland China

- we added 275MW of capacity in renewable energy, including 230MW wind and 45MW solar, increasing the size of our renewables portfolio in Mainland China to over 2,000MW;
- we commissioned the 1,320MW
   Fangchenggang Power Station Phase II
   in Guangxi Zhuang Autonomous Region,
   which utilises the most advanced ultrasupercritical coal technology available, with
   CLP owning a 70% stake.

#### In India

 we began construction of our maiden 100MW Veltoor Solar Farm in Telangana, which is expected to be commissioned by mid-2017, with CLP owning a 49% stake and the option to acquire the remaining 51% in the future.

#### In Australia

 we committed to the development of up to 500MW of new wind and solar energy projects across eastern Australia, to meet our obligations under the country's Renewable Energy Target.



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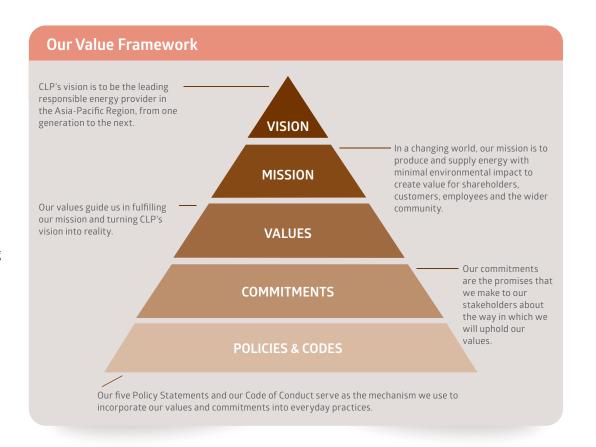
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#### **OUR VALUES**

Our Value Framework reflects the moral compass of the company, articulating not only our values but also our vision, mission and commitments to our key stakeholders.

CLP's vision is to be the leading responsible energy provider in the Asia-Pacific region, from one generation to the next. Our mission is to produce and supply energy with minimal environmental impact to create value for shareholders, customers, employees and the wider community, in the context of a changing world. These, together with our unwavering values and commitments made to our key stakeholders, are core to why sustainability is at the heart of our business, which involves long-term investments and assets that we expect to operate over many decades. We believe conducting our business in a socially and environmentally responsible way is not just an ethical obligation, but it is good for a sustainable business.



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#### **EMERGING TRENDS**

Last year we presented the five global trends published by PricewaterhouseCoopers (PwC). In 2016, we identified Climate Change, Technological Breakthrough and Demographic and Social Change as three of the five global trends as being most relevant to CLP.

#### **Climate Change**

We are encouraged to see the Paris agreement on climate change being ratified in record time, as the committed Nationally Determined Contributions (NDCs) provide some medium to long-term signals conducive to attracting the longer term investments needed for infrastructure. However, resolving such a global challenge requires collaboration between industry, government and civil society alike.

To manage this global trend in a progressive but measured way, bearing in mind the importance of ensuring security and reliability of supply, we need to have in place a sustainable mix of conventional and renewable energy sources, regulatory structures that support the transition to a cleaner energy mix, with more efficient use of energy, as well as access to the required financing. While the power industry is ready to do its part, we must also accept that different parts of the world will require different solutions to be implemented at different times. In developing economies, coal will remain a dominant primary energy source for some time.

#### **Technological Breakthrough**

Technology advancements influence not just the technical solutions available, but also the behavior and expectations of customers and other stakeholders. They can also lead to major disruptions of traditional business models, which we are starting to see in utilities around the world.

As mentioned before, advancements in digital technology and its applications, and new entrants coming into our sector are bringing significant changes to our industry. We should no longer think of electricity as the only product we offer our customers. In the future, our business will be about the services and the quality of these services that we provide along with our products to customers.

#### **Demographic & Social Change**

Globally the population continues to grow rapidly, but the impact of this is felt very differently in different countries. While Africa's population is projected to double by 2050; the population in Europe is projected to shrink. Other than population growth, a key demographic trend is ageing societies in developed economies. However, some countries will experience this more than others. For example in Asia Pacific, Vietnam and India have younger demographic profiles than China.

The business opportunity in countries with faster population growth will also be dependent on the speed of economic development, regulatory policy and how the energy transformation impacts these countries. For example, in some developing countries, there is the opportunity to bypass the grid and leapfrog to locally distributed technology as we saw with the telecommunication industry.

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#### **RISKS & OPPORTUNITIES**

From the global trends which we have identified as being most influential to us, guided by our values and commitments, we can identify potential risks and opportunities for the business. A few of the sustainabilityrelated emerging risks and opportunities identified in relation to the drivers mentioned above are presented here.

The following states and serious serio opportunities and relevant actions taken in 2016 can be found in our online 2016 Sustainability Report.

#### **Climate Change**

- Potential stranded fossil fuel assets
- Potential reputational risk from owning fossil fuel assets
- Abrupt policy changes that could affect supply security or reliability
- Physical impacts of climate change on our assets and value chain
- Potential carbon price increasing the operating costs for fossil fuel assets

#### **Emerging Risks**

#### **Demographic & Social Change**

- Ageing workforce creating risks of declining productivity and safety performance
- Pressures on long-term sustainability of pension funds
- Increase in health care costs and sickness absenteeism
- Inter-generational conflict as older workers seek to defer retirement and younger workers seek promotion

#### **Technological Breakthrough**

- Abrupt changes in customer and/or stakeholder behavior
- Business model disruption
- IT-related risks such as cyber security

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#### **Emerging Opportunities**

#### **Climate Change**

- Potential supporting policies and/or a carbon price that makes renewable energy more cost competitive so we can continue to expand our renewable energy portfolio, particularly in solar
- Deploy new ways to finance and scale up renewables
- Offer a range of carbon reduction advisory services and implementation support to our customers (i.e. energy services, renewable energy installation and carbon offsets)
- Sell renewable energy to customers directly through Power Purchase Agreements (PPAs)
- Invest in nuclear power with a credible and trusted partner that has a proven track record of solid experience in nuclear plant operations
- Provision of resilience/adaptation services and expertise to stakeholders along our value chain
- Where fossil fuel assets are still needed to support development in developing countries, deliver assets with the highest efficiency and lowest emitting technologies as is commercially possible

#### **Technological Breakthrough**

- Deployment of new low carbon energy technologies to replace carbon intensive ones both on the supply side and demand side
- Use of digital technology to increase the efficiency of our operations
- Use of digital technology and data analytics to develop new value-added services for bundling with the energy we provide
- Repositioning our role in the value chain as a way to transition into a new business model, depending on the country/market

## **Demographic & Social Change**

- Younger generation more interested in studying Science, Technology, Engineer ing and Mathematics (STEM) subject areas because of the impact of new technology
- Diversify our recruitment sources and increasing workforce diversity with a focus on gender
- Provision of intelligent energy related services to specific demographic segment, for example elderly customer group
- Increase our market presence in markets with rapid population and economic growth

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# SUSTAINABILITY PRINCIPLES

In 2015, inspired by the United Nations
Sustainable Development Goals (SDGs) for
2030, we developed a set of Sustainability
Principles, which set the foundation for
supporting these development priorities
within our longer term business strategy. Our
Sustainability Principles are organised under
four focus areas: Economic Sustainability, Our
People, Our Environment and Our Community.

See the following page for more details.

These Sustainability Principles are consistent with our Value Framework as well as other sustainability disclosure requirements, and encompasses all the sustainability-related areas that we are working on every day.

Since our Sustainability Principles touch on all 17 SDGs, in 2016, we prioritised six SDGs that were most relevant to CLP:

- SDG 13 Climate Action
- SDG 9 Industry, Innovation & Infrastructure
- SDG 8 Decent Work & Economic Growth
- SDG 7 Affordable & Clean Energy
- SDG 5 Gender Equality
- SDG 4 Quality Education

We have begun discussions on potential metrics with the aim of delivering a set of SDG-relevant Sustainability Goals by 2018.





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#### **Sustainability Principles Under Four Focus Areas**

#### **Economic Sustainability**

- 1. We create long-term value for our shareholders through focussed investments in assets across the energy value chain.
- 2. We pursue excellence in the operations of those assets and endeavour to deliver world-class energy products and services which meet or exceed the expectations of our customers in balance with all other stakeholders.
- 3. We provide products and services that are valuable and often essential to the communities we serve, and we commit to delivering them safely, reliably, efficiently, cost effectively and in an environmentally responsible manner.
- 4. We communicate openly and transparently with our stakeholders on our investments and operations, as well as our financial, environmental, social and governance performance.
- 5. We proactively adapt to the changing business environment and the changing needs of our customers and other stakeholders by innovating and adopting efficient and value enhancing technologies, processes, practices and new business model approaches in a timely and considered manner.
- 6. We adhere to the laws of all jurisdictions we operate in and seek to bring international best practice principles of ethics, governance, public communication, transparency and sustainability to all our operations.

#### **Our Environment**

- 1. We will reduce our carbon emissions in line with an agreed global level at which catastrophic climate change can be avoided.
- 2. We will adopt international best practice for our environmental impact assessments and environmental performance standards for construction of all new plants, as is commercially viable and move towards zero emissions over time.
- 3. We will use resources, including fuel, water and other natural resources, efficiently and conservatively and will increase the use of renewable energy resources.
- 4. We will responsibly manage land use-related issues arising from our transition to a low carbon energy future, including biodiversity, in line with the local, national and regional circumstances.
- 5. We will monitor and manage emerging environmental-related challenges that will arise as technologies, stakeholder expectations and business model approaches change.

#### **Our People**

- 1. We ensure a safe and healthy working environment and are committed to preventing accidents, injuries and physical or mental illness related to work.
- 2. We ensure compliance with all employment related legal requirements and contractual agreements in the countries that we operate in, respect for internationally recognised human rights, and best practice governance and disclosure of executive remuneration.
- 3. We recruit staff from diverse sources and backgrounds. We encourage retention by ensuring equal opportunity, and by maintaining a harassment and discrimination free work-place that promotes gender balance and supports the social and economic empowerment of women.
- 4. We maintain our core competencies through the planned intake of trainees and continuous investment in training and development. We build new capabilities in order to stay aligned with changes in our business environment.
- 5. We provide competitive, fair and equitable remuneration and benefits. We help our employees to maintain their work-life balance with family-friendly policies, reasonable working hours, and a generous range of leave entitlements.
- Maintaining our organisational productivity enables us to sustain a competitive remuneration and benefits policy. Gains in productivity allow us to increase, progressively and equitably, the returns to our stakeholders.

#### **Our Community**

- 1. We care for the health, safety and development of the communities in which we operate.
- 2. We strive to create positive impacts for the society with and for our stakeholders by supporting initiatives that serve the needs and improve the quality of life of the socioeconomically disadvantaged, alleviate poverty, promote diversity and foster social harmony in the communities we serve.
- 3. We believe in investing in education and development to equip communities and future leaders with the knowledge and skills necessary to tackle complex challenges in the sustainable production and consumption of energy.
- 4. We support training and skills development initiatives that enhance knowledge in energy and environment to help our communities make informed choices based on a holistic understanding of the energy sector.
- 5. We support initiatives that contribute to the development and appreciation of history, arts and culture to improve our quality of life and encourage innovation and creative thinking.

#### **CLIMATE VISION 2050**

Our climate change journey began back in 2004, when we published our first renewable energy target of 5% by 2010 in "Our Manifesto on Air Quality and Climate Change".

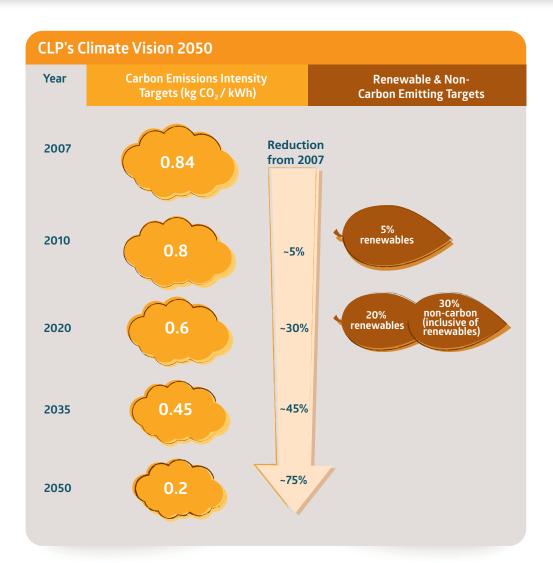
In 2007, we set a carbon intensity reduction target of around 75% by 2050 compared to 2007 levels (based on the scenarios presented in the Energy Technology Perspectives 2006 publication from the International Energy Association (IEA)). This target became the cornerstone of our Climate Vision 2050, and is supported by a series of interim carbon emissions intensity targets in 2010, 2020, and 2035.

In 2010, our Climate Vision 2050 was updated and the 2020 carbon intensity target was tightened from 0.7kg CO<sub>2</sub> / kWh (about 15% reduction from 2007 level) to 0.6kg CO<sub>2</sub> /

kWh (about 30% reduction from 2007 level). We also developed a new renewable energy target of 20% and a non-carbon emitting (includes nuclear) target of 30% target both for 2020, as the 2010 renewable target of 5% was successfully met.

See our 2016 performance in Our Performance -Natural Capital section

We had previously committed to reviewing our Climate Vision 2050 roadmap in 2018, after the Intergovernmental Panel on Climate Change releases its new 1.5°C emissions scenario projections. Given the positive momentum created by the successful ratification of the Paris Agreement, as well as one of the Financial Stability Board's Recommendations of the Task Force on Climate-related Financial Disclosures being the use of 2°C scenario analyses, we believe it will be appropriate to start the review a year earlier in 2017.



#### INTEGRATING GOVERANCE

We have integrated sustainability-related governance into our existing corporate governance structure from the Board level down to the operational business unit level so that we can ensure more integrated oversight of financial and non-financial aspects throughout the Group.

#### **BOARD**

Although all Board Committees are involved with economic, environmental and social aspects in some way, the Sustainability Committee and the Audit Committee are the two Board level committees that are predominantly involved in sustainability-related matters

#### Sustainability Committee

CLP's Sustainability Committee is a Board level committee which oversees CLP's position and practices on sustainability issues affecting, or relevant to, the CLP Group business or operations, shareholders and other key stakeholders. Appointed by the CLP Holdings Board of Directors, the Committee is chaired by the CEO and includes Executive and Independent Non-executive Directors of the Board.

In 2016, the members of the Sustainability Committee were:

#### Chairman

Mr Richard Lancaster (Chief Executive Officer)

#### Members

- Mr Nicholas C. Allen (Independent Nonexecutive Director)
- Mrs Fanny Law (Independent Non-executive Director)
- Ms Irene Lee (Independent Non-executive Director)
- Mr Andrew Brandler (Non-executive Director)
- Ms Quince Chong (Chief Corporate Development Officer)

The Sustainability Committee met three times in 2016 and endorsed the 2015 Sustainability

Report in its February 2016 meeting. Its remit includes identifying and managing longer term emerging sustainability issues, which could be passed on to other relevant Board level Committees for more detailed strategic and management planning, as and when appropriate.

A full report on the Sustainability Committee's activities for 2016 can be found in our 2016 full online Sustainability Report and Annual Report.

