



# A MESSAGE FROM THE MANAGING DIRECTOR OF CLP POWER

On 31st March 2015, the HKSAR Government issued a public consultation on the future development of the electricity market in Hong Kong, which sets out a series of proposals for the future regulation of the sector. We welcome the Government's consultation and in this response we set out our views on the proposals.

CLP is one of the largest privately-owned electricity utilities in Asia and the largest in Hong Kong. We have been serving Hong Kong for more than 100 years, providing a safe and highly reliable and cost-effective power system at ever improving environmental performance. We welcome the fact that the consultation paper recognises the role of the Scheme of Control, our regulatory arrangement, in helping us deliver this outstanding accomplishment.

Electricity plays a key part in our lives and we see real benefit in an informed public debate on the complex subject of the future of our electricity system. This debate is not confined to Hong Kong – many countries are grappling with the issues that we describe in this response. We have drawn on international experience in presenting our thoughts.

Hong Kong is known for its spirit of continuous improvement, of which we have been a part, and we acknowledge the community will always wish to do better. Nevertheless we must be very clear about the objectives for any proposals for change, to ensure that the electricity system and its benefits that we enjoy today will not be compromised but enhanced. We need the right long-term framework to ensure that a safe, reliable and healthy power sector continues to create long-term value for our customers and for Hong Kong.

It is important that you present your views, as policy decisions taken by the Government after the consultation are likely to affect the electricity industry and the community for many years to come. Please make your voice heard by responding to the Government (at [emr@enb.gov.hk](mailto:emr@enb.gov.hk)) before the end of the consultation period on 30th June 2015.

Yours sincerely



**Paul Poon**  
Managing Director  
CLP Power



# SUMMARY

The Government has four objectives for energy: safety; reliability; improved environmental performance; and reasonable tariffs. Policymakers everywhere struggle with balancing these issues and Hong Kong is no exception. Many combine safety and reliability and talk of the 'energy trilemma'.

## The Energy Trilemma: Balancing Competing Interests



Any one element of the trilemma affects the other two; for example if we increase investment to deliver reliable supplies or improve environmental performance that will put pressure on tariffs. Hong Kong needs the right set of regulatory arrangements to guide us through the trilemma in the best possible way.

The new arrangements should be built around three key principles:

### A Greener and Smarter Electricity Sector

We should do all we can to encourage more renewable energy schemes, consistent with the community's willingness to pay the additional costs involved.

We need to shift the focus of the Scheme of Control (SoC) from providing sufficient generation to meet all demand, the key driver for the last fifty years, more towards helping customers to manage their demand through smarter use of energy.

### Effective Regulation

We should build on what we have to ensure our current achievements regarding the Government's energy policy objectives are maintained and that a greener Hong Kong and an enhanced customer experience are properly delivered.

We should also ensure that the new arrangements continue to maintain reasonable tariffs whilst still attracting the considerable funds needed for new investment.

### Enhanced Customer Experience

We can help customers reduce their total bills through a greater focus on energy conservation and efficiency.

We can give customers more choice, for example through a variety of tariff plans enabled by smart meters.

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## The Future for Hong Kong's Electricity Sector

The SoC has developed over the last 50 years to meet changing expectations in society. Going forward, it needs to continue to deliver the Government's four energy policy objectives, adapt to the community's needs and attract the investment funds necessary to maintain and enhance our electricity system. We have to think of the long term – many of our assets last for between 30 and 60 years – and ensure that we keep in place the solid foundations that have stood the test of time so that we can continue our remarkable success in powering Asia's World City for many years to come.



# OUR RESPONSE – INDEX



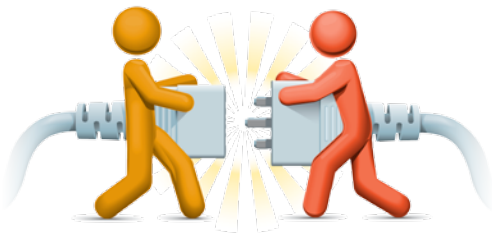
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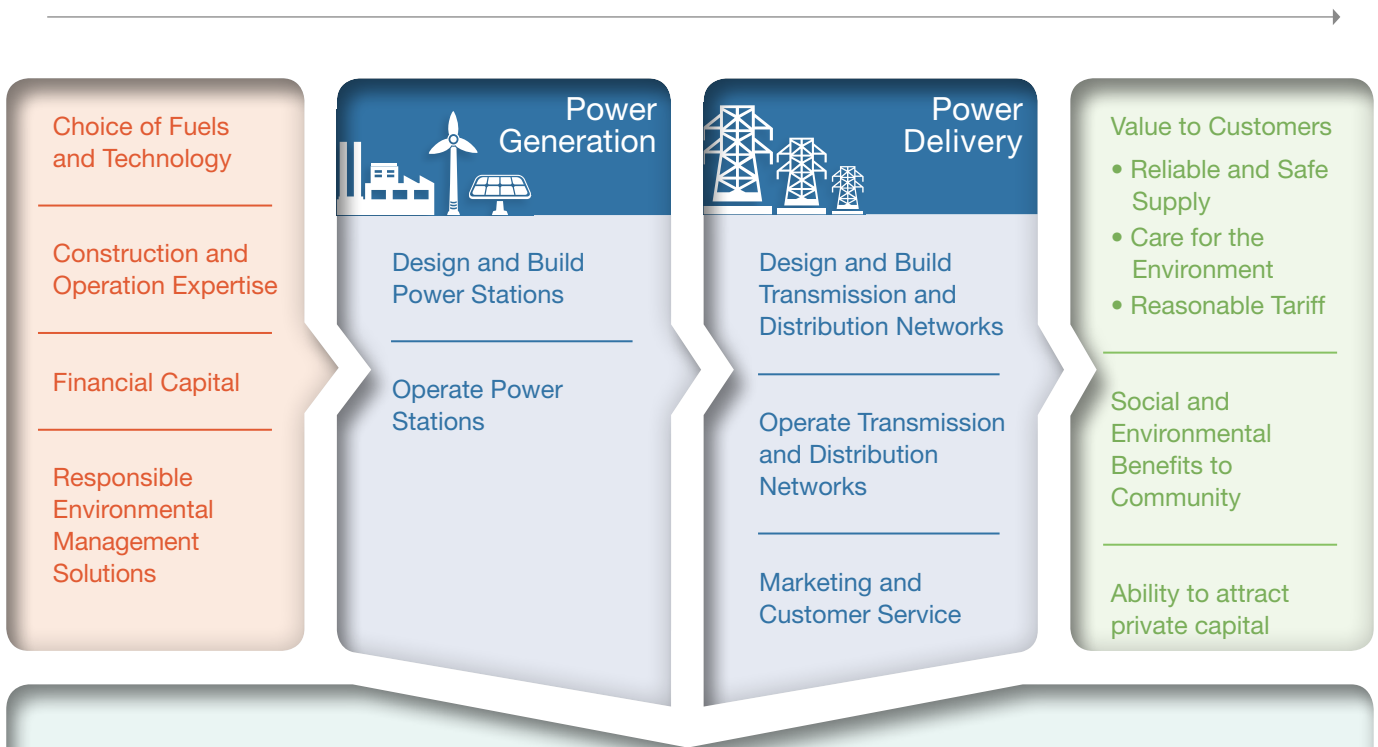


# SECTION I: WHERE WE ARE TODAY

## Hong Kong's Superb Electricity System: A Product Of 100 Years Of Effort

Hong Kong has come a long way since electricity supplies first started being provided to our customers over 100 years ago. Today we have a superbly reliable supply of power at reasonable tariffs, whilst our environmental performance continues to improve.

These achievements did not come about by chance. In this section, we describe the Government's objectives for the electricity sector and how we have met them over the last few years.



We are regulated under the **Scheme of Control**. This is a contract between the power companies and the Government. Under it we have the obligation to meet all reasonable demands for power. We do this by investing in assets and people and taking on obligations and liabilities in contracts. The Scheme allows us to earn a capped return based on the capital investment in fixed assets required to supply electricity. The current Scheme expires in 2018 unless the Government chooses to extend it for another five years.



# HONG KONG'S ENERGY OBJECTIVES

The government has stated that its four objectives for the electricity sector remain as the cornerstone of its energy policy. We support these objectives, which are:



**Safety**



**Reliability**



**Environmental Improvement**



**Reasonable Tariffs**

Many commentators combine safety and reliability and talk about the 'energy trilemma'. The problem is that any one leg of the trilemma affects the other two – there are no easy answers. For example:

Investment in **Renewables**

that are intermittent will require conventional generation, as back up, to ensure

**Reliability**

Reliable and Safe Supply

**Reliability** requires investment, which can impact **Tariffs**

Care for the Environment

Reasonable Tariff

Using more gas to **Reduce Emissions** will have an impact on **Tariffs**

“ Delivering policies which simultaneously address energy security, universal access to affordable energy services, and environmentally sensitive production and use of energy is one of the most formidable challenges facing Government and industry ”

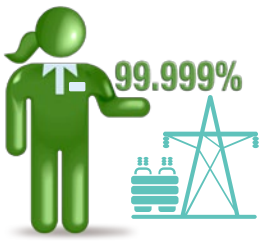
World Energy Council, 2014

“ The lowering of CO<sub>2</sub> emissions can be achieved but it requires long-term and significant investment at a time when meeting the challenges of fuel poverty and the provision of competitive energy costs is more important than ever. Combine these two vital objectives with maintaining the security of energy supply ... and we have what may look like an impossible triangle ”

E.On Group 2015

## Key Point

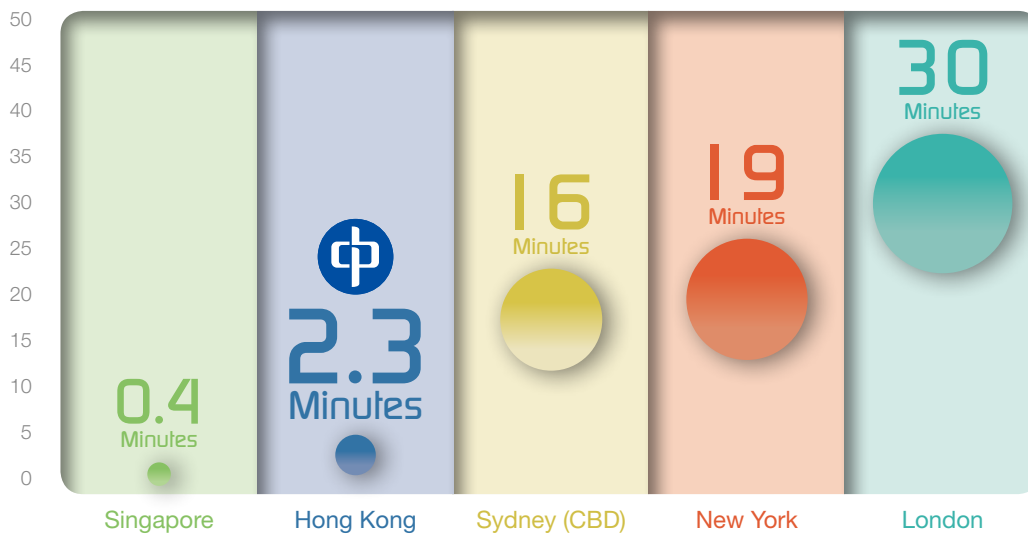
There are no easy answers to the tensions in the trilemma. Governments, regulators and utilities are grappling with them in many countries. We need to judge any proposals for change both against our current situation and also in terms of what they might mean for the various parts of the trilemma.