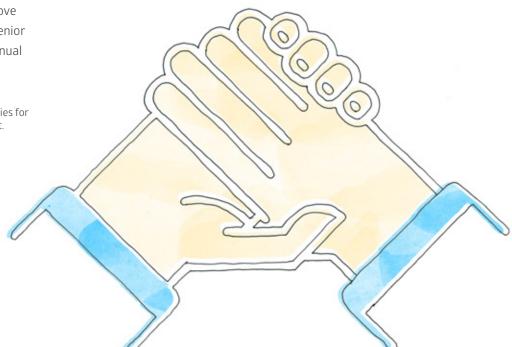
# Radar for emerging risks & opportunities Resources & Remuneration Committee Resources & Remuneration Committee

#### **Audit Committee**

Since 2015, oversight of our environmental, social and governance (ESG) data management and reporting is undertaken by the Audit Committee. The assurance of our ESG data is currently conducted by our financial auditor and is included as part of all annual financial audit discussions and presentations to Senior Management and Board.

The Audit Committee is also responsible for reviewing our governance-related practices including breaches of the Code of Conduct. In 2016, there were 21 breaches reported and none were material to the Group's financial statements or overall operation. Sanctions ranged from reprimands to dismissals. Compared to the previous year, the relatively higher number of breaches in 2016 reflected the improved identification and stricter enforcement of work place behaviour requirements. Of the reported Code of Conduct violation cases, there was one suspected Code of Conduct violation in respect of bribery (2015, nil case). Two of our employees were alleged to be indirectly involved in a bribery case related to one of our third party contractors. While this did not concern any of the business units of CLP, the alleged indirect involvement on the part of the two employees was considered as a violation against our strict principle of "No Bribery" as stipulated in our Code of Conduct. Another case involved a senior manager; in this context senior manager refers to staff graded at Hay Reference level 20 and above and did not involve any member of our Senior Management as disclosed in our 2016 Annual Report.

A full report on the Audit Committee's activities for 2016 can be found in our 2016 Annual Report.



#### **SENIOR MANAGEMENT**

The CEO. who is a member of the CLP Board Committee and is the Chair of the Sustainability Committee, has executive level responsibility for economic, environmental and social-related matters. The Management Representation Letter in connection to the assurance of our selected ESG data is jointly signed off by our CEO and CFO.

In 2016, the Sustainability Executive Committee was established with CLP Group's C-suite executives as members, coordinated by Director-Group Sustainability to discuss, shape and steer the sustainability agenda and relevant deliverables. The regular Sustainability Executive Committee meetings provide the opportunity for more in-depth discussion on new emerging issues and the shaping of new sustainability-related strategies.

## **GROUP FUNCTIONS & BUSINESS UNITS**

The Group Sustainability Department (GSD) reports to the Chief Corporate Development Officer (CCDO) who reports to the CEO. GSD is responsible for driving sustainability-related issues throughout the organisation from the Senior Management up to the Board level, as well as across the Group Functions and employees at the business unit level. It also supports the implementation of sustainabilityrelated strategies, policies and initiatives to ensure they are successfully delivered.

In addition to integrating sustainability into our existing business processes and systems, from informing our business strategy development and planning processes, to improving our operational performance and corporate reporting, the team also supports the incubation of new capabilities and innovation across the Group.

#### MANAGEMENT APPROACH

Our management approach for many of the financial, social, environmental and governance-related aspects of our business follows a hierarchy of codes and policies, systems, standards and guidelines. Our Code on Corporate Governance, as well as our Code of Conduct and Group Policy Statements, contained in CLP's Value Framework, set out the common principles that must be adhered to across the Group.

The Codes and Policy Statements are in turn supported by more specific policies that may be required either at the Group level, or at the business unit level to meet local regulatory requirements or local stakeholder expectations. In order to deliver on these policies, we have a combination of systems and standards, supported by procedures and manuals, which are internal mandatory requirements.

We also have a number of standard practices and guidelines which provide either: more details for system or standard implementation; or voluntary guidance on managing emerging issues and risks. which we believe are likely to arise within the next few years. The latter objective is part of how we address the concept of 'precautionary approach', particularly for environmental aspects.

In terms of reinforcing environmental, social and governance-related responsibilities, all staff who sign the annual General Representation Letter bear responsibility for the 'Reliability and Disclosure Controls of Financial and Relevant Nonfinancial Information', as well as the identification and assessment of reputational risks amongst other risks. 
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# SCOPE OF PERFORMANCE REPORT

The scope of the rest of our performance presented in this report focuses on the 'most material' topics identified through our combined scoping and materiality assessment methodology called the Boundary Scoping and Materiality Identification (BSMI). The BSMI methodology was developed in 2013. In 2015, we created an additional 'most material' topics category to further prioritise from those identified as 'material', since almost all the topics were being consistently categorised as being 'material' to our company or stakeholders or both. The 2016 BSMI process identified that of the 41 topics in the GRI Sustainability Reporting Standards, all 41 topics are 'material', of which 18 topics are 'most material'. The 'most material' topics are the focus of this In Essence Report, while all 'material' topics will be included in the 2016 online Sustainability Report.



# OUR PERFORMANCE

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The list below shows the 41 GRI topics mapped according to their importance to CLP and our stakeholders. Amongst the 41 material topics, 18 topics were prioritised as most material. All 41 material topics are included in the 2016 full report. Only the 18 most material topics are the focus of this <u>In Essence</u> report.

	ECONOMIC SUSTAINABILITY	OUR ENVIRONMENT	OUR PEOPLE	OUR COMMUNITY
Most Material Topics	<ul> <li>Availability and Reliability</li> <li>Demand-side Management</li> <li>Customer Privacy</li> <li>Anti-corruption</li> <li>Economic Performance</li> </ul>	Environmental Compliance     Energy     Emissions	Occupational Health and Safety Employment Diversity and Equal Opportunity Human Rights Assessment Non-discrimination Labour / Management Relations Training and Education	Public Policy     Socioeconomic Compliance     Local Communities
Material Topics	Disaster/ Emergency Planning and Response System Efficiency Customer Health and Safety Access to Electricity Marketing and Labelling Provision of Information Procurement Practices Research and Development Plant Decommissioning Indirect Economic Performance Anti-competitive Behaviour	Water     Effluents and Waste     Biodiversity     Supplier Environmental Assessment     Materials	Child Labour Forced or Compulsory Labour Freedom of Association and Collective Bargaining Market Presence Security Practices	Supplier Social Assessment     Rights of Indigenous People

Note: There are no non-material topics

#### **SUSTAINABILITY INDICES**

The Sustainability Committee reviews CLP's sustainability performance against external sustainability indices on an annual basis with a view to identifying and focusing on potential sustainability performance areas for improvement. In 2016, the Sustainability Executive Committee began reviewing an index submission per year on a rotating basis. This keeps our Senior Management up-todate on the potential ESG questions that may be asked by investors or analysts, as well as why these questions are being asked. It

also assists in tackling questions for which company positions or substantive changes in performance require Senior Management attention and approval.

For our 2015 performance, our DJSI score increased to an all-time high with a 28% increase, securing CLP's position on the DJSI Asia Pacific Index. For the CDP, CLP received the top score of "A-" for companies in Hong Kong, while our Hang Seng Corporate Sustainability score for our 2015 performance remained unchanged at "AA", similar to previous years.

In the past, we also reported our Bloomberg ESG scores but we did not do so this year as starting from 2016, to provide greater transparency around a company's ESG performance in the benchmarking process, Bloomberg began to carry RobecoSAM ESG percentile rankings and metrics, which are used by the DJSI. We welcome the change to align with the DJSI and given Bloomberg ESG database's prominence in the investor community, we will continue to check our data to ensure our ESG performance is truly reflected in the Bloomberg system so we stay competitive in the market.

#### **Sustainability Ratings**

Index Name		2016	2015	2014	2013	2012
	Score	73	57	63	64	64
Dow Jones Sustainability Index	Industry Average	52	52	56	54	61
CDP—Climate	Disclosure Score	<b>A</b> - (new combined	96	95	94	92
CDF — Clilliate	Performance Score	scoring method)	С	В	В	В
Hang Seng Corporate Sustainability Index	Rating / Score	AA	AA	AA	AA+	AA+

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## **SOCIAL & RELATIONSHIP CAPITAL**



#### What were the highlights for you in 2016?

There were two initiatives that were most exciting. First, the company underwent a rebranding exercise. For a company that has been around for over 100 years and has remained for the most part quite traditional, it was a big deal to be able to refresh its corporate branding, bringing in new colours and a new icon. It was exciting as the change also marks how the company itself is entering a new era to become an organisation that is more energetic, forward-looking and innovative, contrary to its longstanding image in the past.

Secondly, in terms of community initiatives, I have always believed in the transformational impact that education can bring. Last year our Hong Kong business launched a resource kit designed for kindergartens to learn about power supply and climate change. This completed our range of youth education programmes to cover the age span from 3 to 23. With a more holistic approach towards educating the younger generation on energy and environmental issues, we hope that we are helping to prepare and nurture the next generation of engineers and environmental professionals.



#### What were the key challenges in 2016?

From an operations perspective, there were some customer-related challenges such as voltage dips experienced by some of our customers in Hong Kong. While it is not possible to completely avoid volt dip incidents, we will continue to work hard on reducing the probability of such events recurring and to strengthen our capability to support our customers during such events to reduce the inconvenience caused. From a market perspective, there is the ongoing intense competition for customers in Australia. Despite this, EnergyAustralia has managed to increase customer tenure with improvements to customer service and investment in its capability to develop new products and services.

More broadly, 2016 was a year of black swans, with BREXIT in the UK and the newly elected leadership in the US. The past does not seem to be a good predictor of the future anymore – we live in very uncertain times. Trust in government and business continues to decline, making the business environment more

challenging to work in. The fragmented media landscape and extreme diversity in stakeholder views are also contributing to more social tensions.

Fortunately, throughout the year, we have received positive stakeholder feedback through awards and accolades. A perception survey showed that we are perceived to be professional and reliable and that we care for the environment and the community. Our brand tracking performance also improved in 2016.



#### What keeps you awake at night?

In addition to the fragmented media landscape and stakeholder views, cyber security is increasingly an important topic. For a company like ours, we have so much data and communications with our customers and stakeholders every day that we become more vulnerable as more and more of our information gets uploaded to the cloud. The company is also facing the threat of business model disruption, as is the rest of our sector and climate change and digitalisation have been influential drivers of this pending disruption.



#### How can we prepare for the future?

We must embed innovation into our culture, on top of our strong focus on delivering safe and reliable power. We should help our staff embrace technology and to use technology whenever applicable to improve efficiency in our operations and engagement with our community for example. At the same time, we should also raise staff awareness on cyber vsecurity and on how to apply different technologies to manage the related risks. We should also be much more customercentric – instead of simply selling what we have, we need to get our customers and community excited about what energy means to them, in the lead up to a low carbon lifestyle that digital communications and mobile technology can bring to them.

> Quince Chong Chief Corporate Development Officer of CLP Group

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#### FOR OUR CUSTOMERS

#### **Customer Privacy**

Under our Code of Conduct, every employee of the company must safeguard our assets and resources entrusted to our care, including customer information - from loss, theft or misuse. All employees must follow CLP procedures/practices and local regulations in relation to personal data privacy. We monitor and annually document any complaints related to breaches of customer privacy and loss of customer data.

In our Hong Kong retail business, no customer privacy and data loss cases were reported or noted. Our EnergyAustralia retail business received a total of 120 privacy complaints relating to information being provided to unauthorised parties. EnergyAustralia has adequately dealt with the resolution of each complaint. Of the 120 privacy complaints, six were received from the Australian Privacy Commissioner regarding potential breaches of customer privacy. Following investigation of the complaints, however, the

Commissioner closed all files on the basis that EnergyAustralia had not interfered with the customer's privacy.

#### Socioeconomic Compliance

Under our Value Framework and Code of Conduct, all employees must comply with all applicable laws and regulations, including health and safety, marketing, labelling, privacy and community matters.

We report our legal non-compliances on an annual basis in our Sustainability Report. There was no reported incidence of noncompliance with regulations or voluntary codes with regard to health and safety impacts of our products and services during their life cycle in 2016.

On product and service information and labelling, there was no breach of regulatory obligations and no fine for non-compliance relating to the provision and use of electricity in our Hong Kong business. EnergyAustralia reported some instances of non-compliance

with information, contractual and billing requirements under the National Energy Retail Rules and the Victorian Energy Retail Code. These were reported as required under the self-reporting regime that operates in Australia. We are taking action to prevent these breaches reoccurring and to ensure customer satisfaction. Since 1 January 2016, the payment that energy retailers operating in Victoria must make to wrongfully disconnected customers has been doubled to A\$500 a day for each day that customers' supply is cut off. EnergyAustralia paid compensation of approximately A\$110,000 for wrongful disconnections.

In wholesale markets EnergyAustralia received two infringement notices of A\$20,000 under the National Electricity Rules in relation to failure to follow dispatch instructions on 13 January 2016. The regulator noted that EnergyAustralia cooperated fully with the investigation and that no further action will be taken.

Other than what is reported here and the Customer Privacy section, there was no reported incidence of breaches of regulations and voluntary codes concerning marketing communication, including advertising, promotion and sponsorship.

#### **GRI MOST MATERIAL TOPICS:**

For 2016, the most material topics for this chapter were:

- 💡 Customer Privacy
- **Socioeconomic Compliance**
- **Demand-side Managment**
- **Public Policy**
- Local Communities

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#### Customer Enquiries and Complaints

In 2016, we served 2.52 million customer accounts in Hong Kong and about 2.63 million customer accounts in Australia. To help gauge the performance of our retail business, we track a number of metrics, including the number of customer enquiries and complaints.

#### **Hong Kong**

We received two million customer enquiries and three justified cases of customer complaints in 2016. Customer enquiries are handled by our skilled and well-trained frontlines at the Customer Interaction Centre (CIC) and Customer Service Centres (CSC). The CIC provides one-stop shop customer services in order to maintain good customer relationships to help word-of-mouth promotion of CLP services. All enquiries will be resolved by the frontlines where possible. For unresolved issues, cases will be passed to the Customer Care team which is the centre of excellence for handling general customer complaints and specific enquiries regarding high consumption patterns.

CIC has an internal service pledge to follow up verbal complaints within 24 hours and to acknowledge written complaints within two working days. All escalated cases will be studied thoroughly and resolutions developed for the customers.

Furthermore, the Customer Consultative Group meets regularly to review customer written complaints and determine whether or not they are justified and adequately dealt with. The Group has 13 members who are experts representing a wide spectrum of customers and industries.



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#### Australia

We continued to reduce calls taken in the past three years. Our year-end call contact rate is at 7.74% per 100 customers. "MyAccount" customers continued to grow and initiatives were in place to move traffic from traditional phone channels to self-service interactions and digital channels.

On complaints, we saw a 29% decrease in the total number of complaints received by EnergyAustralia, with a 34% decrease in Ombudsmen complaints and a 26% decrease in internal complaints. These positive results can be attributed to our focus on embracing our values, in particular 'customers are our priority' through driving a customer-centric culture; the introduction of NPS and the successful implementation of a new complaints operating model as part of our Strategy to Execution (S2E) initiative. Ombudsmen complaints per 10,000 customers has continued to improve, with a further reduction to 37 in 2016 (from 47 in 2015).

2016	2015	2014	2013
2,590,868	2,843,495	3,372,654	5,526,103

2016	2015	2014	2013
23,536	33,339	37,495	75,192



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#### Customer Satisfaction

In addition to enquiries and complaints, we also gauge the performance of our retail businesses, by asking our customers how we are doing via customer satisfaction surveys that we conduct on a regular basis.

#### **Hong Kong**

We measure customer satisfaction through an annual telephone interview survey conducted by an external marketing research consultant.

The customer satisfaction score is calculated considering overall satisfaction towards the utility and relative rating against an ideal utility in Hong Kong. The score is benchmarked against all public utilities in the energy sector and public service organisations (i.e. Hong Kong Post and the Water Supplies Department).

#### **Hong Kong Customer Satisfaction Score**

	2016	2015	2014	2013	2012
CLP	70	68	69	68	68
All Public Utilities in the Energy Sector	70	69	69	68	68
Public Service Organisations	70	69	70	69	70



#### **Australia**

For the fourth year in a row, EnergyAustralia used a Strategic Net Promoter Score (NPS) approach to assess customer satisfaction.

In addition to the Strategic NPS tracking, which measures overall customer advocacy, in late 2015, EnergyAustralia launched a Transactional NPS tracking, which tracks customer satisfaction in relation to specific customer interactions (for example after a phone call with our contact center) which will help with identifying areas for improvement.

After baselining the NPS score in late 2015, we have been tracking our performance throughout the year. Overall the score ended slightly higher at the end of the year from our baseline. We saw improvements in satisfaction in the first half of the year followed by declines in the second half of the year as customers were impacted by yearly re-prices, winter bills and service level challenges at our contact centres.

The planning for 2017 is to achieve significant improvements in transactional NPS by applying the learnings from this first year.



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#### Demand-side Management

Under our Value Framework, we have published a Customer Service Quality Policy Statement, which states that we must support our customers to use our products and services efficiently and effectively. Energy management offers mutual benefits to our customers and our business. The more that demand can be reduced, the more the bills can be reduced and new investments deferred. We have been offering demand response programmes for our customers to reduce peak demand, achieving environmental and economic benefits

In Hong Kong, under the Scheme of Control we are incentivised with an extra 0.01% return on our fixed assets if we meet the energy efficiency and conservation target of achieving no less than 150 energy audits for commercial and industrial customers and saving at least 12GWh of electricity consumption per year.

#### **Hong Kong**

In Hong Kong, we continue to roll out programmes to help our customers identify energy saving opportunities and better manage their electricity usage. Our efforts focus on the promotion of energy efficiency and conservation (EE&C) through the following green tools:

#### **EE&C Support for Customers**

- Conducted 160 free energy audits for our commercial and industrial customers, and helped save 15.8GWh of electricity.
- Launched the "Supporting SME with 6 Energy-Saving Rewards" campaign to help small and medium businesses to manage electricity usage.

#### Eco Power 360

 Launched the enhanced online home energy assessment platform to encourage our residential customers to use energy wisely.

#### **Meter Online**

• Developed an innovative energy management tool that provides a nine-day energy forecast based on weather information to help our commercial and industrial customers predict and better manage their electricity consumption.



#### **Eco Building Fund**

- Provided subsidies to residential building owners to enhance the energy efficiency of the communal areas of their buildings.
- Approved 83 applications, for total funds reaching HK\$36.4 million.





See Community & Environment

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#### **Australia**

In Australia, our customers have access to a range of complimentary services, which include advice and tools to help our customers better manage their energy consumption.

#### **Energy Saving Tools**

• Customers can assess the energy usage and appliance saving in their home and check out our bill reduction checklist for ways to cut electricity and gas costs.

## **Energy Saving Tips**

• Customers can learn how to save energy and reduce bills in their home by selecting a room and taking a walk-through to discover how they can reduce their impact on the environment, and their budget.

#### The Hub

• The Hub is the home of all things energy related – from helpful tips for moving house to the latest on sustainable technologies and what's happening in the EnergyAustralia community.



#### **Low Carbon Products & Services**

#### Online Carbon Credits Sales Platform

Apart from continuing our efforts in reducing our carbon footprint, we believe it is equally important to assist our stakeholders on their decarbonisation journeys.

In 2017, we plan to launch an e-commerce platform that allows users to purchase carbon credits online, in the hope of making it easier for individuals or organisations to offset their carbon emissions. We believe a price on carbon is inevitable. Therefore, offsetting unavoidable emissions is one way to begin incorporating a potential price on carbon into the financial planning and budgeting process for an individual or an organisation. This will be the last component of the threestep range of solutions we plan to offer our stakeholders to assist them in their journeys towards achieving net zero carbon emissions. The solutions are prioritised as:

- 1. reducing energy use first;
- 2. transitioning towards using energy generated with low or no carbon emissions next, and
- 3. offsetting the remaining or unavoidable emissions last.

#### EnergyAustralia's Go Carbon Neutral

At EnergyAustralia, customers can now get 100% carbon neutral electricity in their home at no extra cost. For customers who opt for carbon neutral electricity, EnergyAustralia purchases carbon offset units which support projects that reduce emissions, such as renewable energy projects in developing countries, or land management and tree planting in Australia, to offset the amount of carbon they release into the atmosphere.

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## FOR GOVERNMENTS & **REGULATORS**

#### **Public Policy**

In our Value Framework, we are committed to contributing to the development of sound government policies and laws that balance the social, economic and environmental needs and support the long-term development of the communities we serve.

The power sector is a heavily regulated sector. Hence we maintain regular communications and actively engage with governments at different levels and with industry bodies in markets where we operate to ensure the smooth operation of our businesses.

In 2016, we had regular dialogues with the Hong Kong Government on regulatory and policy matters including the post-2018 regulatory arrangements, gas supply security, air quality objectives, environmental targets and smart city developments.

In Australia, we contributed to several reviews of different aspects of the energy market, including the East Coast Wholesale Gas Market and Pipeline Frameworks Review, Queensland Inquiry into a 50% Renewable Energy Target and Victorian Hardship Review. EnergyAustralia continues to support energy and climate policy that is national, integrated, technology neutral and durable. It is essential to build the confidence needed to invest in transitioning Australia's energy sector to lower emission power generation, while ensuring reliable and affordable energy for consumers.

At the international level, our position on climate change is demonstrated by our commitments to several international initiatives including:

• being an active member of the Scaling Up Renewables project under the Low Carbon Technology Partnerships Initiative (LCTPi) led by the World Business Council for Sustainable Development (WBCSD) and supported by We Mean Business:

- submitting our Climate Vision 2050 commitment to the United Nations Sustainable Energy for All (SE4All) initiative; and
- committing to three of the CDP commitments including, mainstream climate reporting, responsible corporate engagement and science-based targets.



## **FOR OUR** COMMUNITIES

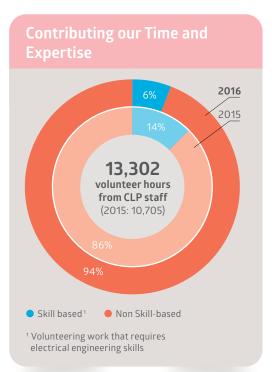
#### LOCAL COMMUNITIES

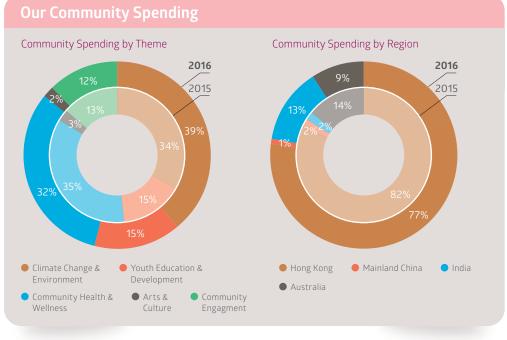
As different communities have different needs. our business units in the different countries are given the flexibility to prioritise and address the specific needs and sensitivity of the existing cultures, traditions and values of the local communities. Our local teams, who have the best knowledge of local priorities, are able to work with local governments and organisations to provide solutions that best match their needs. In 2016, we implemented community initiatives in 100% of the regions in which we operate.

In 2016, we initiated, sponosored or donated to 574 programmes for the four pillars. We invested both money and time into our community.

Similar to last year, our 2016 spending was focused on two pillars: Climate Change & the Environment (39%) and Community Health & Wellness (32%). On spending by region, India's notable increase in spending (13% in 2016 versus 2% in 2015) was mainly attributed by

investing in new community infrastructure projects including construction of a hospital near our Jhajjar plant. The amount we donated for charitable and other purposes was HK\$12.65 million, decreasing by 13% from that in 2015. The decrease is within the normal annual fluctuations resulting from ad hoc programmes in one year not happening in the next, as well as potential changes in timing and involvement in the programmes from one year to the next.





- 1. Figures include rounding adjustments.
- 2. Reporting scope is adjusted to exclude Southeast Asia & Taiwan due to minority interests and include Eco Building Fund, resulting in restated 2015 figures.

#### Amount Donated for Charitable and Other Purposes (excludes in-kind donated)



HK\$12.65 million in 2016



HK\$14.52 million in 2015



HK\$12.02 million in 2014

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We create positive indirect economic impact on the society as many of our programmes are geared towards education, better health care and quality of life improvement in rural areas, all of which are known to contribute indirectly to economic improvement.

As a result of the resources contributed, we directly benefitted more than 359,000 people in 2016 versus over 176,000 people in 2015. This was due mainly to a one-off launch of the POWER YOU Kindergarten Education Kit which was distributed to all kindergartens in Hong Kong.

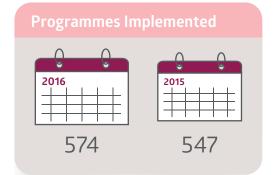
See our education initiatives in this report.

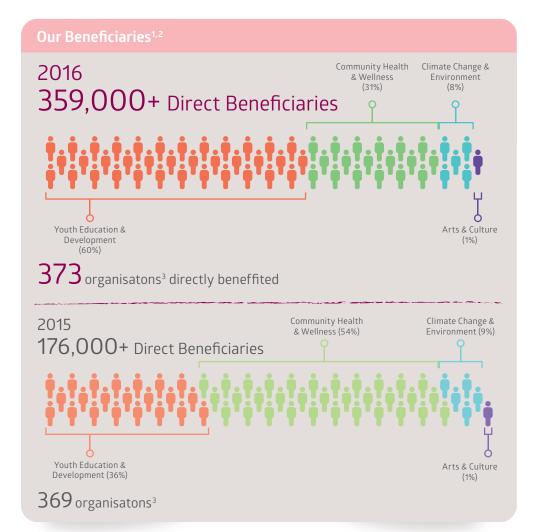
To better evaluate the social impact of our community initiatives, we have commissioned a benchmarking study of different socioeconomic impact measurement tools so that we can identify the most suitable means to evaluate the effectiveness of our contribution.

in the community and make recommendations for the next step.

Furthermore, a standardised online reporting system was launched in the fourth quarter of 2016 to improve the integrity of our community-related data across the Group. The establishment of the system has also enhanced the overall effectiveness and efficiency in reviewing and reporting our community initiatives.

See a description of the reporting system of community data in the Appendix in our 2016 Sustainability Report.





- 1. Figures include rounding adjustments.
- 2. Reporting scope is adjusted to exclude Southeast Asia & Taiwan due to minority interests and include Eco Building Fund, resulting in restated 2015 figures.
- 3. Benefitted including professional bodies, academic institutes, NGOs and community groups

#### **Building Awareness for Energy Efficiency**

#### POWER YOU Kindergarten Education Kit

In Hong Kong, we developed an innovative electricity-themed education kit with story books, finger puppets, a board game and worksheets. It is available to all kindergartens free of charge. This initiative has the dual aim of teaching children about energy production, while promoting energy efficiency. The kit has been used by over threequarters of the kindergartens in Hong Kong, benefitting more than 135,000 students.



#### Green Elites Campus Accreditation **Programme**

At the primary school level, CLP Power Hong Kong continued to organise school visits, support reducing food waste, conduct energy audits, and host a variety of learning programmes. We have awarded 22 primary schools the Green Elites Campus accreditation since the programme's inception in the 2014/15 academic year, in recognition of their efforts in promoting environmental protection through educational activities.

#### CLP Young Power Programme

To further enhance environmental awareness among secondary school students in Mainland China, we continued our signature CLP Young Power Programme in 2016. Some 150 high school students from Nanning in Guangxi and Hong Kong took part in learning tours and seminars, and became our young energy ambassadors. We also contributed to the community by offering grants to schools near our assets to improve school facilities.

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## FINANCIAL CAPITAL



#### What were the highlights for you in 2016?

Our purpose is to deliver power in a socially and environmentally responsible fashion, while making sure we continue to be economically supportive and sustainable. So each year that we deliver on the Trilemma, of providing energy that is safe, secure and reliable, environmentally responsible and affordable, while paying interest and dividends, we have a sense of 'mission accomplished'.

In 2016, despite the difficult environment for power companies in Mainland China, no increase in Hong Kong tariffs and a very competitive environment in Australia, earnings across the CLP group in aggregate increased moderately and so did the dividend. We kept a fair balance between distribution and reinvestment. In Hong Kong, we continued to improve our environmental performance and launched investment in a new Combined Cycle gas turbine (CCGT) generation unit. We also continued to make strides in non-fossil generation, with renewables in Mainland China and Australia, as well as nuclear in Mainland China.



#### What were the key challenges in 2016?

Mainland China's fight against climate change and air pollution has led to lower utilisation of coal plants, which is good for the environment and public health, but has affected profitability of part of the portfolio. In Australia, we are faced with multiple regulators whose policy objectives may vary from region to region and have often varied over time. The fact that there have been a number of blackouts in South Australia in recent months illustrates that the risks of imbalance of the Trilemma are real.

Fortunately, Mainland China's low carbon anti-pollution movement is partially addressed by the increase in renewables and nuclear power. CLP has been an early adopter of these technologies in Mainland China. In Australia, we worked very hard to keep our low-cost power plants available and producing, but we also signed off contracts in support of new renewable energy projects thus contributing to a "sensibly managed energy transition". Delivery on our customer promise and experience improved significantly as externally validated by several industry awards.



#### What keeps you awake at night?

The possibility that Mainland China may not put the brakes firmly enough to the still ongoing development of new coal-fired power plants thus delaying energy transition and causing over capacity. The possibility that Australia's energy transition does not proceed in a way that maintains an appropriate balance between the demands of the Trilemma, such that customers' expectations of affordability and reliability are met. The possibility that Hong Kong may lose appreciation for the reliability part of the Trilemma, particularly for reliability, which is taken for granted. In Hong Kong we increasingly depend on one type of primary energy, in this case natural gas, and so we become more vulnerable to energy security and pricing issues.



## How can we prepare for the future?

The best way I can see is by keeping our focus on our mission to solve the energy Trilemma.

In particular for Mainland China, focusing on the environmental "leg", we will see a faster change in our portfolio — by 2017, only about 25% of earnings will come from fossil fuel generation.

In Australia, our primary focus is on the reliability and affordability aspect of the Trilemma, whilst contributing to a hopefully more coherent nationwide energy transition.