# RELIABLE AND SAFE SUPPLY

Hong Kong has world-class reliability which has helped power our city's growth. We score far better than almost anywhere else except Singapore, whose tariffs are higher than ours. Through a combination of careful investment planning, overseen by the Government, professional maintenance and the application of our power expertise, we have kept the lights on even during severe weather and other extreme events.

Unplanned Customer Minutes Lost Per Year



Remarks: 2012 – 2014 average for CLP Power. 2011 – 2013 average for all other cities



Electricity Tariffs



Remarks: Based on average monthly domestic tariff consumption of 275 kWh. Tariff and exchange rate at January 2015

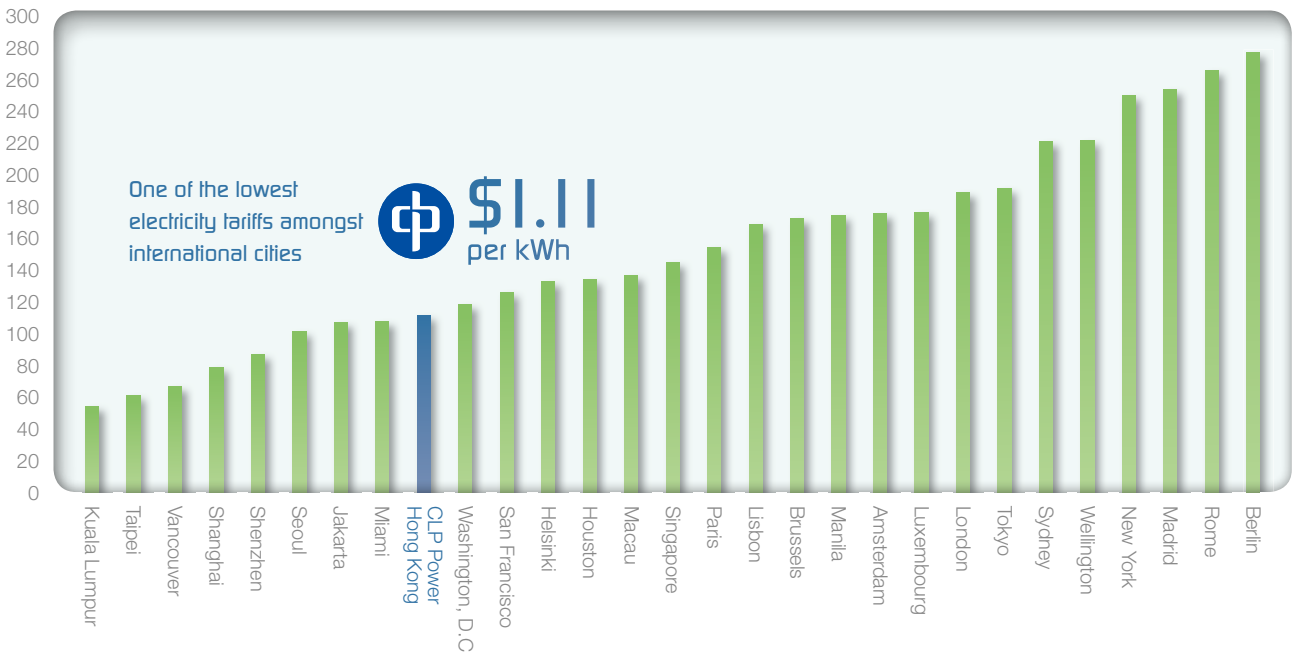


# REASONABLE TARIFFS

Our tariffs are amongst the lowest in major cities around the world, especially those that do not enjoy Government subsidies. Our tariffs comprise less than 2% of average household expenditure, a lower proportion than in many other countries. To help grassroots customers, we also have lower tariff rates for those with low amounts of consumption.

## Residential Tariff Comparison With Other Cities

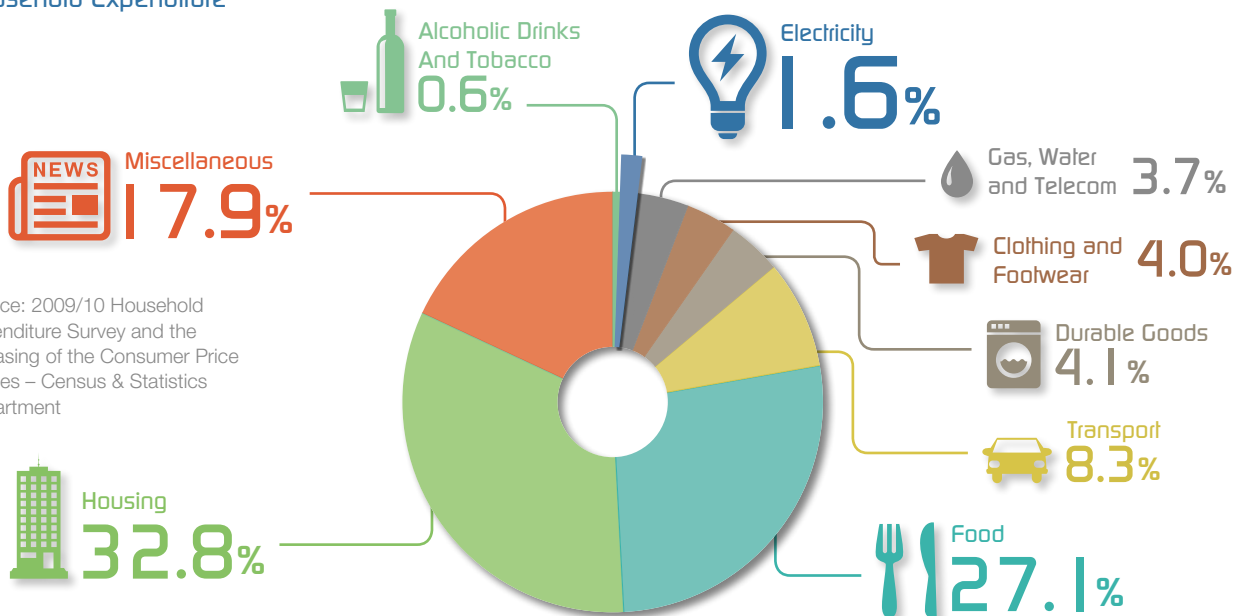
HK cents / kWh (as of January 2015)



Remarks: Comparison based on average monthly domestic consumption of 275 kWh. Tariff and exchange rate at January 2015

## Reasonable tariffs for our customers

### Household Expenditure



Source: 2009/10 Household Expenditure Survey and the Rebasing of the Consumer Price Indices – Census & Statistics Department



# CARE FOR THE ENVIRONMENT

Our environmental performance continues to improve, even though our output of electricity is continually rising to meet demand. Since 1990, emissions per unit of electricity produced have fallen by around 90% and will fall further in 2015.

## Lower Emissions Even As Electricity Demand Rises

Total Emissions (Kilotonnes)

250

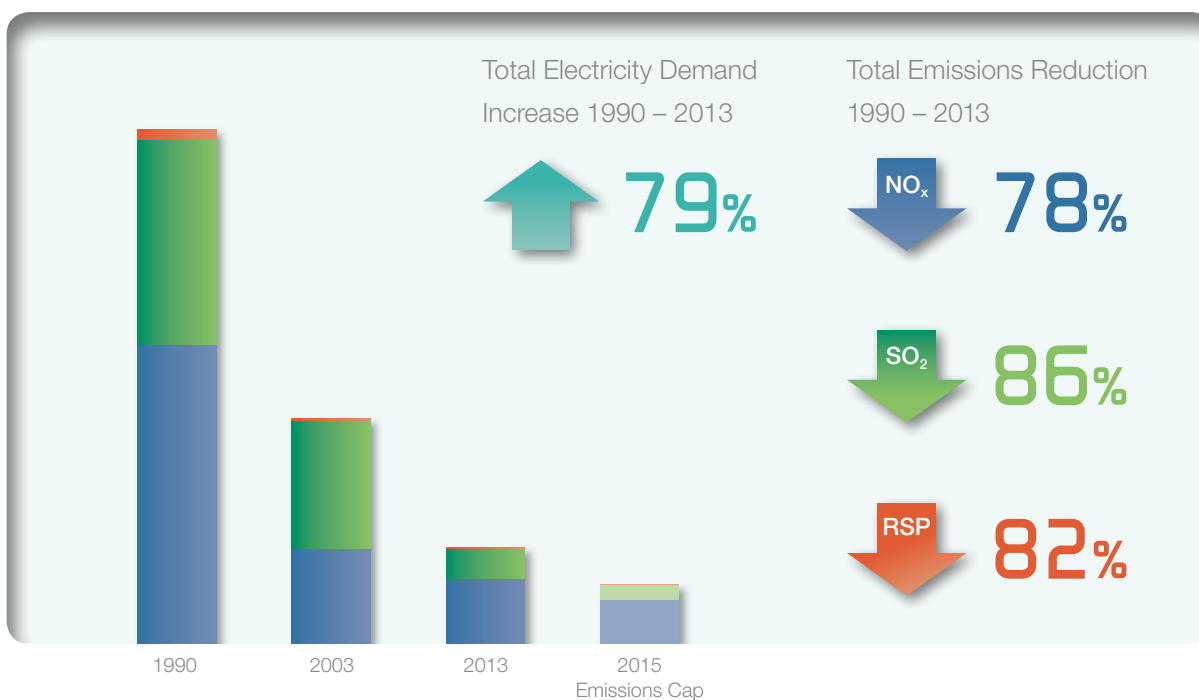
200

150

100

50

0



▶ Nitrogen Oxide (NO<sub>x</sub>)

▶ Sulphur Dioxide (SO<sub>2</sub>)

▶ Respirable Suspended Particulates (RSP)

## These achievements require continual investment in projects to reduce emissions



Electrostatic Precipitators at Castle Peak Power Station



Low NO<sub>x</sub> burners at Castle Peak Power Station



Nuclear power from Daya Bay



Natural gas-fired generation at Black Point Power Station



Emissions Control Equipment at Castle Peak Power Station



Increased use of Ultra-low Sulphur Coal



# THE SOC HAS ALWAYS MET CHANGING NEEDS

The Scheme of Control has constantly evolved since its beginnings in the 1960s to meet the changing needs of Hong Kong over the years and to deliver the improvements required.