Finally in Hong Kong, our primary focus will be on delivering on our commitment to civil society to replace coal with gas as the primary fuel come 2020, and to do this without compromising on reliability whilst trying to mitigate the economic consequences for customers and shareholders.



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#### FOR OUR SHAREHOLDERS

#### **Economic Performance**

2016 was a year of steady progress across our portfolio. Group operating earnings increased 7.1% to HK\$12,334 million. Total earnings were down 18.8% to HK\$12.711 million after taking into account one-off items that affected comparability including a significant contribution from the sale of the Iona Gas Plant in Australia in 2015.

In 2016, CLP paid quarterly dividends to our shareholders of HK\$0.57/share for each of the three interim dividends and HK\$1.09/share for the fourth interim dividend. Combined, this resulted in total dividends for the year of HK\$2.80/share. This is an increase from last year's total dividend of HK\$2.70/share. This represents a dividend payout ratio for the year of 57% of operating earnings.

For the global stock market, 2016 marked an unusual year with the United Kingdom's European Union membership referendum and the Presidential Election in the United States.

CLP's share price appreciated significantly during the first half of the year and reached an all-time high in July of HK\$83.90. After a period of relative flat trading in the third quarter, it subsequently declined in the fourth quarter to HK\$71.25 in line with the Hang Seng Index (HSI) and in response to uncertainty associated with the US Presidential Election and interest rate pressures in the United States. Relative to the starting position on 1 January, 2016, CLP's share price gained 8.2% and significantly outperformed both the HSI and Bloomberg World Electric Index (BWEI), which finished the year up by 0.4% and down by 1.0% respectively.

In 2016, the average closing price of CLP's shares was HK\$74.01, an increase of more than 11% when compared with the average of 2015. The stock recorded its highest closing price of HK\$83.90 on 26 July and the lowest closing price of HK\$62.45 on 21 January. It ended the year at HK\$71.25.

Total returns to shareholders come from the combination of share price appreciation and dividend payments over time. During the 10year period from 2007 to 2016, CLP provided an annualised rate of return of 6.42%, as compared with 4.44% for the HSI and a negative return of 0.30% for the BWEI.

#### **GRI MOST MATERIAL TOPICS:**

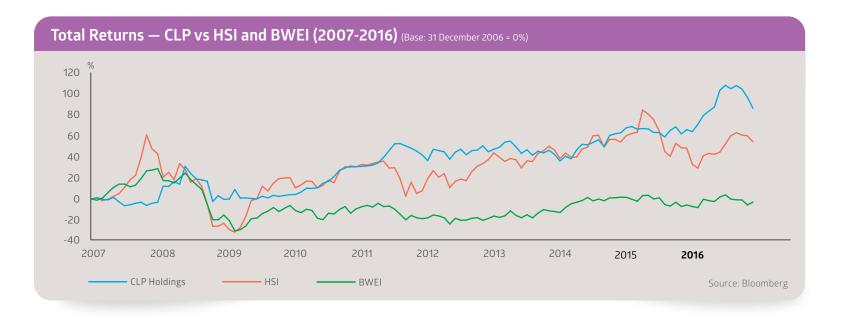
04 Our Strategy

For 2016, the most material topic for this chapter was:



Economic Performance





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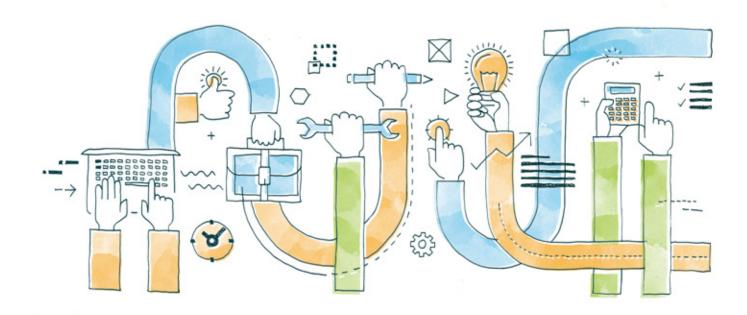
#### FOR OUR LENDERS

#### Credit Ratings

CLP always strives to maintain good investment grade credit ratings. In 2016, our commitment and initiatives to support a strong financial position were recognised by positive rating actions from S&P for CLP Holdings and CLP Power Hong Kong (rating outlooks revised to positive from stable) as well as to EnergyAustralia (credit rating to BBB from BBB- and outlook to positive).

The credit ratings of major companies within the Group as of 31 December 2016 are presented here.

	S&P	MOODY'S
	CLP Holdings (A- / Positive)  CLP Power Hong Kong (A / Positive)  EnergyAustralia (BBB / Positive)	CLP Holdings (A2 / Stable) CLP Power Hong Kong (A1 / Stable)
Positive	<ul> <li>Sound and stable regulated business in Hong Kong</li> <li>Higher earnings from overseas businesses</li> <li>Ample liquidity, enhanced operational stability and working capital management in EnergyAustralia</li> </ul>	<ul> <li>Predictable cash flow contributions from Hong Kong business</li> <li>Sound liquidity profile of CLP Holdings</li> <li>Good access to banks and capital markets, and the availability of sizeable committed bank facilities</li> </ul>
Negatives	<ul> <li>Limited visibility on the regulatory framework in Hong Kong after 2018</li> <li>EnergyAustralia operates in a highly competitive energy market that is facing some structural changes</li> </ul>	<ul> <li>Overseas and non-regulatory business investments increase risk profile</li> <li>CLP Holdings' credit rating is constrained by improving but modest performance of its Australian operations</li> </ul>



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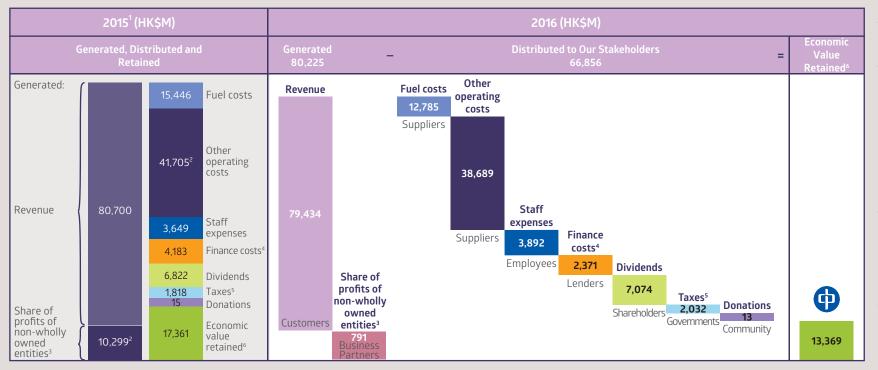
#### FOR ALL KEY STAKEHOLDERS

#### Fconomic Value Generated & Distributed

We create value not only for our shareholders, but also for our other stakeholders -83% of our economic value generated was redistributed back to our stakeholders in 2016. The indirect economic value that we create is an important part of what makes our business sustainable.

#### **Economic Value Generated, Distributed and Retained**

CLP generates revenue by selling electricity and gas to our customers. Costs are paid to our various stakeholders – suppliers and contractors, employees, capital providers, governments and the community. Economic value retained is funds kept in the company to preserve operating capacity and to fund new investments.



- 1. Comparative figures have been restated for the adoption of HKFRS 9 on hedge accounting
- 2. Comparative figures have been restated to conform with current year's presentation
- 3. Represents share of results (net of income tax) from joint ventures and associates netted with earnings attributable to other non-controlling interests (2015: Included other gain from sale of Iona Gas Plant of HK\$8,900 million)
- 4. Finance costs is netted with finance income and include payments made to perpetual capital securities holders
- 5. Represents current income tax but excluding deferred tax for the
- 6. Represents earnings attributable to shareholders (before depreciation, amortisation and deferred tax) for the year retained

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## MANUFACTURED CAPTIAL



### What were the highlights for you in 2016?

As a Group, we need to break down the jurisdictional silos and create synergy along with some healthy internal competition, for better capital performance. With our manufactured capital performance seeing an aggregate increase on performance in 2016 versus plan and against 2015 actuals — a solid operational performance year — we have made progress.

The catalyst for such change has been the forums that have taken place regularly throughout this year, where colleagues have invested enthusiastically to showcase assets they are proud of and to share best practices and lessons learned at the forums, with subsequent follow up on the Group Operations Yammer website. A quote I overheard one employee say that helps brings this point home was, "I've been at CLP for a number of years and this is the first time I've talked to someone doing the same job it feels great to be able to share and learn from each other in this environment."



#### What were the key challenges in 2016?

Safety would be the first critical challenge. Our safety metrics show we are improving and yet we have had three contractor fatalities in 2016. Each occurred at a different site - Sihong in Mainland China, and Jhajjar and Tejuva in India. With the two in India being related to falls from height, greater focus, awareness and training for falls from height is ongoing. There is now greater emphasis on proactively developing healthy local community dialogue as an essential part of the development phase of a project as well. Going forward, we must continue to strengthen our management of contractors and ensure that all procedures are followed and risk identification is undertaken more rigourously.

Lateness in major construction projects against plan would be the second challenge. Whether the plan was too optimistic or the delay was due to justifiable unforeseen circumstances, it is important that we identify any root causes that can be mitigated or even prevented. Instilling discipline at this early stage of the project will help ensure we continue to deliver world class operations.



### What keeps you awake at night?

Operating our business safely is always on my mind and continues to be a challenge. That said, our current business model is under threat and new players are beginning to eat into our value chain. The rising trend of distributed energy and direct prosumer-to-prosumer trading systems that can bypass a utility's core business is a challenge to some existing business models. The technologies involved are typically asset light, software heavy, modular and therefore very scalable with little upfront permitting or extensive development cycles. Such characteristics open up both competitive and regulated markets to many new market players that don't necessarily require deep power expertise as a critical factor. This can pose as both an opportunity as well as a challenge for CLP and it is good to see that we have already started to take action with opportunity being the focus.



## How can we prepare for the future?

CLP has already started its innovation journey in 2016 under the general theme of opportunities under digital disruption. With the aim of implementing new sustainable technologies and business models under a new sharing and circular economy, we are preparing, incrementally through pilots and demonstration projects in different regions to develop the tools, knowledge, necessary skillsets and centres of excellence. Where we do not have the skills, we are selectively choosing appropriate long-term partners.

We need to continue to be proactive in defending our business and building capabilities for the new business models that will prevail. We have made a good start, but we still have a long way to go.



## **FOR OUR CUSTOMERS**

#### **GENERATION**

Since we commissioned our first generator over a century ago in Hong Kong, we have increased our generation capacity to 18,622MW equity of generating capacity and 5,159MW of capacity purchase from six different energy sources. Our diversified portfolio of power generation assets includes coal, gas, nuclear and renewable energy (wind, hydro and solar).

In 2016, the Group's total generation capacity increased by 2.4% to 18,622MW (2015: 18,180MW). Coal capacity remained the same whereas the renewable capacity rose by 1.3% during the same year.

The Group's total electricity sent out, which is based on 100% of sent out from the plants where CLP has investment and includes our capacity purchase, was 133,275GWh in 2016 (2015: 132,231GWh). On CLP's equity basis, which also includes capacity purchase,

our electricity sent out was approximately 79,800GWh (2015: 78,975GWh). They remained at similar levels to 2015.

Most of our assets use electricity generated from their own operations for ancillary use but a small amount is also purchased from the grid. In 2016, the amount of

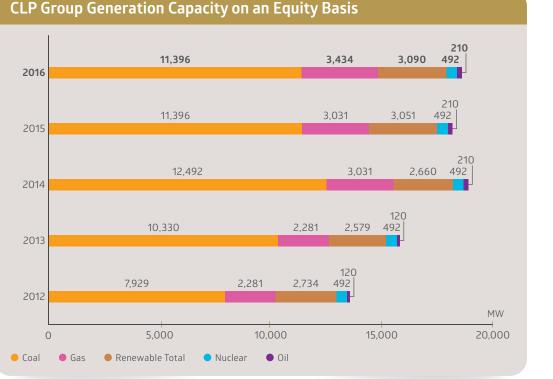
electricity purchased at our operationally controlled assets for their own use was over 229.6GWh.

We report the annual operating performance of our generation portfolio for those assets which fall within our environmental scope as defined in the Reporting Scope section.

The performance metrics include the availability factor, generation sent-out, thermal efficiency and energy intensity. (See next page for the generation performance of our assets.)

### **AVAILABILITY AND** RELIABILITY

Availability and reliability are two key performance metrics for CLP assets. Targets for each asset are set annually and included in the business plan. Performance is reported on a weekly basis to senior management. Any significant variations to what has been planned are analysed and corrective actions are put in place where appropriate.



#### **GRI MOST MATERIAL TOPICS:**

For 2016, the most material topic for this chapter was:



Availability and Reliability

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For our generation assets, we monitor the availability factor which is the amount of time that the asset is able to produce electricity over a certain period divided by the amount of time in that period. Typical values range from 70% to 90%.

	BUSINESS	GENERATION	GENERATING	EQUITY	EQUIVALENT AVAILABILITY FACTOR (EAF) <sup>1</sup> /	GENERATION	THERMAL	ENERGY INTENSITY
WFACILITY	ТҮРЕ	TYPE	CAPACITY (MW)	OWNERSHIP (%)	AVAILABILITY FACTOR (AF) <sup>2</sup>	SENT-OUT (GWh)	EFFICIENCY	(kJ/kWh)
Hong Kong								
Black Point	Power Generation	Gas	2,525	70%	81.40%	9,175	45.10%	7,982
Castle Peak	Power Generation	Coal	4,108	70%	85.75%	15,187	33.05%	10,893
Penny's Bay	Power Generation	Oil	300	70%	98.90%	1	21.10%	17,062
Transmission & Distribution Network	Power Delivery	N/A	N/A	100%	N/A	N/A	N/A	N/A
Mainland China								
Dali Yang_er	Power Generation	Hydro	49.8	100%	79.75%	183*	$N/A^3$	N/A <sup>4</sup>
Fangchenggang I	Power Generation	Coal	1,260	70%	97.00%	2,787	35.67%	10,093
Huaiji	Power Generation	Hydro	129	84.90%	86.80%	548*	$N/A^3$	N/A <sup>4</sup>
Jiangbian	Power Generation	Hydro	330	100%	90.00%	1,114*	$N/A^3$	N/A <sup>4</sup>
Jinchang	Power Generation	Solar	85	51%	99.60%	119*	$N/A^3$	N/A <sup>4</sup>
Laiwu I	Power Generation	Wind	49.5	100%	99.73%	75*	$N/A^3$	N/A <sup>4</sup>
Penglai I	Power Generation	Wind	48	100%	99.77%	94	$N/A^3$	N/A <sup>4</sup>
Qian'an I and II	Power Generation	Wind	99	100%	97.60%	142*	$N/A^3$	N/A <sup>4</sup>
Sihong	Power Generation	Solar	93.42	100%	100.00%	135	$N/A^3$	N/A <sup>4</sup>
Xicun I and II	Power Generation	Solar	84	100%	99.55%	164*	$N/A^3$	N/A <sup>4</sup>
Xundian I	Power Generation	Wind	49.5	100%	99.60%	135*	$N/A^3$	N/A <sup>4</sup>
India								
Jhajjar	Power Generation	Coal	1,320	100%	93.19%	2,965	34.65%	10,390
Paguthan	Power Generation	Gas	655	100%	95.56%	547	39.84%	9,036
Australia								
Cathedral Rocks	Power Generation	Wind	66	50%	85.96%	156	$N/A^3$	N/A <sup>4</sup>
Hallett	Power Generation	Gas	203	100%	90.55%	39	17.70%	20,339
Mount Piper	Power Generation	Coal	1,400	100%	77.60%	7,264	35.40%	10,169
Tallawarra	Power Generation	Gas	420	100%	95.22%	858	47.07%	7,648
Yallourn	Power Generation	Coal	1,480	100%	87.80%	10,483	25.85%	13,926

#### Remarks

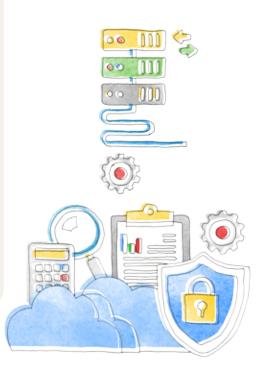
- 1. Equivalent Availability Factor (EAF): is the proportion of available hours less full load equivalent of de-rated in a period of one year (8,760 hours). 3. N/A: In this context, N/A means "Not Applicable" as renewable generation does not have a thermal efficiency because power is not
- 2. Availability Factor (AF): is the fraction of hours in a period of one year (8,760 hours) when a plant is available to generate electricity.
- 1. 3. N/A: In this context, N/A means "Not Applicable" as renewable generation does not have a thermal efficiency because power is n generated through thermal process.
- 4. N/A: In this context, N/A means "Not Applicable" as energy intensity is not calculated for renewable energy.
- 5. Data marked with \* are Energy Sold (the rest are Sent Out data)

### **OPERATIONAL EFFICIENCY IMPROVEMENT**

We have a variety of generation assets in our portfolio, using different fuel sources and at various stages of the asset lifecycle. Whichever type of generation assets, we endeavour to identify opportunities for improvement in operational efficiency. For projects involving a major overhaul of the assets, they undergo stringent technical and financial scrutiny before implementation. Our ultimate aim is to operate all of our plants efficiently with minimal environmental impact.