## 1960s – 1970s

**RAPID DEMAND GROWTH**  
Urgent need for electricity

CLP responded to the rapid growth of the economy and the need for more electricity



Hong Kong in the 70s



Tsing Yi Power Station Opening Ceremony



Opening Ceremony of Hok Un "A" Power station, 1940



1950s Hong Kong: Rise of Industry



## 1970s – 1990s

**INCREASED RELIANCE ON ELECTRICITY**  
Need for a reliable and secure supply of electricity

In face of typhoons and extreme weather, Hong Kong's stable electricity is relied upon even more by its growing manufacturing and finance sector as well as lifts and the MTR





# THE SOC HAS ALWAYS MET CHANGING NEEDS



Black Point Power Station which uses natural gas for electricity generation



Guangdong Daya Bay Nuclear Power Station



## 1990s – 2000s

### IMPROVING THE ENVIRONMENT

As the community need for sufficient and reliable electricity was met, CLP also moved to a cleaner fuel mix. In 1996, CLP became the first electricity supplier to use natural gas for electricity generation in Hong Kong. CLP also began bringing emission-free nuclear power from Daya Bay in 1994.



Hong Kong's first commercial-scale standalone renewable energy (RE) system on Town Island



Lighting up Cheung Chau's Bun Festival



## Now and the Future

Balancing the need for reasonable tariffs, world-class reliability and a cleaner fuel mix

How the Scheme of Control can continue to adapt to deliver this to the community?



Modern Hong Kong



### KEY POINT

The SoC has changed over the years to meet new requirements. As we think of the post-2018 period, we need to determine the future that we want. Then we can determine what changes to the current SoC are appropriate to get us there.



## SECTION 2: KEY CONSIDERATIONS

We need to determine what is best for Hong Kong going forward. To do that we need to take account of several things, such as Hong Kong's characteristics, the outcome of last year's Fuel Mix consultation and what our customers tell us they want.

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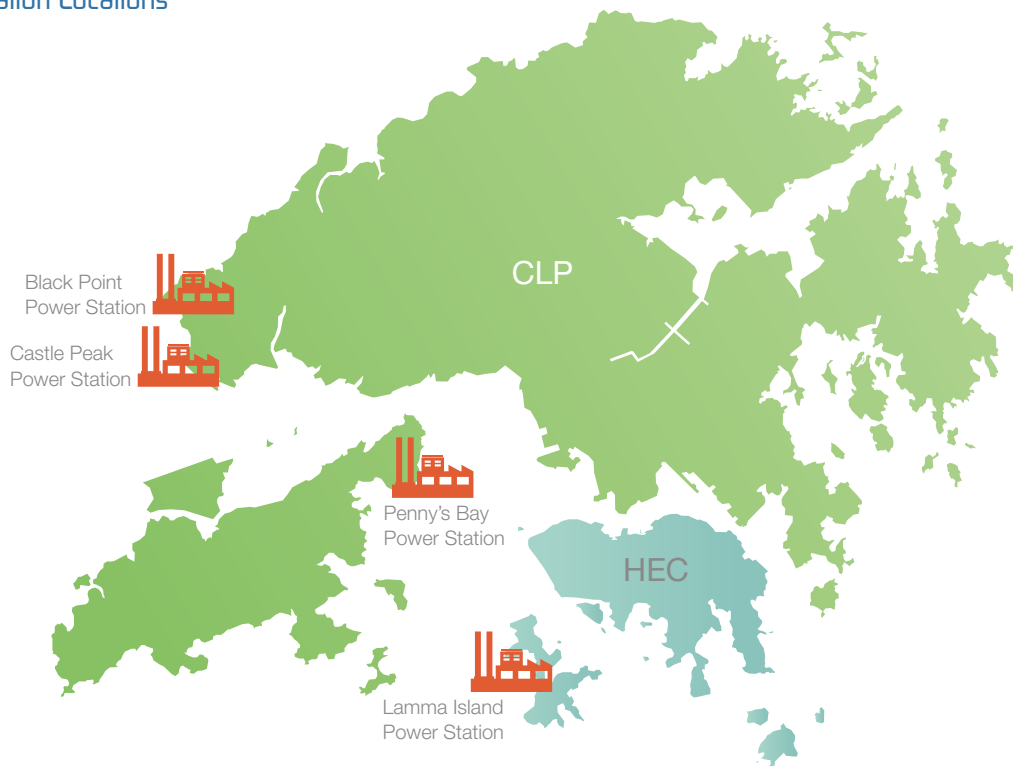
## HONG KONG'S CHARACTERISTICS AND OPPORTUNITIES

There are important characteristics that must be taken into account when considering our energy future. Here we highlight three of them:

### Availability of Land

Hong Kong has four power stations on its territory and we also import power from the Daya Bay Nuclear and Guangzhou Pumped Storage stations on the Mainland:

### Power Station Locations



Land is in short supply and there are few if any suitable sites for large scale power stations apart from those already built. There is space at some of the stations for the companies to build more units.





# HONG KONG'S CHARACTERISTICS AND OPPORTUNITIES

## Urban Density

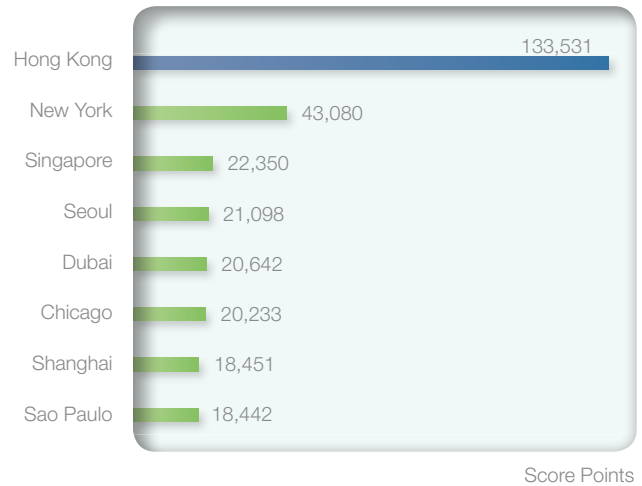
In the Consultation Paper, the Government noted that our reliability is above 99.999%. In other words, on average customers experience less than 3 minutes of unplanned interruptions of power in a year. In fact, nearly all our customers experience no outages at all. This is truly world class, but is it necessary?

Hong Kong has very special reliability requirements as a result of its urban density. It is the most vertical city in the world with more than 50% of us living or working above the 15th floor. We are hugely reliant on over 60,000 lifts to work every minute of every day. Virtually all our buildings are powered by electricity, as are our rail networks, which carry some 5 million passengers a day. Our key service sectors, such as finance and IT, need reliable power, as do our airport and road management systems. The provision of water relies on electric powered pumps. In other words, electricity touches in one way or another on virtually every aspect of our lives.

In many ways Hong Kong is a unique city. Our urban density means that we have proportionately more high

rise buildings than any other city in the world. The chart below is taken from the Emporis rankings of high rise buildings. Not only does Hong Kong have the highest score; that score is over three times that of the next city, New York. This urban density constrains our ability to introduce certain initiatives, for example roof top solar schemes that are making significant inroads in other countries. It also emphasises the importance of reliability.

## Emporis Skyline Rankings



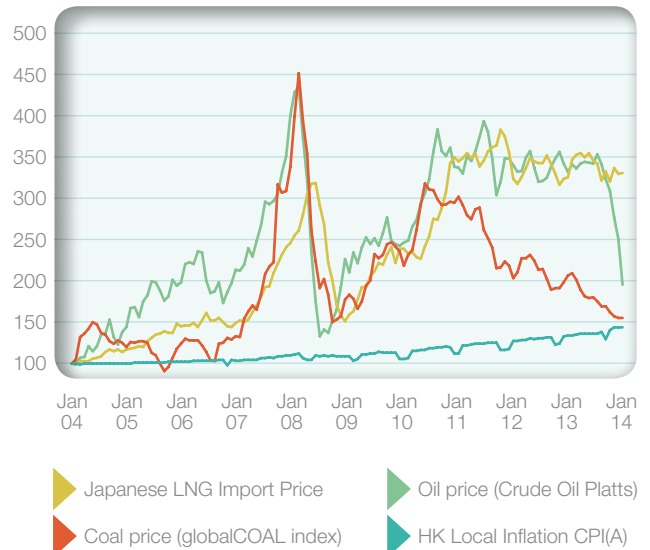
Source: Emporis, June 2015

## Fuel Costs

Hong Kong has to import all its fuel and the costs are often highly volatile and dependent upon world markets. It would be unwise to commit ourselves to a single fuel source. Instead we purchase a range of coal and gas fuels at the best possible prices, so that we maintain flexibility and optionality.

## Fuel Prices & Local Inflation Trends

All Prices Indexed to January 2004 = 100





# OUTCOME OF THE 2014 FUEL MIX CONSULTATION

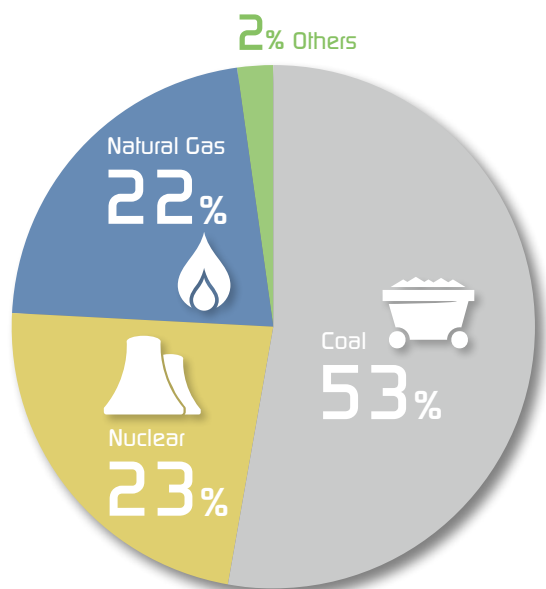
The Government has reported on the outcome of the consultation it conducted last year on Hong Kong's fuel mix. It has said that the public has opted for Option 2, local build, and that for the time being this will be its policy with regard to new generation requirements.

In light of the responses to its consultation, the Government has announced four measures to implement a fuel mix policy that recognises the preference for local generation:

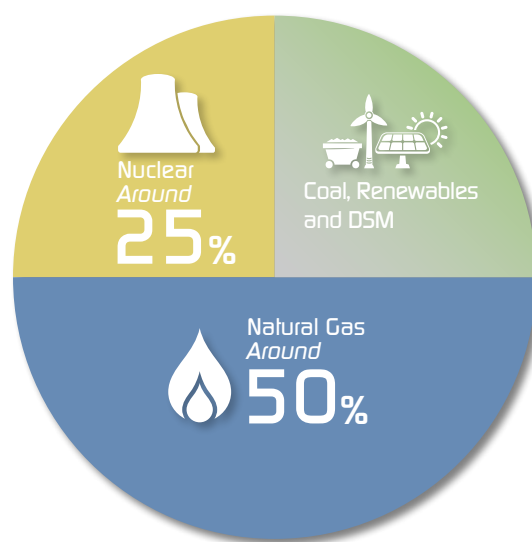
- A) Increase the percentage of gas in the fuel mix to approximately 50% and maintain the current level of nuclear power, which is imported under long and short-term contracts by CLP.
- B) Subject to community views on the tariff implications, develop more local Renewable Energy (RE).
- C) Enhance efforts on demand side management (DSM).
- D) Meet the balance of requirements with coal-fired generation.

We think that this approach is appropriate and we are working on its implementation, such as the need for new gas-fired generation capacity and encouragement for more local RE and Demand Side Management. In the longer term we will continue to monitor carefully other opportunities that might be available to Hong Kong

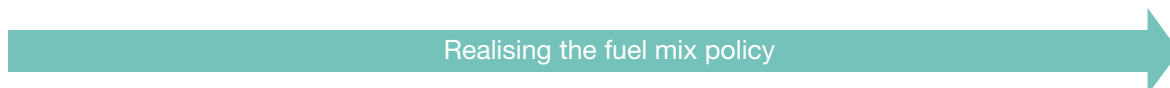
Hong Kong's 2012 Fuel Mix



Possible Hong Kong 2020 Fuel Mix



CLP has ensured a diversified and balanced fuel mix ... which will change slowly over time



## KEY POINT

For the time being, Hong Kong will embark on a policy of providing its generation needs locally. In time, other options can be explored.



## WHAT STAKEHOLDERS WANT

### Listening to stakeholders

We seek feedback and pay great attention to the needs and expectations of all the stakeholders in our business. We have adopted the same approach in developing our views on the way ahead for Hong Kong's electricity supply industry after 2018.

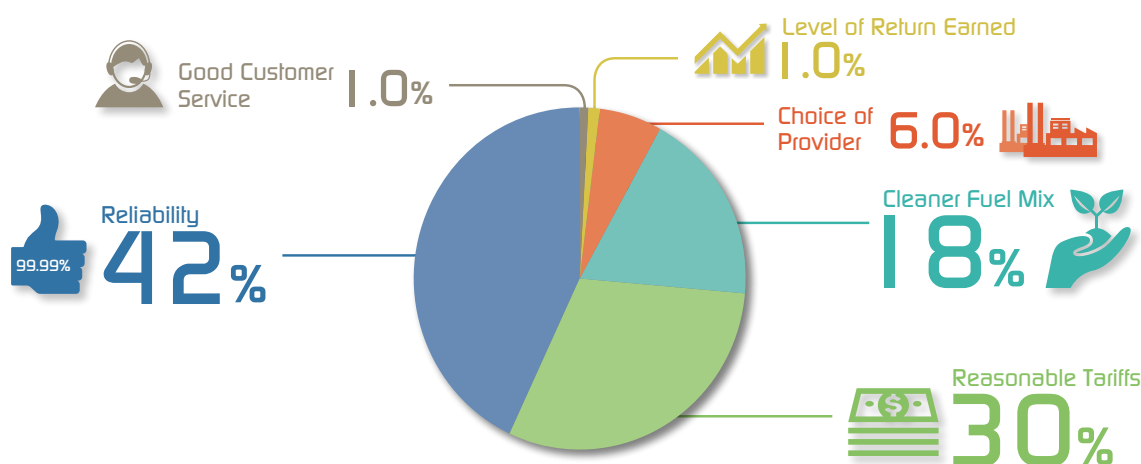
### Customer Survey

We have actively consulted and included the views of our stakeholders in preparing this response to the Government's Consultation Paper. As part of that

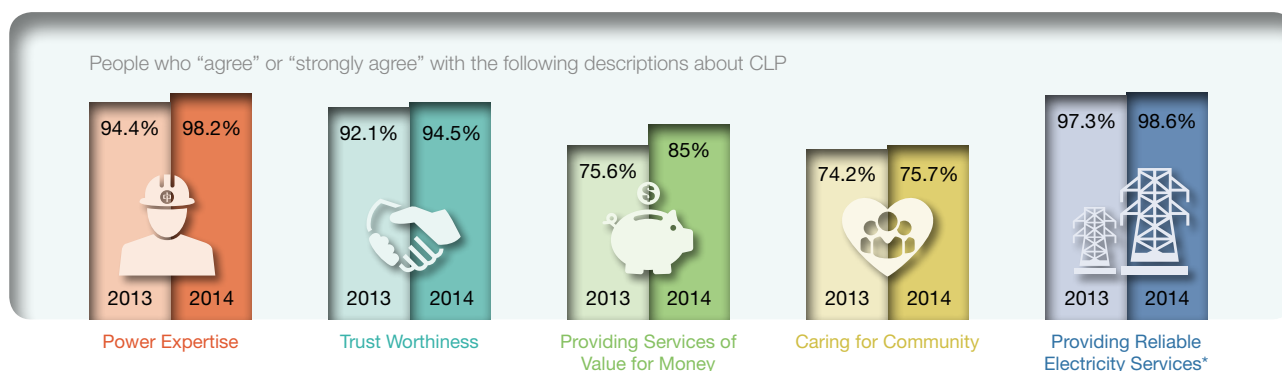
process, we commissioned Hong Kong Polytechnic University to conduct independent surveys of over 1,000 of our customers. These surveys were conducted in March 2015.

The chart below is a composite of the results from all customer classes. Reflecting previous surveys by ourselves and other bodies, customers still tell us that reliability is the most important consideration for them, with reasonable tariffs and a cleaner fuel mix also ranked highly. Other attributes scored lower rankings.

### Answers to "What is the Single Most Important Attribute Regarding Our Electricity System?"



### Public Perception Survey on Electricity Supply in Hong Kong Conducted between October and November 2014 – Overall Perception on CLP



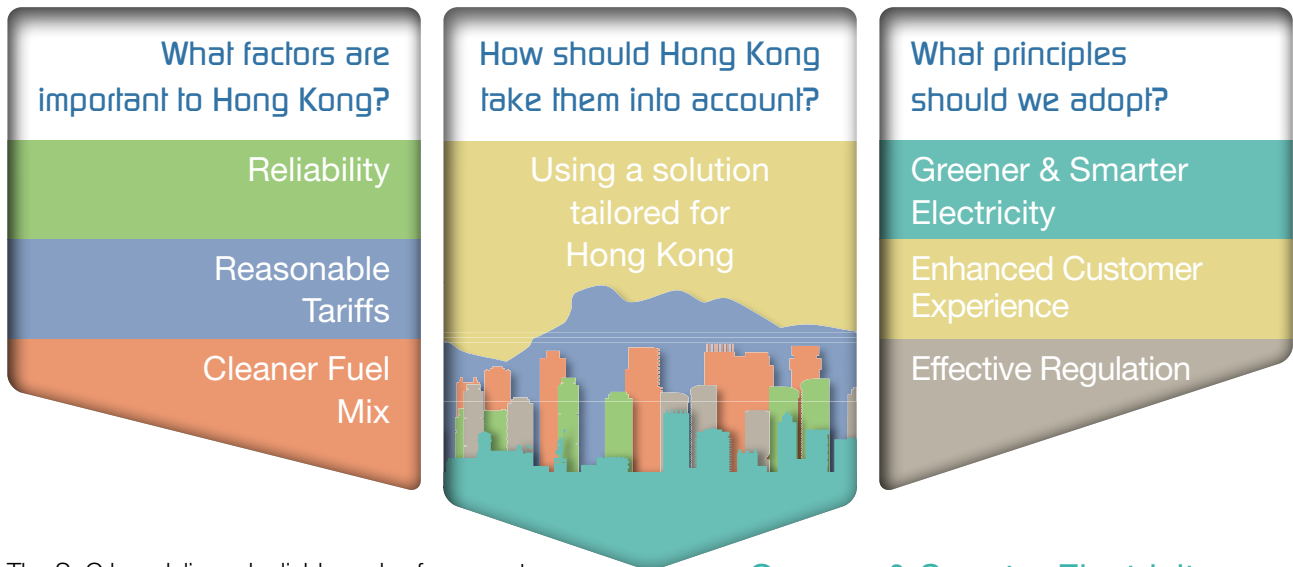
\* The results for Providing Reliable Electricity Services include the respondents' opinion of the two power companies in Hong Kong.

We also hold many meetings with customers, stakeholder groups and others to gauge their views – over 300 in 2014 alone, more than one per working day. We highlight the results of the surveys and stakeholder feedback throughout this response.



# SECTION 3: THE WAY FORWARD

We have to consider a wide range of important issues. Often they will affect each other, so careful consideration is needed. Experience elsewhere tells us that fundamental reform will be complex, difficult and costly, so we need to be aware of its consequences and clear as to why we want it. Building on our analysis so far, we need to address three key questions:



The SoC has delivered reliable and safe power to Hong Kong for over 50 years, with improving environmental performance and reasonable tariffs.

The next set of regulatory arrangements should build on what we already have and seek to meet three guiding principles:

### (1) Greener and Smarter Electricity

- Encourage more RE
- Shift focus towards helping customers manage demand

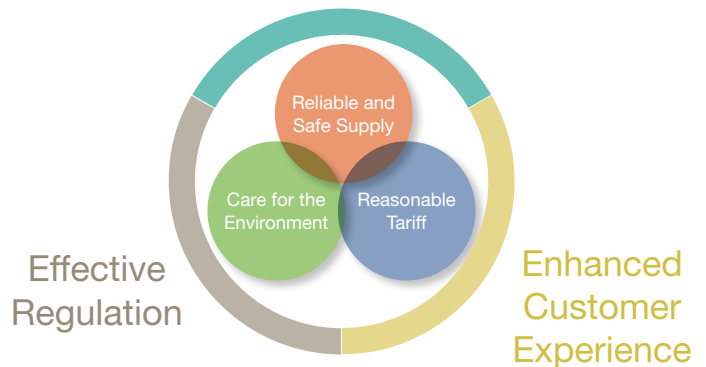
### (2) Enhanced Customer Experience

- Help customers understand consumption and offer them more choice

### (3) Effective Regulation

- The new agreement should deliver the Government’s energy objectives as effectively as possible
- It should also maintain reasonable tariffs to customers whilst providing returns sufficient to attract investment

## Greener & Smarter Electricity



Electricity is a long-term business – many of our assets have lives of between 30 and 60 years. We have to think a long way ahead when we consider new regulatory arrangements. These need to continue to deliver the Government’s four energy policy objectives – a safe and reliable supply of electricity at improving environmental performance and reasonable tariffs – whilst adapting to the needs of the community and at the same time ensuring that sufficient investment funds are available for the maintenance and the improvement of our system. The SoC has already evolved over the last 50 years and can continue to evolve to deliver these challenging goals.