Below are some of the operational efficiency improvement initiatives conducted on our plants in 2016:

- At Hong Kong's Black Point Power Station, one of the eight gas turbine systems was successfully upgraded, increasing its capacity by 25MW, or 8%, enhancing its nitrogen oxides emissions performance and making a minor improvement in efficiency and fuel cost. The success of this trial paves the way for additional units to progressively be upgraded in coming years to realise the full potential for environmental performance improvement and capacity increase.
- In Mainland China, we completed refurbishments of three hydro stations of our Huaiji asset, increasing the overall Huaiji generating capacity by around 3%.
- At our Fangchenggang power station in Mainland China, we completed Phase II extension of two ultra-supercritical units with higher efficiency, increasing the project's capacity from 1,260MW to 2,580MW. We also modified the existing supercritical units of Phase I, saving around 26,000 tonnes of standard coal per year. In addition, we optimised coal yard management by maintaining a reasonable coal stock level and reduced the cost of coal inventory by RMB5 million in 2016. Further improvements are planned in 2017. We have begun tendering for a retrofitting project for Phase I to ensure compliance with Mainland China's emissions requirements by the end of this decade
- At our Mount Piper Power Station in Australia, there has been deterioration in performance over a number of years due to deposition on the steam turbine blades. In 2016, we took a major outage on one unit and successfully removed the deposition and recovered approximately 8% in capacity and 2% in efficiency. The second unit will be similarly treated in 2017 to improve output and efficiency.



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### TRANSMISSION AND DISTRIBUTION

While CLP has generation businesses across the Asia-Pacific region, Hong Kong is the only location where we operate a transmission and distribution network. It serves about 80% of the population of the city and close to 100% of the population in our service area.

The reliability of our system is above 99.999%, higher than other major cities such as London, New York and Sydney. At the end of 2016, we had approximately 1,170 km of overhead lines and approximately 14,111 km of underground circuits at medium or higher voltage. In addition, we also had 230 primary and 14,254 secondary substations in Hong Kong.

In 2016, our average network loss for the past five years was 4.1% of the total energy, which remained unchanged from our 2015 figure.

#### Performance

We use a set of universally recognised supply reliability performance indicators from the IEEE 1366-2012 standard to monitor our system performance. These indicators are the core attributes for power systems and are reported annually to the Hong Kong Government.

#### System Average Interruption Frequency Index (SAIFI)

SAIFI is the average number of supply interruptions for each customer served. Both planned and unplanned interruptions are included. Our three-year average SAIFI (2014 – 2016) was 0.18, meaning our customers experienced a power interruption approximately once in five years during this period. It slightly increased over last year's three-year rolling average of 0.17, due to the installation process for the increased scale of meter replacement with smart meters.

#### System Average Interruption Duration Index (SAIDI)

SAIDI is the average duration of interruptions each customer may encounter in a given year. Our three-year average SAIDI (2014 – 2016) was 0.35 hours including both planned and unplanned interruptions. This was an improvement over last year's three-year average SAIDI (2013 - 2015) of 0.39 hours.

#### **Unplanned Customer Minutes Lost (Unplanned CML)**

Unplanned CML is the average duration of unplanned power interruptions per customer in a given year. These outages occur without prior notice, and happen as a result of various factors such as weather events, third party damage to the network and equipment faults. Our 2014 to 2016 three-year average unplanned CML is 1.48 minutes, improving from 1.51 minutes between 2013 and 2015.

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## NATURAL CAPTIAL



#### What were the highlights for you in 2016?

The rapid ratification and adoption of the Paris Climate Change agreement by the international community and the increased momentum it gave to our efforts to transition our business, stands out as a highlight for 2016. There has been further recognition of the need to limit coal investments and develop our low carbon business. In this context, the commencement of our maiden solar project in India with the 100MW Veltoor Solar Farm, was particularly pleasing.

In parallel, steady progress was made in our efforts to respond to the other significant global trends impacting us, such as technological disruption and workforce transition.

With our investment priorities transitioning away from coal to pursue low carbon opportunities, we are also actively exploring the development of new services and servicebased business models and the development of the requisite organisational capabilities.



### What were the key challenges in 2016?

Regulatory certainty remains a key challenge for the business, particularly in making an orderly transition over time to a net zero carbon future. We operate in a number of countries that are each still developing and evolving different policies to address this broad issue. This takes place against an international backdrop where the level of political risk globally is increasing. This means that the potential business risks and opportunities for us continue to be quite diverse, which introduces the challenge of uncertainty and also means that business models may not be easily replicated across the different jurisdictions.

One of the solutions that can assist in managing these differences is the use of technology. We are beginning to use digital technology to operate more efficiently and so even if actual business models themselves may not be replicable, there could still be effective and efficient technologies, practices, systems or processes that can be replicable to scale up efficiency in each of the places we operate.



### What keeps you awake at night?

Disruption of our sector would be my top concern. We, together with other power companies around the world, are facing disruption from global trends like technology changes, in this case digitalisation, regulatory change as governments seek to transition to a lower carbon world, and social changes like customers wanting to take greater control of how their energy needs are met. Political changes, such as how US policies and regulations will affect the Asia-Pacific region are also of concern. The geopolitical implications arising from the changes that we saw in 2016, will ultimately affect us and although we know these changes have increased the uncertainty in the world we live in, whether the effects will be positive or negative for the Asia-Pacific region, we have yet to see.



### How can we prepare for the future?

CLP is continuing to build skills and capabilities in renewable energy and low carbon businesses along with the capabilities to take advantage of the efficiencies that digital technology brings. We are also transitioning our corporate mindset from being a Holdings company with subsidiaries that work in silos, to a Group where subsidiaries can leverage off each other to increase operational and innovation efficiency. As we complete this transition, we will look to see how we can further deepen our integrated decision-making culture such that decisions can be made more collaboratively across the Group. We need to develop the range of capabilities and organisational agility that will allow us to be prepared to address future uncertainty.



## FOR OUR **ENVIRONMENT**

## **ENVIRONMENTAL COMPLIANCE**

At our operating assets, we had two licence limit exceedances at Jhajjar Power Station in 2016 as shown in the table on this page. They were both related to particulates emissions and both were minor incidents which did not contribute to any penalties.

For the year ending 31 December 2016, there were no environmental non-compliances resulting in fines or prosecution at our operating sites. However, there was one environmental non-compliance at a construction project, Sandu I windfarm in Guizhou province where the construction of an access road and wind turbine platforms had resulted in a greater impact on the environment and forestry land than initially authorised. The local Forestry authority has imposed a sanction totalling RMB14 million as of the end of 2016. A site environment restoration programme has mostly mitigated the impact with some seasonal revegetation works to be carried out in 2017.

Project management and technical procedures have been enhanced to improve our future performance at this type of geographically difficult location.

#### **ENERGY**

#### Fuel Use

The total fossil fuel consumption for power generation was broadly stable in 2016 compared to 2015. We used 0.7% more coal and 9.2% less gas in 2016, due mainly to less gas used in Australia as a result of the higher gas prices.

#### **Environmental Regulatory Non-Compliances and Licence Exceedances**

	2016	2015	2014	2013	2012
Environmental regulatory non-compliances resulting in fines or prosecutions	0	1	1	0	0
Environmental licence limit exceedances & other non-compliances	2	13	3	4	1

#### **Annual Fuel Consumed for Power Generation** 453.904 86,787 -4,162 2016 450,937 95,591 - 2,892 2015 541,865 63,268 \_\_\_\_ 2,345 2014 -1.973 433.763 73,510 2013 361,819 86,200 -8,200 2012 TJ 200.000 300,000 400,000 500,000 600,000 700,000 100,000 Coal Oil

#### **GRI MOST MATERIAL TOPICS:**

For 2016, the most material topics for this chapter were:

- Environmental Compliance
- **Energy**
- Emissions

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#### Renewable Energy

In 2016, total renewable energy generation capacity and non-carbon emitting generation capacity were 16.6% and 19.2%, respectively, slightly lower than 16.8% and 19.5% in 2015, due mainly to the approval of a new gas generating unit at the Black Point Power Station in Hong Kong and a reduction in the capacity of the Yermala Wind Farm in India.



In 2016, we continued to expand our renewable energy generating capacity, summarised in the following table.

#### **CLP Group Renewable Generation Capacity on an Equity Basis** 2,297 2016 2,366 2015 2,017 2014 1,987 2013 2,215 486 21—12 2012 1,907 486 19-12 2011 1,714 2010 1,038 407 2009 2008 2007 MW 2,000 500 1,000 1,500 2,500 3,000 3,500 Hydro Solar Biomass



### **2016 Renewable Energy Projects**

HONG KONG	MAINLAND CHINA	INDIA	AUSTRALIA
Continued connecting renewable projects to our grid, including: supporting the Drainage Services Department to build Hong Kong's biggest solar farm of 1.1MW near the airport; and applying for Hong Kong's largest landfill gas power generation project that will produce 10MW of renewable power. After more than a decade, we now have more than 250 renewable energy systems connected to our grid.	Added capacity of 275MW in renewable energy, including 230MW of wind and 45MW of solar, increasing the size of our renewables portfolio in Mainland China to over 2,000MW.	Began construction of our maiden 100MW Veltoor Solar Farm in Telangana, which is expected to be commissioned by mid-2017, with CLP owning a 49% stake with an option to acquire the remaining 51% in the future.	Committed to the development of up to 500MW of new wind and solar energy projects across eastern Australia, to meet our obligations under the country's Renewable Energy Target.

#### **EMISSIONS**

#### **Group Carbon Emissions**

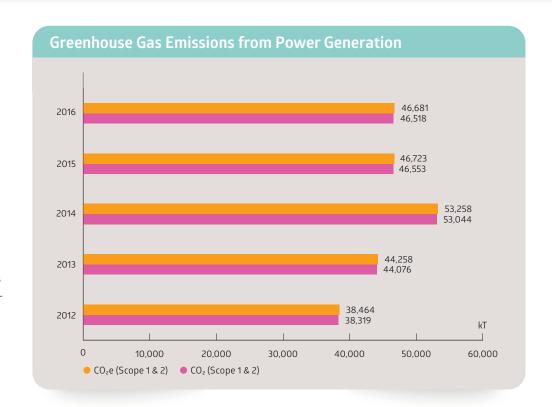
Our Group's carbon intensity slightly increased to 0.82kg CO<sub>2</sub>/kWh from 0.81kg CO<sub>2</sub>/kWh in 2015. It was mainly due to increased output from Mount Piper and Yallourn power stations and decreased output from Tallawarra Power Station in Australia. The significant increase in generation from less efficient coal plants and decrease in output from a more efficient gas one in Australia meant more carbon emissions were emitted per unit of electricity sent out, thus causing a slight increase in the Group's intensity.

The Group's total carbon emissions were at a similar level to that of last year's. Lower output from the Jhajjar Power Plant in India and Tallawarra Power Station in Australia were offset by the increase in output from Mount Piper and Yallourn in Australia, thus leading to the Group total carbon emissions being similar to last year.

#### 2016 Performance on Climate Vision 2050

Our Climate Vision 2050 issued in 2007. commits ourselves to working towards reducing the carbon intensity of our generating portfolio by approximately 75% by 2050, using our 2007 level as the baseline. The table below shows our progress in 2016 on our goals.

While we initially planned to review our roadmap once the Intergovernmental Panel on Climate Change releases its new emissions scenario projections in 2018, we now consider it appropriate to start the review a year earlier given the successful ratification of the Paris Agreement, as well as the release of the Recommendations of the Task Force on Climate-related Financial Disclosures by the Financial Stability Board in December 2016.



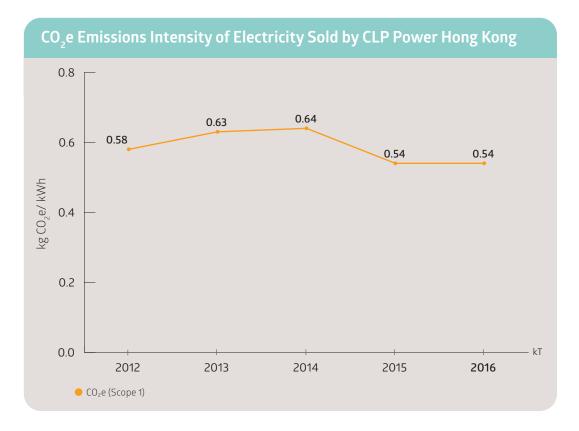
#### **CLP's Progress Towards 2020**

	CO <sub>2</sub> Emissions Intensity	Renewables	Non-carbon Emitting
2016 Performance	0.82kg CO <sub>2</sub> / kWh	16.6%	19.2%
2020 Target	0.6kg CO <sub>2</sub> / kWh	20%	30% (inclusive of renewables)

#### Hong Kong Carbon Intensity

The carbon intensity of the electricity used by our customers in Hong Kong in 2016 remained at a level similar to 2015, i.e. 0.54kg CO<sub>2</sub>e/ kWh. This was the result of: maintaining the increased consumption of natural gas and the reduced coal consumption to meet the Government's emissions requirements in Hong Kong; and maintaining the increased output from Guangdong Daya Bay Nuclear Power Station (GNPS) in Mainland China.