# GREENER AND SMARTER ELECTRICITY

Hong Kong needs to be greener and smarter in its use of energy. There are a number of ways to do this. In this section we discuss how to optimise Renewable Energy (RE) within our overall generation mix and the reliance that we will continue to place on more conventional forms of generation.

## Renewable Generation

Renewable Energy (RE) has its merits and drawbacks and it is important to understand both. RE generation schemes do not produce any emissions but are generally intermittent, which means their output is not always reliable, for example if the sun does not shine (solar) or the wind does not blow (wind turbines) or the rain does not fall (hydro). Also they require much more land per unit of output than conventional generation; for example the output of a wind farm with a capacity of 400MW requires about 800 times the same land area as a coal or gas-fired station of similar capacity. This is a key limiting factor in our crowded city in terms of large scale RE facilities. There is more scope for smaller scale distributed RE, that is things like roof top solar, but our vertical city again limits that scope. We are also fully supportive of Waste to Energy schemes and are working with others to implement a number of these. RE is still more expensive than conventional energy, although the cost

gap is narrowing, and it also increases system management costs due to its intermittent nature.

CLP owns 100% of the Xicun Solar Plant in Yunnan, China. Once completed, the plant's total capacity for phases 1 to 3 will be 150MW which is equivalent to less than 2% of our capacity in Hong Kong. The area of the solar plant is about 356 hectares which would cover more than half of the entire Yau Tsim Mong District, which is comprised principally of the three neighbourhoods of Tsim Sha Tsui, Yau Ma Tei and Mong Kok, in Hong Kong.



Xicun Solar Plant, Yunnan, China

## Conventional Generation

We will need output from our gas, nuclear and coal plants for many years to come. There are three reasons for this. First, we need a considerable volume of power to meet the needs of our customers; renewable generation cannot provide this volume given our limited land resources. Second, conventional power is reliable and can be used to provide a safe and dependable source of electricity; whatever the level of renewable generation, it is usually intermittent and dependent upon weather and other factors. Third, conventional generation is still cheaper than most forms of renewable generation.

The key issue going forward will be to utilise our conventional generation resources as effectively as possible whilst minimising their emissions.

Our conventional generation fleet provides over 99% of our total power requirements.





# GREENER AND SMARTER ELECTRICITY

## Renewable Energy

Although there are constraints to RE development, we need to do more to maximise Hong Kong's potential. We have already connected over 200 small scale renewable schemes to our system and we will enhance our efforts to develop and promote local RE, where this is feasible and in the interests of our consumers, consistent with their willingness to pay for it. What does enhancement mean? There are three major tools available to us: financial support mechanisms; other forms of support; and incentives to do more. These tools and their pros and cons are discussed below.

### Financial Support Mechanisms



#### Feed in Tariffs

Feed in Tariffs (FiTs) encourage RE development. Owners of distributed renewable generation, such as roof top solar, receive payments from the grid company for any power that they produce that is in excess of their own requirements and is 'exported' to the grid for use by other customers. FiTs are controversial in other countries; not only have the costs of such schemes often exceeded initial estimates, but many commentators consider that in effect they create a cross subsidy from the poor, who normally cannot afford the technologies that can earn the FiT, to the rich, who can. Subject to the community's views on these issues, a pilot scale FiT trial can be explored.



### Net Metering

Net Metering is a different way of paying for any surplus power produced by owners of distributed renewable generation. Instead of receiving a payment for surplus power, the amount is instead credited to the owner's electricity account and used to offset charges for those times when the owner is importing power from the grid. As explained in the consultation paper, Net Metering may be a less costly way to encourage RE development in Hong Kong; FiT schemes are usually more expensive than net metering because the FiT is often more than the cost of power from the grid. We will discuss with the Government how encouragement of Net Metering schemes might be included in future regulatory arrangements, taking into account considerations such as the community's willingness to bear the costs involved.

### Other Forms of Support



#### Better access by distributed RE facilities to the existing power grids

Power exported to the grid can cause power fluctuations and other problems. Thus, a clear and consistent regime is important to ensure that all RE connections meet

appropriate standards. That said, to kick-start more small-scale distributed RE schemes, it is important that our procedures relating to grid access are simple, flexible and meet customer needs. We are introducing important changes to these procedures to ensure that they meet these standards. We are also willing to consider how best to support community RE schemes such as shared solar facilities.





## GREENER AND SMARTER ELECTRICITY



### The issuance of RE certificates by power companies

RE certificate schemes have been adopted in some countries, with mixed success. There may be difficulties in obtaining an appropriate level of take up if the scheme is voluntary, as the Government suggests, and matching willing buyers with appropriate amounts of RE at a reasonable cost may be another challenge. As long as these difficulties are understood we are willing to mount a scheme to determine the enthusiasm for RE certificates in the community.



### Introducing new sources of large-scale RE suppliers in Hong Kong

In the longer term, if Hong Kong wants to access large scale RE schemes, the most effective way would be to increase imports of clean power from such schemes in the Mainland. It is not necessary to introduce new suppliers to do this. We already import power from Daya Bay and we are willing to explore importing clean RE from the Mainland on behalf of our customers. It is important that, to be of tangible environmental benefit, such schemes must genuinely be additional to existing Mainland generation. Otherwise there is a real risk that to replace the clean generation lost on the Mainland, more output is obtained there from coal-fired stations, which means in effect Hong Kong exporting its emissions to the Mainland, with no real environmental gain for either side. Large scale RE imports would require more interconnection, which would need a change in current policy. This is an issue that can be explored further in the interconnection studies that the Government has proposed.



## Incentives



### Incentives for raising the power companies' performance in energy efficiency and conservation and RE

We have identified a number of areas where we consider more can be done to promote local RE. Some of them may be appropriate for consideration in terms of incentives. We want to work with the Government to promote greener and smarter approaches wherever possible. Suitably targeted incentives may well have a role to play in the delivery of a greener Hong Kong.

## Working with the Community

We have discussed a number of policy initiatives that can help the further development of RE in Hong Kong. We will work constructively with the Government to determine an appropriate package of measures that will gain community support and offer the best possible outcome given Hong Kong's unique environment.



## GREENER AND SMARTER ELECTRICITY

### Conventional and Nuclear Generation

“ Electricity is the fastest-growing final form of energy, yet the power sector contributes more than any other to the reduction in the share of fossil fuels in the global energy mix. ”

World Energy Outlook 2014,  
International Energy Agency (Nov 2014)



### Using more natural gas

Given the community's preference for local build and the need to provide further capacity in the next few years to meet both emissions caps and increases in demand, we are working on proposals for new efficient Combined Cycle Gas Turbine (CCGT) capacity to be added to our generation fleet in 2020. New gas generation has much higher efficiency compared to the old technology that is being replaced. There is a lead time of about four years to obtain relevant approvals and complete construction and we have already begun the Environmental Impact Assessment process. We will work with the Government and the community on this proposal.

To be effective, in the longer term we will need to determine both the most appropriate sources of gas and the infrastructure to deliver it, whether this be through pipelines, fixed or floating Liquefied Natural Gas (LNG) terminals or some combination. This infrastructure, which can serve a range of natural gas consumers, not just

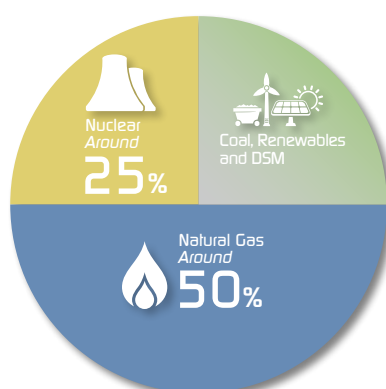
utilities, for the long-term benefit of Hong Kong, involves significant investment and has long lead times involving substantial commitments through long-term contracts.



### Additional nuclear power import from Daya Bay Power Station

Hong Kong has been importing nuclear power from the Daya Bay power station on the Mainland for over 20 years. Over the years, these imports have proven to be environmentally sound, safe, reliable and at relatively low cost. Beyond 2018 we consider that the recent short-term increase in nuclear imports can continue to play a role in our fuel mix, subject to acceptable terms being agreed with our counterparties. We recognise that there are concerns by some in the community over this fuel type, but nuclear power on the Mainland will continue to develop as a matter of state policy. We believe it is better that we are involved in the production and management of nuclear power, as we are at Daya Bay, so as to ensure that Hong Kong's interests are recognised.

In the longer term, we believe that nuclear power should continue to be a part of our fuel mix and that we should explore ways of importing it in a manner that is acceptable to the community. It will offer an important element of diversity as we seek to minimise generation costs and emissions.



Reminder – The Government's fuel mix target for 2020 envisages a balance between several different fuel types





# ENHANCED CUSTOMER EXPERIENCE

The SoC has been delivering important benefits to our customers. As in other industries, we need to keep pace with evolving customer needs in any new arrangements. These are likely to direct a shift in focus more towards the demand side and we see two key areas for engagement: in helping our customers with energy management and in offering them greater choice.

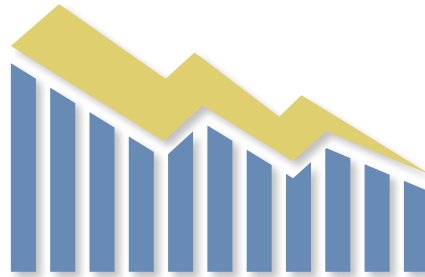
## Energy Management

The Government recently published an important policy paper, an Energy Saving Plan for Hong Kong's Built Environment. The paper said that there are three key themes going forward: promoting energy wise buildings; mobilising stakeholders, including ourselves; and the community taking responsibility. We support these themes and will play our part in working with the Government and other stakeholders to deliver the targets in the Plan.

To do so, we need to conserve energy wherever we can. Annual increases in demand are already lower than in the past, due in part to much more efficient devices now on the market, from light bulbs to air conditioning units. In the future we see a place for further energy savings and

we will play our part in educating customers on how to achieve this and investing in a smarter and more energy efficient network.

Energy management offers benefits all around. The more that demand can be reduced, through more efficient devices and greater awareness of energy consumption, the more that bills are reduced and new investment requirements deferred. New technologies offer significant scope in this area.



## Customer Choice

Customers want more choice and we want to give them opportunities to realise this. Modern technology offers choices in a range of areas. For example, through smart meters customers can receive much better consumption information and can also choose tariff plans and services to suit their lifestyles. Electric vehicle charging points allow more choice for customers in terms of the vehicles that they purchase. We will review and further streamline, as appropriate, RE grid connection procedures to enable more customers who wish to choose roof top solar or other small scale renewable energy devices to do so.



# ENHANCED CUSTOMER EXPERIENCE

We need to shift the focus of the new arrangements more towards helping customers manage their demand through smarter use of energy. We need to build on existing programmes and where appropriate introduce new ones.

## Energy Management – Customers



### More active Demand Side Management Measures

We are already doing a lot in this area for homes and businesses as shown in the graphic below. Such programmes can help customers reduce their bills through reducing energy consumption. We have already made changes to the SoC to facilitate energy efficiency and conservation schemes.

### Energy-Saving Support for Homes

#### Education

- Electric Green Studio
- Energy Innovation Project Competition
- Exhibitions and Promotion
- “Let’s Save Now For a Better Future” Campaign

#### Information

- Energy use information on electricity bill
- Green Home Starter Guide
- Green Information Hub on CLP Online

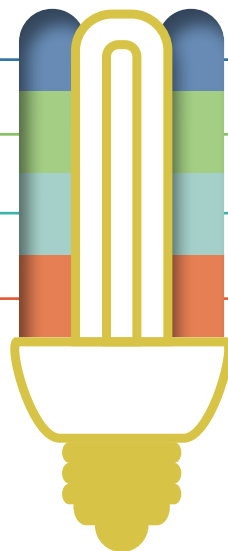
#### Tools / Support

- Eco Home
- Eco Optimizer
- CLP Mobile App
- CLP Eco Ambassadors

#### Enablers

- Advanced Metering Infrastructure (AMI)
- Energy and Carbon Calculator on CLP Online
- CLP Eco Building Fund
- Home Energy Report

### CLP's DSM Efforts



### Energy-Saving Support for Businesses

#### Education

- Energy Efficiency Exhibition Centre
- Energy Efficiency and Conservation Workshops
- GREEN<sup>PLUS</sup> Recognition Award

#### Information

- Green Enterprise Info Pack
- Meter Online
- Green Information Hub on CLP Online

#### Tools / Support

- GREEN<sup>PLUS</sup> Programme, GREEN<sup>PLUS</sup> Experience Center and GREEN<sup>PLUS</sup> Resort
- GREEN<sup>PLUS</sup> Energy Billboard
- Account Manager

#### Enablers

- Advanced Metering Infrastructure (AMI)
- Energy Efficiency Loan Scheme
- Energy Audit Services
- Energy Calculator on CLP Online

There is more that can be done here, both to expand some of the existing programmes and to introduce new ones. We will work with the Government to determinate what is appropriate for Hong Kong.



# ENHANCED CUSTOMER EXPERIENCE

## Energy Management – Buildings

Buildings consume about 90% of the electricity that we produce. They offer great potential for saving energy in many ways. If the Government's energy savings targets set out in the Energy Saving Plan are to be achieved, fundamental changes in the ways that we design, operate and use buildings will have to be made.

In its Energy Saving Plan, the Government has proposed that many stakeholders, including the utilities, participate in determining a roadmap and timetable to achieve higher energy saving gains. We want to be involved and to contribute our technical expertise in this process. We recognise its importance and will work to strengthen ties in the new process of engagement the Environment Bureau is going to pursue. Uniquely, we can add value by also engaging our customers, who live and work in these buildings, to support public education and social mobilisation.

For residential buildings, Government has identified the choice of appliances and user behaviour as the two most important energy saving priorities. CLP will continue to support our customers in both of these respects.

In new buildings, design standards and certification schemes offer a viable way forward. There are a number of issues to be considered relating to electricity provision and consumption, and as discussed later we see an important role for smart meters.

In existing buildings, as the policy paper makes clear, there are obstacles imposed by whatever design standards were adopted. We can offer help in various ways, such as in the provision of energy audits that look at the specific equipment that an industrial or commercial customer uses and determining if there are ways to optimise its performance. In some buildings, switching equipment to more modern and more efficient devices can often recoup the capital costs in a very short time through the energy savings that result.

The policy paper also notes that simple techniques, such as the fitting of display panels in public buildings, helps build awareness of consumption and saving. We have developed such panels for some of our own buildings.





# ENHANCED CUSTOMER EXPERIENCE

## Customer Choice

The consultation paper suggests that a key driver to introduce competition is that customers want more choice. That may or may not translate into tangible benefits. With the advent of new technology, many choices in terms of information, customer service or tariff plans can be offered within the existing SoC framework.



## Consumer Choice from technology

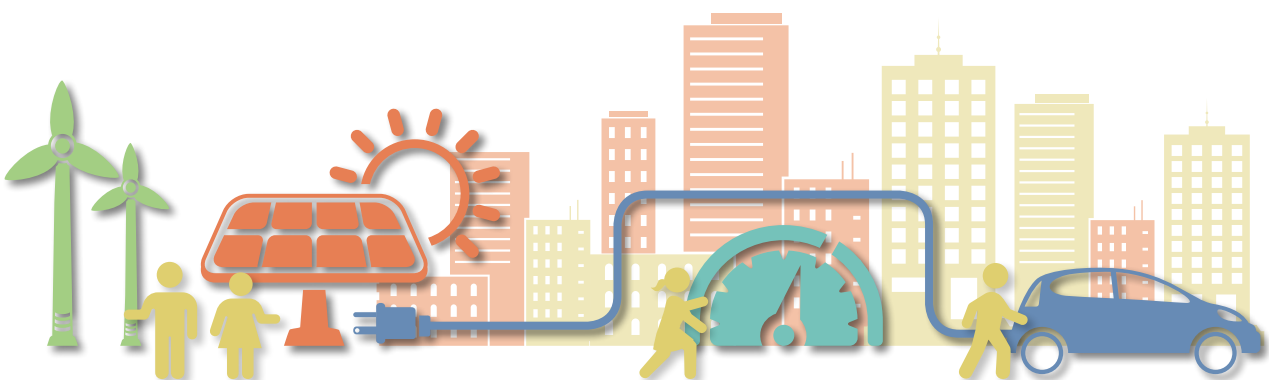
An independent survey showed that only 6% of our customers regarded choice as the most important consideration. Choice of supplier has to deliver real rather than illusory benefits. A number of studies have shown that choice of supplier does not always guarantee lower tariffs. Choice can be of benefit if it forces companies to improve service levels, the risk being that customers are lost if they do not, but under the SoC our service levels are already high and our level of complaints is very low. Choice in terms of electricity can come from new and different technologies just as easily as from competition. New technology is already transforming the electricity industry through the introduction of things such

as renewable energy, electric vehicles and smart meters. In some countries such transformations have had disruptive effects on the electricity sector. Whilst the high rise nature of our city will limit some of these effects, they will continue to impact us. Indeed, if Hong Kong does more with RE schemes, sees a serious rollout of smart meters and adapts to far more electric cars, all our lives will change. Here we discuss potential initiatives in these areas.



## Choice of RE Schemes

We will do more to offer customers choices of RE schemes and technologies. There are two ways that we intend to do this. The first is to simplify and streamline our procedures for approving applications to connect small scale distributed RE schemes to our grid. We will also appoint a dedicated team to help customers through this process. The second is to offer appropriate support through new initiatives such as Feed in Tariff or Net Metering schemes. These will need Government endorsement in terms of the volume and nature of these arrangements, to ensure that they encourage small scale RE at a cost that the community is willing to support.





# ENHANCED CUSTOMER EXPERIENCE

## Choice Through Smart Meters

Smart meters measure consumption at frequent intervals and can communicate both with devices in the home and with the utility. They are key devices that have significant potential to enhance customer experience and offer choice. We have conducted a smart metering trial. Preliminary analysis shows that customers who participated in the trial welcomed the opportunity to understand more about their electricity consumption and many took active steps to reduce it. These steps were especially focussed on reducing peak demand as well as energy saving. Smart meters offer these and other benefits, such as new tariff and billing plans, to many customers.

Making smart meters available to all our 2.45 million residential and small business customers will offer significant benefits to the community. We think that making them available should be seriously considered. Through smart metering, we can offer a range of tariff plans that would fit with different preferences for our customers. Some will be prepared to reduce their demand at peak times, in return for financial rebates. Some will want time of use tariffs that do not focus only on peak demand reduction. Others will want to reduce their demand more generally and smart meters will help them understand quickly consumption patterns in the home, enabling them to make educated choices about usage. Smart meters have other benefits for all customers, for example a customer's bill can be sent on a chosen day each month, say just after a salary payment, making household management easier. Customer service is facilitated, for example smart meters can provide earlier warnings of outages and system faults.

It will take time to achieve a full rollout of smart meters across our service territory. We will discuss with the Government the merits of such a rollout and if considered appropriate we will develop an implementation plan as soon as practicable.

## Choice of Electric Vehicles

One way to offer more choice to customers is to support the further adoption of electric vehicles (EVs) in Hong Kong. The nature of our city is ideal for electric vehicles. One of the key limiting factors elsewhere, so called 'range anxiety', the concern that the car will run out of power before reaching the next charging station on a long journey, hardly applies in Hong Kong; the distance from say Stanley, in the south of Hong Kong island, to the border is about 50km, well within the range of all EVs in the market. A wider adoption of EVs would have net environmental benefits – the emissions avoided from petrol and diesel are generally more than those of the power stations providing the electricity for the cars and the emissions are not at the roadside, where the greatest risk to health lies. There are difficulties in installing a broad EV charging network in Hong Kong, for example in high rise buildings there are often debates over who should pay what for the costs of the charging network within the building. We believe that these difficulties can be addressed and will be making proposals to the Government to facilitate EV adoption in Hong Kong.



# EFFECTIVE REGULATION

The electricity sector in Hong Kong is currently a regulated regime – all aspects of our system are subject to the detailed terms in the Scheme of Control. Effective regulation has been a cornerstone of the success of the electricity industry in Hong Kong. Changes need to be considered to adapt it to many of the points that we have discussed already. We address a number of issues that feature in any discussion of effective regulation and which offer the possibility if taken together to align the interests of our customers, our investors, Government and the broader community.

## Basis of Regulation



### The current contractual arrangement as a regulatory tool

The SoC has been an effective regulatory tool, for the Government, for our customers and for the power companies. We accept that changes need to be considered but in principle we support the Government's view that the current arrangements should be continued. Whilst the Government has said that a potential disadvantage is that contractual terms are subject to mutual agreement, experience over more than 50 years shows that this can be readily managed by the parties to the contract. Whilst we have concerns over some of the proposals in the current consultation paper, we will discuss with the Government an appropriate direction for the new arrangements to be applied after the expiry of the current contract in 2018.