With the approval in 2016 of the new gas-fired generation unit at Black Point power station, we are on track to increasing our natural gas generation to around 50% of our fuel mix starting in 2020.



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#### **Group Air Emissions**

Group emissions of SO<sub>2</sub> and NO<sub>x</sub> in 2016 compared to 2015, increased slightly by around 12.3% and 3.2% respectively while particulates level decreased by 13.3%. This was mainly due to:

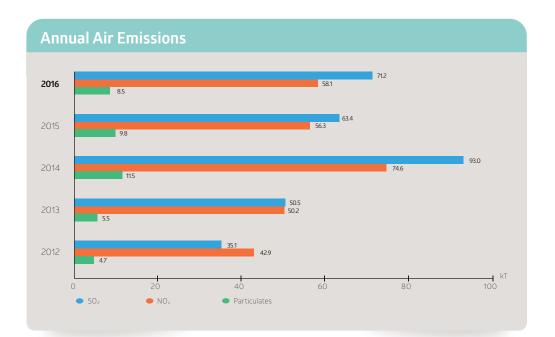
- more generation from Mount Piper power station in Australia (with less output from our Australian gas-fired assets); and
- improvement in particulates control and less generation from Jhajjar.

#### Hong Kong Air Emissions

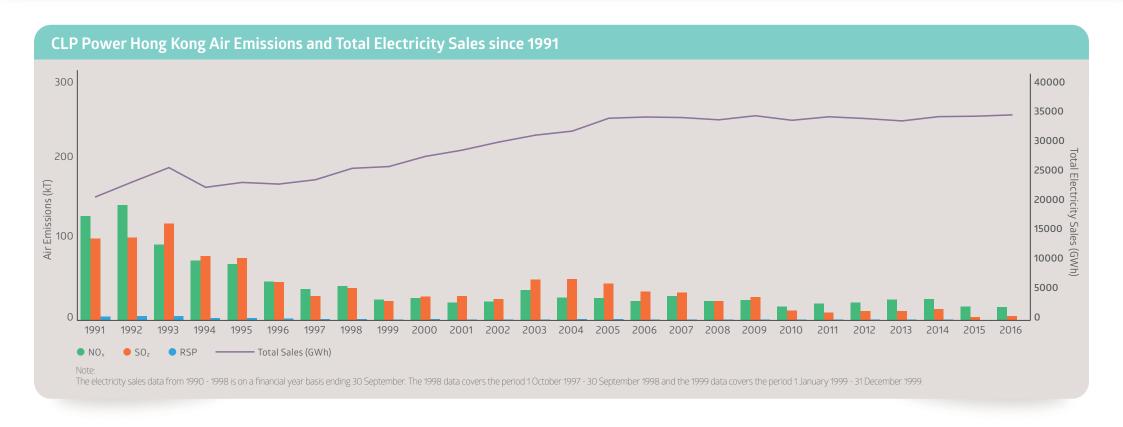
Our effort to reduce our air emissions dates back to 1990. A reduction of more than 85% in emissions of SO<sub>2</sub>, NO<sub>x</sub> and Respirable Suspended Particulates (RSP or PM10) has been achieved since 1990, while electricity demand has grown by over 80% during the same period.

In 2016, we managed to meet the stringent emissions caps set out by the Government, which are the same as 2015 levels requiring CLP to reduce its SO<sub>2</sub>, NO<sub>x</sub> and RSP emissions by up to 65% from 2014 levels. We continued our efforts to consistently deliver a reliable, safe and reasonably priced electricity supply with sound environmental performance.

We continue to improve our operations to help benefit the environment. For example, Black Point Power Station initiated a performance improvement project for the first combined cycle gas turbine unit, increasing its generation capacity by 25MW and enhancing the nitrogen oxides emissions performance. The success of this trial paves the way for additional units to progressively be upgraded in coming years to realise the full potential for environmental performance improvement and capacity increase.



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## **HUMAN CAPTIAL**



### What were the highlights for you in 2016?

In 2016, we agreed three priorities to increase gender diversity: women in Leadership, women in engineering, and gender pay equity. To support these priorities we introduced a gender metric into our succession planning process, recruited female apprentices in Australia and Hong Kong, carried out gender pay equity audits and established a Groupwide female engineers network. We also increased our paid maternity leave in Hong Kong from 10 to 14 weeks and paternity leave from 5 to 10 days.

Given increasing pressure on pension schemes from global demographic and economic trends, we reviewed the sustainability of our Hong Kong defined contribution scheme and increased the employers matching contribution scale to help our staff make adequate savings for retirement.

We continued to build the capabilities needed to meet the challenge from digital disruption. A Senior Director of Innovation was recruited and an Innovation Team established with senior staff seconded from various parts of the business. These staff will lead specific innovation projects, and then return to their business units in order to ensure crossfertilisation of innovation skills into the broader organisation.



#### What were the key challenges in 2016?

From a human capital perspective, the major trends affecting us are demographic and social changes and digitalisation of the energy sector. To face these challenges we need a diverse, agile and sustainable workforce. To support this, we have been working on gender diversity, competitive benefits, organisational agility and ensuring the human rights of employees in our contractors are respected. Each of these areas has its own set of challenges. With gender diversity, we face supply constraints due to the global shortage of females studying STEM subjects at school and university.

For contractors, our extended supply chains and use of sub-contractors presents issues of information transparency and controls over employment practices.



### What keeps you awake at night?

We make extensive use of contractor labour in India, Hong Kong, and Mainland China, but as these are not our direct employees, we have limited understanding over the numbers of people involved, their gender and their contractual terms and working conditions. What keeps me awake is the risk of a significant abuse of internationally recognised human rights taking place in our contractor workforce. To address this risk, in 2016, we commenced our first Human Rights due diligence exercise with the Danish Institute of Human Rights.



### How can we prepare for the future?

In this complex environment, the diversity of thinking, background and tenure of our leadership group strengthens our decision making capability and helps us to be agile and resilient in the face of new challenges. The diversity of our broader workforce is also important, as a reflection of diversity in the societies in which we operate and because a sustainable workforce requires us to maintain a broad base of recruitment. How we approach diversity recognises that we operate in countries with diverse social and cultural contexts. This means we are sensitive to differences in culture, values, traditions and religions. Regardless of differences, the most significant and common diversity issue we face across the Group is gender diversity.

making this our priority. As gender equality is embedded in the UN Guiding Principles on Business & Human Rights and in the UN-Sustainable Development Goals, the social and economic case for making it a priority is also clear.

Demographic trends mean that there is a clear business case for



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#### FOR OUR EMPLOYEES

#### Occupational Health & Safety

The Group level Health, Safety, Security and Environment (HSSE) Management System Standard has been implemented since August 2014. The Standard enables our regional organisations to incorporate HSSE requirements into their business programs. This allows us to continue to maintain high standards in health, safety, security and environment, and provides a platform for continuous improvement. It also promotes and encourages compliance with the international standards for Health & Safety and Environmental Management such as, OHSAS 18001 and ISO 14001. The system is executed through a set of Standards and Guidelines to the requirements of the Policy Statements set out in the CLP Value Framework.

#### Health

In 2016, several Guidelines relating to occupational health were developed at Group level, which include: Fitness to Work Guideline, Medical Emergency Response Plan, Communicable Disease Management and Hearing Conservation, which serves as an advisory document to assist Assets to achieve the goal of operating without harm to people. In addition, we conducted regular health talks on topics which are of interest to our employees, for example Balancing Work and Life. We also issued health alerts related on health issues and diseases, e.g. Zika virus, seasonal flu.

#### **GRI MOST MATERIAL TOPICS:**

For 2016, the most material topics for this chapter were:

- Occupational Health & Safety
- Employment
- Diversity and Equal Opportunity
- Training and Education
- Non-discrimination
- Labour / Management Relations
- P Human Rights Assessment



### Safety

In 2016, sadly three people lost their lives while working at our wholly-owned assets, namely Sihong in Mainland China, and Jhajjar and Tejuva in India in 2016. All involved contractors with two of the incidents relating to falls from height and the other an assault on a security guard at a remote location. We have thoroughly investigated these incidents and devised a course of actions to improve our safety practices and enhance contractors' knowledge and competence in order to avoid similar events from recurring. We have the deepest sympathies for the families of the deceased. We also express our sincere sympathy to the family of a contractor worker who lost his life at Castle Peak Power Station in February 2017, during cleaning work at the bottom part of a dust storage facility. The investigation is currently underway.

In 2016, we did not register any breach of laws or regulations regarding the provision of safe working environment and protecting employees from occupational hazards.

The following charts show the safety performance of all CLP employees and contractors in the Group and individual regions, in terms of Lost Time Injury Rate (LTIR) and Total Recordable Injury Rate (TRIR) in 2016. Notwithstanding the fatal incidents, our overall safety performance showed an improvement.

Safety is always our number one priority. We hope that our current and new measures will help reduce exposure to serious injuries and fatalities, for both employees and contractors.

#### **CLP Group Safety Performance (Employees and Contractors)**

	2016	2015	2014
Fatalities	3	0	1
Fatality Rate	0.01	0.00	0.005
Number of Lost Time Injuries (including fatality)	13	16	23
Lost Time Injury Rate (LTIR)	0.06	0.07	0.11
Total Recordable Injury Rate (TRIR)	0.15	0.25	0.41
Number of Days Lost / Days Charged (employees only)	9	199	105
Number of Occupational Disease (employees only)	0	0	0

#### **CLP Group Safety Performance by Region in 2016**

	Employees / Contractors						
	CLP Holdings	Hong Kong	Mainland China	India	SE Asia	Australia	Total
Fatalities	0/0	0/0	0/1	0/2	N/A	0/0	0/3
Fatality Rate	0.00 / 0.00	0.00 / 0.00	0.00 / 0.03	0.00 / 0.05	N/A	0.00 / 0.00	0.00 / 0.02
Number of Lost Time Injuries	0/0	0/1	0/2	0/0.4	N/A	3/3	3/10
Lost Time Injury Rate (LTIR)	0.00 / 0.00	0.00 / 0.02	0.00 / 0.06	0.00 / 0.11	N/A	0.14 / 0.46	0.04 / 0.07
Total Recordable Injury Rate (TRIR)	0.48 / 0.00	0.00 / 0.09	0.00 / 0.06	0.00 / 0.30	N/A	0.37 / 1.06	0.11/ 0.18
Number of Days Lost / Days Charged (employees only)	0	0	0	0	N/A	9	9
Number of Occupational Disease (employees only)	0	0	0	0	N/A	0	0

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#### Employment

Since we operate in a number of different countries across the Asia-Pacific region, and there is considerable variation between them with respect to labour law, codes of employment practice, and national cultures, our Human Resource policies have to balance three considerations: our Group-wide Value Framework as a responsible employer, the requirement to comply fully with labour rules and regulations in each of the countries we operate in, and sensitivity to local culture and business needs.

As at 31 December 2016, the Group employed 7,428 staff (2015: 7,360), of whom 4,233 were employed in the Hong Kong electricity and related business, 2,925 by our businesses in Mainland China, India, Southeast Asia and Taiwan and Australia, as well as 270 by CLP Holdings.

Total remuneration for the year ended 31 December 2016 was HK\$5,151 million (2015: HK\$4,855 million), including retirement benefits costs of HK\$440 million (2015: HK\$384 million).

#### **Regional Distribution of Full-time Employees** 4.450 560 435 1,983 2016 4,438 527 397 1,998 2015 4.405 480 359 2.143 2014 4,394 469 360 1,745 2013 4.345 539 391 <sup>4</sup> 1.302 No. of 2012 Employees 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 Hong KongMainland China Other locations (Southeast Asia & Macau) India

#### Fostering an Innovative Culture

We build new capabilities in order to stay aligned with changes in our business environment. Given the challenges presented by the digitalisation of the energy industry, a Senior Director of Innovation was recruited in 2016 and an Innovation Team was formed with senior staff seconded from various parts of the business. These colleagues have been assigned to lead specific priority innovation projects, following which they will return to their business units in order to ensure cross-fertilisation of innovation skills into the broader organisation. For example, four colleagues were seconded to our Smart Charge venture, co-established with HKT.



### Retaining Staff

Our ability to retain staff is reflected in our voluntary turnover rates, which are relatively low compared to local market averages. The tables here present figures for voluntary staff turnover according to region and gender.

#### Implementing family-friendly policies

To support our gender diversity initiatives in 2016, we increased our paid maternity leave in Hong Kong from 10 to 14 weeks and paid paternity leave from 5 to 10 days. While this

places us clearly amongst the market leaders in Hong Kong, we will continue to monitor international trends and best practices.

#### Enhancing pension fund sustainability

Globally there is an increasing concern over the adequacy and sustainability of pension schemes because of low investment yields and increasing life expectancy. CLP operates defined contribution schemes for the majority of our staff, except for limited historical legacy cases in EnergyAustralia.

In 2016, we reviewed the sustainability of our Hong Kong defined contribution scheme in view of these challenges and increased the existing matching contribution scale to further support the shared responsibility of individuals and the company for making adequate retirement savings. To encourage retention, eligibility for the increased matching contribution is based on employees' length of service. The base for determining the company contribution to retirement savings was increased for all eligible staff, regardless of service.

### **Voluntary Turnover Rate by Region and Gender**

	2016		2	015	2014	
	Male	Female	Male	Female	Male	Female
Hong Kong	1.8	4.6	2.5	4.7	2.1	5.3
Mainland China	3.6	2.6	2.7	1.9	2.4	2.9
India	8.0	11.5	9.6	11.5	13.6	9.0
Australia*	11.2	14.6	12.6	15.2	11.1	11.8

<sup>\* 2014</sup> data exclude Mount Piper and Wallerawang staff

Note: The female voluntary turnover is generally higher than that of male, given most of our female employees work in functional areas which have higher voluntary turnover rates than for engineering or technical staff due to competitive recruitment markets.

#### Diversity and Equal Opportunity

We operate in an increasingly complex and rapidly changing business environment. Major human capital related trends include the impact of digitalisation on the energy sector, and the social and demographic consequences of ageing populations. How we approach diversity must take into account that we operate in countries with different social and cultural contexts. This means we must be sensitive to differences in culture, values, traditions and religions, and respect local approaches to the regulation of diversity issues.

#### Diversity of Leadership

In this complex environment, diversity of thinking, background and tenure in our leadership group strengthens our decision making capability and the agility and resilience of our organisation. This diversity can be seen in the tables below.

#### Diversity of the Workforce

The diversity of our broader workforce is also important, both as a reflection of the different communities in which we operate, and because a sustainable workforce requires a broad base of recruitment. Workforce diversity, particularly of tenure, also supports innovation capability.

#### Average length of service years by region

	2016	2015	2014
Hong Kong	17.7	17.9	18.2
Mainland China	14.0	14.2	15.0
India	5.7	11.5	5.7
Australia	4.4	4.4	4.6

#### **Diversity of Group Executive Committee (GEC) members**

% of GEC Employees

	2016
By Gender	
Male	69
Female	31
By Nationality	
Chinese	23
European	23
American / Canadian	15
Australian/ New Zealander	31
Indian	8

Note: Nationality is based on passport, and does not necessaily reflected ethnic origin.

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#### Gender Diversity

Regardless of regional differences, the most significant and common diversity issue we face across the Group, is gender diversity.