### Duration of the future contractual arrangement

We think that the term of the new agreement should be similar to the current one. This gives certainty to investors, particularly if significant changes of ultimate benefit to customers may be introduced at the end of the period. A long term would also provide time for a number of key programmes to be implemented that would support any such changes.



## The Excess Capacity Mechanism

We are already under significant pressure to reduce investments wherever possible. We think that the current controls are effective and proportionate – our reserve margin is currently well within the range advised by the International Energy Agency. The controls need to be achievable and recognise our contractual responsibility and accountability to provide power to meet customer demand. We think that the current controls do this effectively as evidenced by our tariff levels as compared to other cities.



## Greater information transparency

We already publish a lot of information on sales, fuel and energy costs, operating costs, investment plans, fuel mix, safety, financial, environmental and operating statistics. We can consider publishing other information, as long as such disclosure is appropriate and our ability to negotiate commercial agreements on the best terms to customers is not undermined. Whether or not we should also publish more detailed segregated data, as the Government suggests, should only be decided once we are clear on any pathway to competition, if indeed that is to be the long-term goal.



# EFFECTIVE REGULATION

## Tariffs

Tariffs must offer a fair deal for customers. They must be reasonable yet at the same time allow us to recover our costs, including a fair return on the investments that we make. They must also include fuel costs and those costs that society is willing to pay to see environmental improvements.

The biggest single cost in our tariffs is fuel. Fuel costs are volatile – for some years they rose significantly although more recently the rises have been pegged back by the impact of the shale gas boom in the USA. Other costs are less volatile but still put pressure on tariffs.

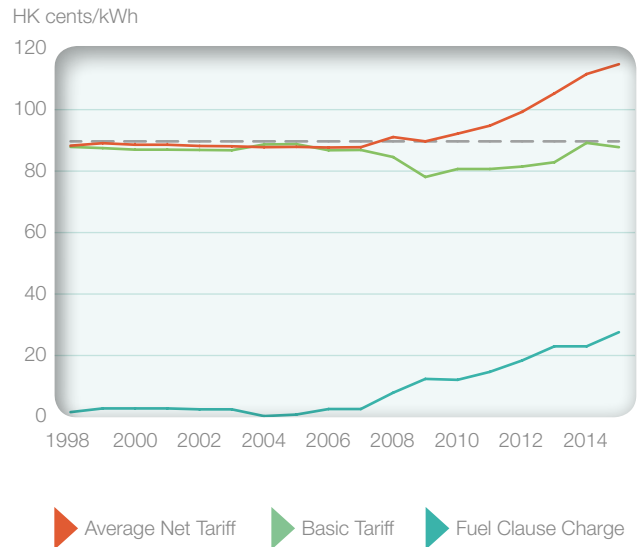
## Tariff Scrutiny

There are many mechanisms in the SoC through which the Government exerts oversight and control of our activities. The key controls are the Development Plan process, the annual Auditing Review and the annual Tariff Review.

Every five years or so we are required to produce a Development Plan, which sets out the projected demand growth, our proposed capital expenditure for the next five years, together with estimates of our operating expenditure and our tariffs. Development Plans are scrutinised in great detail by the Government, which usually appoints technical experts to assist it in that process. The Government often demands changes to the Plan before it is eventually approved by ExCo.

Once an agreed Development Plan is in place, each year an Auditing Review assesses our technical performance and provides a detailed challenge on all aspects of capital and operating expenditure to ensure that it is appropriate and consistent with the Development Plan, taking into account the latest situation such as actual demand growth and fuel cost fluctuations.

## Our Basic Tariff, that is excluding more volatile fuel costs, is lower now than in 1999



“ The shift towards more capital-intensive technologies and high fossil fuel prices lead to increasing average electricity supply costs and end-user prices in most countries in the world. ”

World Energy Outlook 2014, International Energy Agency (Nov 2014)

In a separate process, each year we also submit a Tariff Review, with details of the proposed tariff for the following year and this too is subject to comprehensive scrutiny and challenge.

As well as these defined processes, there are other elements of the SoC that create oversight. There is an Excess Generating Capacity Mechanism that requires us to introduce new capacity only when it is needed. There are a number of standards relating to supply reliability, operating efficiency, customer service and environmental emissions, where we face penalties if we fail to meet them.





## EFFECTIVE REGULATION

### Tariff Approvals

When considering tariffs, the consultation paper focuses on two issues that it links, the ability to pass fuel costs onto customers and what approval rights Government should have over annual tariff increases.



**Approval of ExCo if either the proposed net tariff or Basic Tariff Rate exceeds the approved one for the year in the DP by a certain margin**

It is important that there is a process to ensure that tariffs have been set properly and that the Government should play a role in that process; at present this oversight includes review of the five-year Development Plan submission and is part of the annual Tariff and Auditing Reviews. In addition, any proposal to increase the Basic Tariff by more than 5% above the currently approved level requires further ExCo approval. We have accepted this in the past as most of the cost components in the Basic Tariff are under our control.

This is not true for fuel costs. The broader approach suggested by the Government could mean that it might choose not to allow an increase in fuel costs that we cannot influence or contain. Fuel costs are very substantial – in 2014 we spent \$10 billion. Our stakeholders, including shareholders and lenders, are likely to see this as a significant increase in risk.



### Exercising due diligence in fuel sourcing

No company can survive if it cannot recover properly incurred costs. Fuel costs are volatile, outside our control and also driven by Government policy; for example we cannot burn more than a certain amount of coal, our cheapest fuel, due to emissions constraints. We always purchase fuel prudently and already provide a lot of information to the Government regarding those purchases. If we are required to deliver the Government's fuel mix policy, which is in the interests of all citizens of Hong Kong, we cannot be held accountable for the costs of that policy. Our principal fuels are coal and gas and the markets for these differ significantly. We purchase coal of specific qualities on world markets, where we have a limited degree of choice between suppliers. Our gas is supplied under long-term contracts that are reviewed and approved by the Government. Whilst the prices in those contracts are in part indexed there is relatively little flexibility to choose between gas suppliers. We provide significant amounts of information to Government so that it has full oversight of our fuel procurement; for example all major fuel procurement contracts have to be approved in advance and we report annually to Government on our costs, including fuel purchases, in the Auditing Review. We also publish monthly information on our fuel costs. Given the focus in the consultation paper on this issue, we will discuss with the Government what additions to the existing oversight arrangements would be appropriate to address the concern it has expressed.





# EFFECTIVE REGULATION

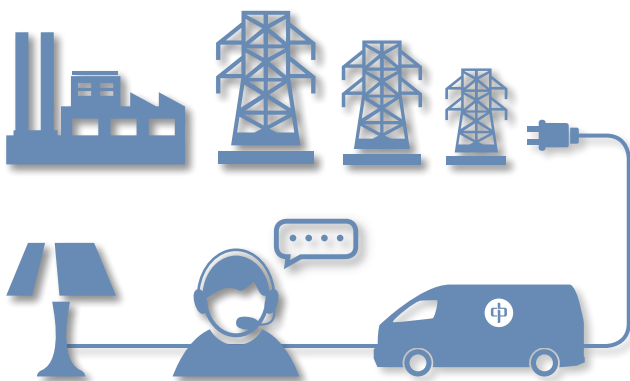
## Returns

We take significant risks by investing in assets that have long lives and are immovable. A fair return for those risks is important to ensure that capital for future investments remain available. The Government has said that it considers that the permitted return should be reduced in tandem with the latest economic situation. It said that a study for the 2013 Interim Review indicated a range of 6% to 8% and that it will update that study prior to any negotiation with the companies. The Government also recognises our right under the current SoC to continue to earn 9.99% on our assets at the end of 2018 through until 2023.



## An appropriate Permitted Return

We have looked at what experts in many countries say about appropriate levels of returns. There is clearly no one answer and experts disagree on the various elements set out in the integrated approach described in the consultation paper, that is the risk free rate, the cost of equity and the cost of borrowing. We will look at any figures that the Government wishes to discuss with us in the light of the need to continue to fund the significant investments that are necessary to maintain our current system and its superb reliability, the single most important factor as far as our customers are concerned.



## Setting the future Permitted Return

Many factors must be taken into account in setting the Permitted Return. We consider the current level, in place until 2023 on all assets, whether or not the Government extends the term of the SoC, to be appropriate and commensurate for the risks that we face.

We anticipate that some will compare the Permitted Return to regulatory returns elsewhere. There are several difficulties in making direct comparisons. Many experts have pointed out that each jurisdiction is different. Looking at a regulated number for say a US utility and trying to compare that to our Permitted Return is difficult; for example, that utility will effectively have a perpetual licence rather than a fixed term contract and it will not have an Excess Capacity Mechanism; there are many other differences as well and in most cases service reliability is at a lower level as compared to Hong Kong. There are no straightforward answers to determining what impact each different factor has on the level of risk and return.



## Incentives and performance improvements

Within the SoC there are specific incentives to encourage performance improvement in three operational areas. Operating standards are tight and the incentives are limited in scope. In a new contract we think it sensible to consider if more can be done here in a number of ways, for example a wider range of incentives that bear down on the things that matter most to customers and offer appropriate rewards to the companies. If there were to be a wider range of incentives, then we will need to consider carefully how they interact with each other to ensure that the overall customer experience is improved across the board.



# EFFECTIVE REGULATION

## Competition, Interconnection and Grid Access

The consultation paper notes that competition in other jurisdictions has delivered mixed outcomes and that it is difficult to be sure that real benefits have arisen. The consultation paper also proposes a fuel mix policy consistent with the outcome of its previous consultation, with the focus for now on local build rather than imports to meet increases in demand. In the longer term, however, it sees merit in continuing to look at both interconnection and grid access as it considers that together these would facilitate the introduction of competition to the electricity sector in Hong Kong.

Competition is clearly under strain in other jurisdictions. We do not think that the case for it to benefit Hong Kong has yet been proven. Increased interconnection could allow Hong Kong to access potential sources of clean energy and create a more balanced generation portfolio in the longer term. On the other hand, it can be expensive and difficult to justify on cost grounds alone. For now, the public has opted for a policy of local build in the context of the fuel mix consultation. In the longer term circumstances may change and we think it worthy of further study after 2018.



### Interconnection with the Mainland power grid and between the local power grids

Previous studies have indicated that the benefits of expanding interconnection between CLP and HEC may not be worth the costs. We do not recommend taking decisions here before the full costs, benefits and risks are fully understood. This issue should therefore be considered in studies in the next regulatory period.

There are many complex issues to be addressed before we can be sure that enhanced interconnection to the Mainland provides real benefits to customers in Hong Kong as the costs could be considerable. The Government has suggested that a new interconnector may be considered further in a future study.