Demographic trends mean that there is a clear business case for this and as gender equality is embedded in the UN Guiding Principles on Business & Human Rights and in the UN-Sustainable Development Goals, the social and economic case for making it a priority is equally strong.

In 2016, 23.6% of our employees were female. We face some challenges in increasing our overall level of gender diversity:

- Technical & engineering skills the nature of our business means that a high percentage of our workforce requires technical and engineering skills. However, we face supply constraints due to the global shortage of females studying science, technology, engineering and mathematics (STEM) subjects at school and university.
- Cultural constraints we face some cultural constraints in countries. For instance, India has a relatively low female workforce participation rate.

Given this context, we have identified three priorities that reflect our business needs, align with the UN SDGs, and help to support the social and economic empowerment of women. First, we aim to improve the number of women in leadership positions in CLP. Second, we strive to increase the number of female engineers we employ by supporting initiatives that encourage girls to study engineering in schools and attracting graduates to join the company. The third priority is to ensure gender pay equity. A range of related initiatives were undertaken in 2016, as shown on the next page.

### **Gender Distribution by Professional Category**

% of Employee

			20	16			2015							2014					
	Managerial		Professional		sional General & Technical Staff		Man	agerial	Profe	ssional		eral & cal Staff	Man	agerial	Profe	essional		eral & ical Staff	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Hong Kong	76.5	23.5	78.4	21.6	84.4	15.6	76.6	23.4	79.3	20.7	85.0	15.0	76.9	23.1	80.1	19.9	84.8	15.2	
Mainland China	83.3	16.7	83.7	16.3	76.9	23.1	90.0	10.0	83.1	16.9	77.1	22.9	78.3	21.7	85.7	14.3	75.5	24.5	
India	94.3	5.7	89.9	10.1	84.3	15.7	93.0	7.0	92.8	7.2	83.8	16.2	94.9	5.1	93.7	6.3	83.8	16.2	
Australia*	74.2	25.8	55.3	44.7	65.4	34.6	71.0	29.0	58.4	41.6	55.0	45.0	73.8	26.2	62.1	37.9	47.2	52.8	

<sup>\* 2014</sup> data exclude Mount Piper and Wallerawang staff

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#### Women in Leadership **②**-

Out of the 431 leadership positions, 21.8% are occupied by females. However, women take 31.3% of nonengineering leadership positions.

#### Initiatives:

- We introduced a gender metric into our succession planning process to ensure female candidates are being identified and considered for senior positions. For example, a female candidate has been appointed as Head of Group Internal Audit, and also as a member of the Group Executive Committee. In EnergyAustralia, it is mandatory to consider female candidates on the short-list for executive appointments.
- A number of our female executives attended leadership programmes at renowned international organisations including Switzerland's IMD and the Centre for Creative Leadership in 2016.



### Gender Pay Equity

At CLP, we are committed to providing a fair and equitable workplace where all individuals are treated equally in every aspect of their work, including remuneration, to attract and retain talent.

#### Initiative:

We carried out detailed gender pay equity audits in Hong Kong and Australia to confirm that we are complying with the principle of equal pay for work of equal value. These audits covered actual remuneration received, that is base salary plus incentive payment.

#### Women in Engineering

Females with engineering degree level qualifications currently account for 8.9% of all engineers at CLP.

#### Initiatives:

- In 2016, we launched a Group-wide network of female engineers from India, Australia, Mainland China and Hong Kong. They met to develop action plans to increase our number of female engineers.
- CLP India has made efforts to increase the female hiring pool through partnership with the National Power Training Institutes.
- We continued with our established mentoring programme with female engineers guiding female engineering students in Hong Kong, and delivering career talks to schools and universities.
- We offered an engineering work placement programme for secondary school students in Hong Kong, a third of whom were female participants.
- We organised a joint forum with The Women's Foundation in Hong Kong and a number of local universities to identify ways to encourage more females to study engineering. We also partnered with The Women's Foundation on an initiative to encourage girls to study STEM subjects at school.

We maintain our core competencies through the planned intake of trainees and continuous investment in training and development. This year we recruited a total of 57 apprentices, technicians and graduate engineers in Hong Kong – more than a fifth of them are females. In China, two of the five graduate engineers

under training are females. In EnergyAustralia, we also advertised for five operator positions and five apprenticeship positions for females at the Yallourn Power Station to fulfil a commitment made by our Managing Director - Australia on International Women's Day.

% of Employees	raining by R	Region, Ge	nder and	Professional	Categ	ory
			2016			

			2	2016					Ź	2015			2014						
	By G	ender	Ву	Professional	Category		By Gender By Professional Category						By G	By Gender By Professional Category					
	Male	Female	Managerial	Professional	General & Technical Staff	Total	Male	Female	Managerial	Professional	General & Technical Staff		Male	Female	Managerial	Professional	General & Technical Staff		
Hong Kong	98.8	95.6	93.2	98.4	98.6	98.2	96.9	98.9	98.7	99.3	95.4	97.2	95.0	84.7	79.9	92.8	94.9	93.2	
Mainland China	99.6	100.0	100.0	100.0	99.4	99.6	100.0	99.1	100.0	99.4	100.0	99.8	97.9	97.1	100.0	92.9	99.4	97.7	
India	88.9	83.7	81.1	93.5	81.3	88.3	86.3	87.2	90.7	86.1	85.5	86.4	91.7	100.0	92.3	91.0	96.0	92.5	
Australia*	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

<sup>\* 2014</sup> data exclude Mount Piper and Wallerawang staff

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#### Non-discrimination

Our human resources policies and procedures are intended to ensure that we comply with local laws and regulations relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare in the markets where we operate.

Given the technical complexities and ambiguities of some laws and regulations, the risk of unintended breaches cannot be prevented entirely. We take immediate action to investigate and address any suspected breaches and issues that are brought to our attention.

We also carry out independent audits of our human resources policies and practices to proactively identify any risks of noncompliance and take remedial actions if such risks are identified.

Occasionally, there are disagreements with individual employees or unions over the

interpretation or application of local laws and regulations. In such cases we will first attempt to resolve any issues amicably within locally determined procedures. If negotiation or reconciliation is unsuccessful, we comply fully with the final decisions of any relevant arbitration, tribunal or court.

With respect to the minimum wage, we comply fully with local legal requirements as well. In practice, our policies and remuneration and benefits often significantly exceed local legal requirements. We place great importance on treating employees fairly, including ensuring a fair wage, fair working hours and fair treatment regardless of gender, race or any other attribute recognised by the laws of the countries in which we operate.

With respect to complaints about discrimination and harassment, we have clear policies in place, supported by employee training. Our Group-wide Harassment policy sets a common framework of principles and our detailed policies in each country are fully compliant with local legislation.

#### Labour/Management Relations

Our employees have the freedom of association to join organisations and professional bodies of their choice. We respect and comply fully with all legal requirements in regards to union membership and collective bargaining in the countries we operate in. However, our management philosophy is that the most appropriate way to engage with our colleagues is through direct communication rather than through intermediary organisations.

In Australia, we engage in collective bargaining with some employees via certified Enterprise Bargaining Agreements. These agreements include both notice period and provisions for consultation and negotiation.

In 2016, we did not identify any operations in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk.

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#### **Human Rights Assessment**

We recognise that our corporate responsibility to respect human rights extends to our network of suppliers and contractors. Working in partnership with the Danish Institute for Human Rights (DIHR), we commenced a pilot due diligence exercise focused on the use of contractor labour in Hong Kong and India. The objectives of the due diligence are to identify any salient human rights issues, and also to build our organisational capability to manage human rights issues systematically.

The work carried out by the DIHR includes confidential interviews with a sample of employees of contractors to ensure independence. The due diligence exercise will continue in 2017, and report to the Group Executive Committee and the Sustainability Committee. As part of this exercise, 59 employees received human rights training by external consultants.

We recognise that we are taking the first step on a journey to embed human rights considerations into our policies and management processes, and the due diligence exercise is intended to be a foundation for further initiatives in future years.

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## INTELLECTUAL CAPITAL



### What were the Highlights for you in 2016?

As a company that has performed admirably for over 115 years at a sustained level of excellence, I believe that 2016 was in fact a watershed year for us at CLP. Due to the rapid evolution of services, solutions and technologies today and the pace at which businesses must move, all businesses must accept greater ambiguity and a faster pace. I think we will look back and say that we readily accepted that ambiguity and pace as the hallmarks of business in the 21st century.

2016 was also a year where we faced the exciting and formidable challenges of digital innovation and the world of the internet-of-things (IoT) including energy. Through our external scanning and global engagement with new and digitally leading energy services and technologies, we have created a clear sense of purpose around understanding the digital and IoT implications for the energy sector globally and more specifically for CLP in all of its geographies. This fundamental shift in mind-set in our company at all levels is strategically significant. From our CEO through to all customer-facing staff, I believe we have a genuine sense of commitment to become a leader in the digital energy era.



#### What were the key challenges of 2016?

As with any shift in global businesses that have operated with established business models and market dynamics, it always takes leadership, focus and resilience to make a change in the way you think and operate. This challenge presents itself in trade-offs around priorities, investment and resourcing. Creating the right conditions for those choices and decisions to be made was a substantial challenge and thanks to our extremely positive culture, we were able to negotiate this more readily and more easily than many companies around the world.



### What keeps you awake at night?

I always worry about being quick enough. In fact in business you're never quick enough and you can always go faster. I feel comfortable when the organisation is telling us that the pace is brisk, but with focus it can be sustainable. Keeping this balance right always keeps me awake.

There are many things about today's competitive environment that keep me awake at night; however, I think a lot about how we manage the tension between sustaining existing business focus alongside the challenge of introducing new, incredible technologies, tools and capabilities on top of our existing assets and into our organisation.

Embracing this and creating a sense of excitement in the organisation rather than one of anxiousness is something that requires our leadership commitment daily.



### How can we prepare for the future?

You can prepare for the future by engaging actively with it. We're doing this now. It's exciting. We're focused on identifying technologies, solutions, capabilities, tools, partners and much, much more to compete and win in the future. The future starts today and we're in it.

We prepare by actively seeking out world leading businesses and having conversations about what will be possible in the future world of digital energy and renewable energy solutions and technologies. We actively engage in dialogue about what might be possible between us or together. This creates innovative possibilities that we could have never contemplated in the traditional energy world from which we have evolved. Our goal for the future is simple – be in it in a vibrant, active and dynamic way, delivering value to customers and shareholders alike.



## FOR OUR FUTURE

The electricity industry is confronted with major changes that are reshaping the traditional utility model. Climate change, as one, has prompted the decarbonisation of generation facilities around the world. Technological advancements are driving down the costs of wind turbines, solar panels, energy storage devices and distributed energy, making renewables increasingly a part of people's daily life. Meanwhile, the ubiquitous communication networks coupled with the Internet-of-Things (IoT) are bringing about a digital revolution that means many everyday devices are becoming more intelligent and automated.

To thrive amid these challenges and maintain our leadership role, CLP needs to continuously innovate and adapt to the changing environment. Fresh ideas are developed; new experiences are sought; and technological expertise is constantly refined to meet the evolving needs of our customers.

Our customers today are empowered by the abundant information available to them on almost any topic in any geographic location at no cost. Increasingly they are demanding more individualised solutions and more choice. The focus of business has turned from a one-way promotion of products and services to putting customers at the heart of our transition and satisfying their needs before they even realise them. Our role as a utility is to leverage technology and innovation to do just that for our customers.

#### Big Data

The digitisation phenomenon across many facets of our day-to-day activities, from banking to shopping, is transforming the way societies and individuals behave. The development of many smart systems and devices has resulted in the generation of data from a variety of sources in huge quantities and at high speed. Big data has become a new source of value creation and addition in almost all industries. Consequently, big data management is becoming an essential part of

business and the following examples illustrate how CLP leverages big data to create new value for customers.

#### Eco Power 360

We have introduced the online home energy assessment platform Eco Power 360 in Hong Kong to assist our residential customers in managing their energy usage more efficiently. It makes use of our extensive consumer usage records to help customers understand how much power they are using for different appliances and how their consumption patterns compare to historical data and their peer households.

#### Meter Online

Since 2015, an advanced feature of the Meter Online service has combined data from the Hong Kong Observatory's weather projection, smart meter data from CLP's customer consumption archives, and our data analytic models to produce a nine-day consumption forecast for our customers. By enabling them to manage their energy consumption and

demand for days ahead, better energy efficiency and money saving can be achieved. In 2016, over 2,100 CLP commercial and industrial customers subscribed to Meter Online, with more than 40% having access to the advanced nine-day consumption forecasting model. While continuing our efforts to promote the service to customers, we shared our experience with overseas power companies in various conferences.

#### Integrating Renewables

CLP continues to support the community in developing renewable projects where practicable, especially in schools, on rooftops and at local community facilities. In Hong Kong, we provide expertise to help our customers understand and resolve technical issues so that they can connect their renewable energy systems, normally less than 200kW per site, to the electricity grid. By the end of 2016, over 250 renewable projects totalling more than 38MW have been connected to our grid. We have also participated in building Hong Kong's largest solar facility (1.1MW) at a government sewage treatment plant on Lantau Island. The experience we gained in developing and operating renewable facilities in Hong Kong, along with our solar power and wind generation projects in Mainland China, India and Australia has made us a reliable and innovative developer of renewables in Asia.

Distributed Energy Resources In the past, distributed generation has been limited by the lack of affordable local resources (e.g. natural gas or waste heat) and special conditions (e.g. backup generators). However, distributed renewables such as rooftop solar panels and small wind turbines have now become more accessible and affordable. In addition, the arrival of different energy storage means, including chemical batteries, flywheels, thermal storage systems and even electric vehicles, now enables both customers and utilities to store limited electricity easily.

It is important for utilities to understand these developments and their impact on the grid. In 2012, CLP commissioned Hong Kong's first self-contained microgrid on Town Island. Powered entirely by solar, wind and battery storage, it is completely isolated from the main grid. This exercise has enabled us to develop our knowledge and experience in developing microgrids, especially with renewables and storage devices. In recent years, we have continued the exploration through projects like a new partnership on a smart hybrid solar inverter system in Australia.

In 2016, EnergyAustralia teamed up with Redback Technologies to promote a smart hybrid solar inverter system to its customers. The system combines a smart solar inverter, battery enclosure and "intelligent" energy management software in a complete package which allows customers to choose how they use, save and even sell energy captured from their rooftop solar panels. The aim of the partnership is to invest in the development of reliable, affordable and cleaner technology which puts the customer more in control of their energy consumption.

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#### Electric Vehicles

Globally, electric vehicles (EVs) have gained significant traction and investment in recent years. While manufacturers from Japan, the US and Mainland China are delivering new models, governments are also providing incentives for consumers to buy these vehicles. Although most EVs do have some limitations on their range and charging time, utilisation and adoption in urbanised areas is increasing. What has become critical in determining the rate of electric car adoption in a city is the planning and deployment of charging stations, especially their location, accessibility and availability.

#### Smart Charge

CLP and HKT formed Smart Charge in 2016, to offer electric vehicle charging solutions in Hong Kong. Smart Charge aims to develop a comprehensive EV charging network that provides safe, reliable and convenient EV charging services in residential and public areas. The joint venture shows that we can provide not just electricity, but also adjacent energy services – a one-stop service for electric vehicle users.



#### **New Horizons - A Platform to Share Intellectual Capital**

One way to understand and keep track of the emerging issues affecting the industry, is to encourage new ideas and experience sharing. Launched in 2015, CLP's New Horizons website provides a platform for industry experts to share their latest insights on market trends and innovations in the energy sector and facilitates discussions on how we can work together to achieve a more sustainable energy future.



### **TOWARDS A BRIGHTER TOMORROW**

#### Climate Change

We are glad to see that the Paris agreement on climate change has been ratified. However, the power industry alone cannot meet the agreed climate change mitigation targets. We need government, civil society and business to work together so that these three key elements can be put in place: a sustainable set of regulatory structures that facilitate the transition to a cleaner energy mix; financing mechanisms to support that change; and conventional and renewable energy sources that are reliable and affordable.

While the power industry is ready to roll up its sleeves and do its part, we must be cognisant of the different needs in different parts of the world. In developing economies, where energy demand is still growing, coal will remain a key energy source for some time. Meanwhile in developed economies, where supply may

outstrip demand, there is a more immediate opportunity to transition to a low carbon energy future. Hence different countries will require different solutions at different times. For our part, CLP is committed to supporting the different choices made by the governments of the communities where we operate and to deliver the cleanest solutions based on the choices those countries make.

We will begin the review of our "Climate Vision 2050" in 2017, ahead of our original schedule, in the hope that it can remain as a solid foundation for CLP to meet the objectives set out in the Paris Agreement.

We look forward to continued and active involvement with governments and communities to help formulate the regulations required to facilitate this energy transition. We will continue to work assiduously with our stakeholders to forge ways to help bring the agreement to reality.

#### Digitalisation

Our business in the next five to ten years may be very different to what it is today. To be part of the smart infrastructure in the city, we are starting to build our capability and to develop a strategy to manage data on a very large scale. We are also exploring the development of a platform for smart devices to plug into the electricity system on our grid and right across our business.

We have already set up an Innovation Team to work on these areas and we have made some progress. Our focus is twofold. First, is to leverage all these technologies and information to get better at what we do. For instance, we are looking across all our assets and examining how digital technology platforms can help optimise the performance of our generation fleet. The other focus is developing new areas for our business. An example of this is the Smart Charge initiative with HKT Hong Kong has more than 7,000

electric vehicles, more than any other city in the world. Our joint venture's one-stop charging service gives their owners and drivers convenience and security. In a business sense, Smart Charge recognises the different ways we can grow our business model while contributing to Hong Kong as a smart city.

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06 Our Performance

In Australia, to identify and develop more innovative products and services and help customer retention amid the intense competition, EnergyAustralia established a new "NextGen" business unit in 2015. It made an investment in 2016, after forming a partnership with Redback Technologies, to promote to our customers the Smart Hybrid Solar Inverter System. EnergyAustralia will continue to examine potential opportunities in a range of areas including battery storage, smart home technologies and embedded networks that are capable of not just surviving but thriving as the energy sector evolves.

#### Towards a Customer-Centric Utility of the Future

The electricity industry is undergoing a period of transition. Enabled by technologies, regulatory advancement and customer empowerment, the new interaction between utilities and customers, and amongst customers themselves, will have to be developed and integrated as we evolve to become a utility of the future.

In this new era, utilities can no longer succeed by simply fulfilling their traditional roles in managing the power system in a safe, economic and reliable manner. Increasingly, power companies such as ours, must also learn to put innovation and technology to work for us in order to meet the evolving demands of our customers.

We also have an important role to play in helping governments and the general public adopt technological advancements in a way that balances regulation, economics, environment and social concerns. CLP will continue to pursue ventures that turn new ideas into reality and rely on that knowledge and experience to achieve a sustainable future for the communities in which we operate.





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## **2016 KEY PERFORMANCE INDICATORS**

These tables present a quantitative overview of our 2016 performance. The indicators are selected from the Global Reporting Initiative (GRI) Standards as well as other key performance metrics. All of the 2016 data presented in these tables, except that which is shaded, have been independently assured by PricewaterhouseCoopers.

Governance	Note	Unit	2016	2015	2014	2013	2012	GRI Standard	HKEx ESG Reporting Guide Reference
Governance									
Convicted cases of corruption		cases	0	0	0	0	0	205-3	B7.1
Breaches of Code of Conduct		cases	21	6	7	12	14		

Financial	Note	Unit	2016	2015 <sup>1</sup>	2014 <sup>1</sup>	2013 <sup>1</sup>	2012 <sup>1</sup>	GRI Standard	HKEx ESG Reporting Guide Reference
Financial Information									
Economic value generated									
Revenue	2	HK\$M	79,434	80,700	92,259	104,530	104,861	201-1	
Share of profits of non-wholly owned entities	۷	HK\$M	791	10,299	3,820	4,022	3,004		
Economic Value Distributed									
Fuel Costs		HK\$M	12,785	15,446	14,736	15,350	14,548		
Other Operating Costs		HK\$M	38,689	41,705	53,870	70,408	67,252	201-1	
Staff expenses		HK\$M	3,892	3,649	3,980	3,017	2,935	201-1	
Finance costs	3	HK\$M	2,371	4,183*	4,201	6,349	6,101	201-1	
Dividends		HK\$M	7,074	6,822	6,619	6,493	6,301	201-1	
Taxes	4	HK\$M	2,032	1,818	1,571	839	882	201-1	
Donations		HK\$M	13	15	12	8	4	201-1	
Economic value retained	5	HK\$M	13,369	17,361*	11,090	6,088	9,842	201-1	

<sup>\*</sup> Figures have been restated for the adoption of HKFRS 9 on hedge accounting

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404-1

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B3.2

Safety									
Safety	6								
Fatalities (employees only)	7	number	0	0	0	0	0	403-2	B2.1
Fatalities (contractors only)	7	number	3	0	1	1	N/A	403-2	B2.1
Fatality Rate (employees only)	8	rate	0.00	0.00	0.00	0.00	N/A	403-2	B2.1
Fatality Rate (contractors only)	8	rate	0.02	0.00	0.01	0.01	N/A	403-2	B2.1
Lost Time Injury (employees only)	9	number	3	8	4	5	N/A	403-2	
Lost Time Injury (contractors only)	9	number	10	8	19	28	N/A	403-2	
Lost Time Injury Rate (employees only)	8, 9	rate	0.04	0.10	0.05	0.06	N/A	403-2	
Lost Time Injury Rate (contractors only)	8, 9	rate	0.07	0.06	0.15	0.22	N/A	403-2	
Total Recordable Injury Rate (employees only)	8, 10	rate	0.11	0.18	0.26	0.23	N/A	403-2	
Total Recordable Injury Rate (contractors only)	8, 10	rate	0.18	0.28	0.51	0.50	N/A	403-2	
Days lost (employees only)	9, 11	number	9	199	105	29	240	403-2	B2.2
Employees	Note	Unit	2016	2015	2014	2013	2012	GRI Standard	HKEx ESG Reporting Guide Reference
Employees									
Employees based on geographical location								102-7	B1.1
Hong Kong		number	4,450	4,438	4,405	4,394	4,345		
Mainland China		number	560	527	480	469	539		
Australia		number	1,983	1,998	2,143	1,745	1,302		
India		number	435	397	359	360	391		
Other locations (Southeast Asia & Macau)		number	-	_	-	-	4		
Total		number	7,428	7,360	7,387	6,968	6,581		
Employees eligible to retire within the next five years	12							EU15	
Hong Kong		%	17.3%	16.2%	15.4%	15.2%	14.0%		
Mainland China		%	12.1%	11.9%	11.1%	12.2%	11.9%		
Australia		%	11.4%	10.9%	9.2%	10.9%	11.9%		
India		%	0.9%	0.8%	1.4%	0.8%	0.8%		
Other locations (Southeast Asia & Macau)	13	%	N/A	N/A	N/A	N/A	N/A		
Total		%	14.1%	13.3%	12.4%	13.0%	12.6%		
Voluntary staff turnover rate	14, 15							401-1	B1.2
Hong Kong		%	2.3%	2.8%	2.6%	1.9%	-		
Mainland China		%	3.4%	2.6%	2.5%	2.6%	-		
Australia		%	12.6%	13.7%	11.6%	9.4%	-		
India		%	8.4%	9.8%	13.2%	10.1%	-		
Other locations (Southeast Asia & Macau)		%	N/A	N/A	N/A	N/A			

average hours

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Environment									HKEx ESO Reporting Guide Reference
Resource Use and Emissions	17								
Coal consumed (for power generation)		TJ	453,904	450,937	541,865	433,763	361,819	302-1	A2
Gas consumed (for power generation)		TJ	86,787	95,591	63,268	73,510	86,200	302-1	A2
Oil consumed (for power generation)		TJ	4,162	2,892	2,345	1,973	8,200	302-1	A2
$CO_2$ e emissions from power generation (Scopes 1 & 2)		kT	46,681	46,723	53,258	44,258	38,464	305-1 305-2	A1.
CO <sub>2</sub> emissions from power generation (Scopes 1 & 2)	18	kT	46,518	46,553	53,044	44,076	38,319	303 2	
Nitrogen oxides emissions (NO <sub>x</sub> )		kT	58.1	56.3	74.6	50.2	42.9	305-7	A1
Sulphur dioxide emissions (SO <sub>2</sub> )		kT	71.2	63.4	93.0	50.5	35.1	305-7	A1
Total particulates emissions		kT	8.5	9.8	11.5	5.5	4.7	305-7	A1
Water withdrawal								303-1	A2.
from marine water resources		Mm <sup>3</sup>	4,202.3	4,447.6	4,774.5	4,987.9	4,648.6		
from freshwater resources		Mm <sup>3</sup>	48.2	48.8	52.9	37.2 <sup>(19)</sup>	35.4		
from municipal sources		Mm <sup>3</sup>	6.5	6.6	6.6	6.2(19)	5.8		
Total		Mm³	4,257.0	4,503.0	4,834.0	5,031.0	4,689.6		
Water discharged								306-1	
cooling water to marine water bodies		Mm <sup>3</sup>	4,202.3	4,447.6	4,774.5	4,987.9	4,648.6		
treated wastewater to marine water bodies		Mm <sup>3</sup>	1.5	1.1	1.3	1.2	1.1		
treated wastewater to freshwater bodies		Mm <sup>3</sup>	13.6	12.6	14.5	10.1	14.0		
wastewater to sewerage		Mm <sup>3</sup>	1.6	1.6	1.8	1.5	1.7		
wastewater to other destinations		Mm <sup>3</sup>	0.2	0.1	0.1	0.1	0.3		
Total		Mm³	4,219.2	4,463.0	4,792.2	5,000.8	4,665.7		
Hazardous waste produced	20	T (solid) / kl (liquid)	1,302 / 1,251	641 / 2,832	484 / 2,783	337 / 1,228	262 / 1,500	306-2	A1.
Hazardous waste recycled	20	T (solid) / kl (liquid)	260 / 1,149	203 / 1,176	89 / 1,463	34 / 981	25 / 1,023	306-2	
Non-hazardous waste produced	20	T (solid) / kl (liquid)	8,317 / 84	11,455 / 199	21,142 / 78	7,700 / 0	10,830 / 21	306-2	A1.
Non-hazardous waste recycled	20	T (solid) / kl (liquid)	2,963 / 84	4,414 / 199	4,172 / 78	1,853 / 0	2,719 / 4	306-2	
Environmental regulatory non-compliances resulting in fines or prosecutions		number	0	1	1	0	0	307-1	
Environmental licence limit exceedances & other non-compliances		number	2	13	3	4	1	307-1	
Climate Vision 2050 Target Performance (Equity Basis)	21								
Total renewable energy generation capacity		% (MW)	16.6 (3,090)	16.8 (3,051)	14.1 (2,660)	16.3 (2,579)	20.2 (2,734)		
Non-carbon emitting generation capacity			19.2 (3,582)	19.5 (3,543)	16.7 (3,152)		23.8 (3,226)		
Carbon dioxide emissions intensity of CLP Group's generation portfolio	22	kg CO <sub>2</sub> / kWh	0.82	0.81	0.84	0.82	0.77	305-4	A1.
Carbon Emissions Intensity of CLP Power Hong Kong Electricity Sold									
CO <sub>2</sub> emissions intensity of electricity sold by CLP Power Hong Kong		kg CO <sub>2</sub> / kWh	0.54	0.54	0.63	0.63	0.58		
CO₂e emissions intensity of electricity sold by CLP Power Hong Kong		kg CO₂e / kWh	0.54	0.54	0.64	0.63	0.58		

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#### Notes to the KPI tables:

- 1 Comparative figures have been restated to conform with current year's presentation.
- 2 Represents share of results (net of income tax) from joint ventures and associates netted with earnings attributable to other non-controlling interests and includes gain on sale/purchase of investments.
- 3 Finance costs is netted with finance income and include payments made to perpetual capital securities holders.
- Represents current income tax but excluding deferred tax for the year.
- Represents earnings attributable to shareholders (before depreciation, amortisation and deferred tax) for the year retained.
- 6 The system of rules applied in recording and reporting accident statistics complies with the International Labour Organization (ILO) Code of Practice on Recording and Notification of Occupational Accidents and Diseases. Each year's safety data cover the incidents that happened in that calendar year and are based on the latest information available at the time of publication.
- 7 A fatality is the death of an employee or contractor personnel as a result of an occupational illness / injury / disease incident in the course of employment.
- 8 All rates are normalised to 200,000 worked hours, which approximately equals to the number of hours worked by 100 people in one year.
- 9 An occupational illness / injury / disease sustained by an employee or contractor personnel causing him / her to miss one scheduled workday / shift or more after the day of the injury (including fatalities). A lost time injury does not include the day the injury incident occurred or any days that the injured person was not scheduled to work and it does not include restricted work injuries.
- 10 Total recordable injuries count all occupational injury incidents and illness other than first aid cases. They include fatalities, lost time injuries, restricted work injuries, and medical treatment.
- 11 It refers to the number of working days lost when workers are unable to perform their usual work because of an occupational accident or disease. A return to limited duty or alternative work for the same organisation does not count as lost days.
- 12 The percentages given refer to full-time permanent staff within each location, who are eligible to retire within the next five years.
- 13 There have been no permanent staff in "Other locations (Southeast Asia & Macau)" since 2012.
- 14 Voluntary turnover is employees leaving the organisation voluntarily and does not include dismissal, retirement, separation under a separation scheme or end of contract.
- 15 In Mainland China, voluntary staff turnover rates refer to both permanent and short-term employees. In all other regions, voluntary staff turnover rates refer to permanent employees only.
- 16 Training per employee has been reported in average hours of training since 2014. Prior to 2014, training per employee is reported in average days of training.
- 17 Covers operating facilities where CLP has operational control for the full calendar reporting year.
- 18 Includes CO<sub>2</sub>e emissions of Yallourn and Hallett facilities as CO<sub>2</sub> emissions data were not available.
- 19 Data updated to align with reporting definition.
- 20 Waste categorised in accordance with local regulations.
- 21 "Equity basis" includes all majority and minority share facilities in the CLP Group portfolio.
- 22 CGN Wind not included as per the Greenhouse Gas Protocol due to its accounting categorisation since 2013