### Grid access by new players

Whilst we do not think that any benefits of competition have yet been demonstrated, we agree that this issue needs much more detailed analysis before any final proposals can be put before the community. In the meantime, we think it important that we determine the right sequence of decisions. First, we need to agree whether or not it is beneficial for customers for competition to be pursued. If it is, we then need to decide what form of competition would work best in Hong Kong and only then should we decide how to introduce it. Focusing at an early stage on grid access presupposes that we have decided on the best form of competition and that is premature. Alternatives should be considered, such as the Single Buyer model mentioned in the consultation paper; in such a model we would be required to purchase environmentally friendly power from whatever source at the best possible price and then provide that power to our customers. It is important that the terms of reference for the study proposed by the government consider this and other alternatives.



# SECTION 4: CONCLUSION

## A New Approach

There are several key points that need to be addressed in any new arrangements. Hong Kong needs and relies upon an ultra-reliable, safe and robust electricity system and that must continue to be delivered. The SoC has served Hong Kong well for more than 50 years and forms a suitable basis for new arrangements. Those arrangements must continue to balance the energy trilemma, delivering safe and reliable power with improving environmental performance at reasonable tariffs. To do so, we have proposed three key principles to guide us.

### A Greener and Smarter Electricity Sector

We should do all we can to encourage more local renewable energy schemes, consistent with the community's willingness to pay the additional costs involved. We need to shift the focus of the SoC from supplying generation facilities to meet all demand, the key driver for the last fifty years, more towards managing that demand through the smarter use of energy.

### Enhanced Customer Experience

We can help customers reduce their bills through a greater focus on energy efficiency and conservation.  
We can give customers more choice, for example through time of use tariff plans or new billing options enabled by smart meters.

### Effective Regulation

We should build on what we have to ensure our current standards are maintained and that a greener and smarter Hong Kong and greater customer empowerment and choice are properly delivered, whilst maintaining reasonable tariffs and attracting sufficient funds for investment.

## The Future

We have to think of the long term – many of our assets last for between 30 and 60 years. The new arrangements must align customer, Government, investor and community interests as far as possible, whilst adapting to the community's needs and attracting the investment funds necessary to maintain and enhance our electricity system. By building on the SoC, we can ensure that we keep in place the solid foundations that will enable us to continue our remarkable success in powering Asia's World City for many years to come.

A new set of regulatory arrangements, based on a clear view of the long term, built on the existing SoC and incorporating the three key principles, can then enable us to tackle the challenges set out in the consultation paper:

## Tackling the challenges in the Government's Consultation Paper

### CLP's Fuel Mix Implementation

- Undertake work to begin implementation of Government's fuel mix policy
- Around 50% gas
- About 30% nuclear
- Some RE
- Coal to provide balance

### The Next Regulatory Period

- Building on existing Scheme of Control
- Maintain Key principles and terms
- Changes to facilitate more RE, EE&C and DSM
- Other changes to deliver benefits to customers

### The Longer Term

- In due course initiate studies to determine whether competition is best for Hong Kong and if so what form it should take
- Monitor regional developments and assess enhanced interconnection to the Mainland



## SECTION 5: CLP'S RESPONSE TO CONSULTATION QUESTIONS

The Government posed six questions in its consultation paper. For convenience our answers are consolidated here, drawing upon various comments that we make in our response.

**Q<sub>1</sub>** How important is choice to you in respect of the supply of electricity? What objectives do you consider should be achieved through introducing competition to the electricity market?

**A** Choice of products is likely to be important to many of our customers and nowadays there are a number of ways that it can be delivered in the supply of electricity. But choice will only be of advantage to our customers if it delivers real rather than illusionary benefits. Experience elsewhere indicates that this is difficult to achieve. In the UK, where there has been full retail choice for over 10 years, complaints about utilities seem to be at an all-time high, trust in them is at a very low level and the retail sector has been referred to the competition authorities, after at least eight previous enquiries, due to a common view that it is not working properly. In the US, a number of surveys have shown that any gains with regard to the introduction of competition seem to go to major customers and not to domestic consumers. There is very little evidence that choice results in lower tariffs.

Also there are other ways to introduce choice. We are currently assessing the outcome of our smart meter trial, but the results seem to indicate that customers welcome a choice between different tariff options. For example some favour the current arrangements, whereas others would like some form of time of use tariff, with the option of reducing consumption for short periods when demand peaks, providing that they obtain rebates from doing so. A smart meter programme rolled out across our service territory could give customers real choice.

Any proposals to introduce competition should meet two principal objectives. The first is to demonstrate that they are better in various ways than the current arrangements. The second is that they continue to deliver all three elements of the energy trilemma, maintaining exceptionally reliable supply whilst improving environmental performance at reasonable prices for customers.

**Q<sub>2</sub>** To what extent do you think the current contractual arrangement by SCAs has allowed us to achieve the energy policy objectives of safety, reliability, affordability and environmental protection, and what problems do you see with this regulatory approach?

**A** Over many years the SoC has supported us in delivering real value to customers through achieving all four policy objectives – supply is safe and very reliable, environmental performance is improving and tariffs are reasonable. This is consistent with the assessment in the consultation paper, particularly the schematic conclusion to Section 1 on page 14 of that paper. The problem is not with the regulatory arrangements, but rather with the tensions that are apparent in the energy trilemma – how to deliver a safe and reliable supply to acceptable environmental standards whilst containing tariff increases to the minimum. There are no easy answers here – the more that one element is pursued, the more that it will create problems with the other two. In particular, tariffs will increase the more that reliability or environmental goals are pursued. The critical question in our view is whether the current arrangements offer the best framework for resolving these tensions, or whether something else is more appropriate. So far the SoC has stood the test of time well. We think that it is a simple and flexible regulatory instrument and that it can continue to evolve to meet society's aspirations with regards to energy policy.



# CLP'S RESPONSE TO CONSULTATION QUESTIONS

**Q**  
**3a** What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies – duration?

**A** There are two reasons why we think that the duration of a new arrangement should be in the order of fifteen years. The first is our concern over the case to be made for competition and how that dovetails with other important considerations, such as future new investment in plant in Hong Kong and perhaps in enhanced interconnection to the Mainland. As we have already said, there are important decisions to be made that will have a significant influence on our ability to continue to deliver a safe, reliable and environmentally acceptable supply at reasonable tariffs. We think that a clear roadmap is necessary, with sufficient time not only for the relevant studies to be undertaken, but for the community to consider and comment on the results and then for a proper implementation plan to be drawn up and initial steps undertaken.

The second reason why we prefer a long-term agreement is that we continually have to make major investment decisions with significant long-term risks. We will be expected to invest in new generation, the costs of which will primarily be recovered over much longer timescales than the new agreement, with all the associated uncertainties involved given the Government's longer-term goal of more competition. A sensible period of time that strikes the right balance is in our view a new agreement for fifteen years. Overall such a contract term reduces uncertainty, enables better decisions and results in lower financing costs and better results, all of which are of benefit to our customers.

**Q**  
**3b** What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies – permitted rate of return?

**A** Attention always focuses on the permitted rate of return, although it is only one element, if an important one, in the whole set of regulatory arrangements that together comprise the current Scheme of Control. The permitted return has to be set at a level that will attract financing on suitable terms and is appropriate for the risks associated with the significant investments that we have to make in our power system. It is premature to comment on what is an appropriate level. That can only be done when we are much clearer as to many other elements of the new arrangements, such as their duration, the treatment of tariff approvals, how operating costs, especially fuel costs, will be treated and the timetable for any moves towards the introduction of competition.

**Q**  
**3c** What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies – tariff approval mechanism?

**A** Our tariffs, set under the terms of the SoC, offer a good deal to our customers. Through the SoC, the Government already exercises significant scrutiny and oversight. We will discuss how that scrutiny might be extended, for example with regard to our fuel purchasing arrangements. If the tariff approval process goes further, and in effect overrides other contract terms, for example disallowing an increase that is entirely consistent with those terms, that would threaten our ability to raise finance for future investments. The claim in the consultation paper that this would encourage us to purchase fuel more efficiently does not accord with our experience – we already take significant steps to do this and Government already approves all our major fuel contracts to ensure that our fuel costs remain competitive and have minimal impact on tariffs. We therefore have significant reservations on this proposal.



# CLP'S RESPONSE TO CONSULTATION QUESTIONS

**Q**  
3d What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies – fuel cost arrangement?

**A** Fuel costs are volatile and the single biggest component in our cost structure – in 2014 we spent around HK\$10 billion on fuel. Generally the costs are outside our control for two reasons.

First, the costs are subject to global trends, often difficult to forecast – only a year ago the general belief was that oil prices would stay above US\$100 per barrel, and now the price is well below that.

Second, our fuel costs are driven in large part by the Government's energy policies and in particular emissions caps that require us to burn increasing amounts of more expensive gas instead of cheaper coal. This produces environmental benefits, but does come at a price. We are also limited by market arrangements. We seek to buy only those qualities of coal that help minimise emissions, of which supplies are limited, although we do have some opportunities to choose between different sources. Our gas is supplied under long-term contracts that give us relatively limited flexibility. Although fuel costs are generally set by global factors we continually work to achieve the best price, both in terms of long-term contract decisions and in the shorter term determining whether to purchase at spot or forward prices. Once incurred on the best available terms, it is reasonable for fuel costs to be passed on to customers; in the consultation paper, the Government recognises that this is common practice in other regulated regimes. To strengthen these pass through arrangements, we will discuss with the Government how oversight of our fuel purchasing arrangements might be developed further.

**Q**  
3e What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies – incentives and penalties

**A** We are already subject to a regime of incentives and penalties in various aspects of our operations. Operating under the existing regulatory mechanism, we accept the principle that the Government should agree with us a set of arrangements that encourage high performance. Providing that the arrangements are not unbalanced, we are willing to discuss further refinements if they are in the interests of our customers.





# CLP'S RESPONSE TO CONSULTATION QUESTIONS

**Q**  
4 Should Hong Kong further promote RE despite its higher tariff implications; and if so, about how much (in terms of percentage of your electricity bill) are you prepared to pay?

**A** Everyone wants to see a cleaner environment and we know that we have to do our part. As set out in our response, we have already reduced our emissions per unit of output by around 90% since 1990 and we will do more in the coming years, primarily through switching from coal to gas burn. This comes at a cost and creates constant pressure on our tariffs.

Renewable energy is another way to improve our environmental performance. In the consultation paper, the Government has been quite clear that a switch to more RE will raise costs to customers. RE is more expensive than conventional forms of generation and although its costs are falling, there is still a gap which varies with the form of RE. We note that in other jurisdictions, surveys as to willingness to pay have on occasion indicated a greater intention to pay more for RE than is borne out in subsequent practice – in other words, sometimes consumers say that they are willing to pay more but when given the opportunity to do so they then opt for cheaper non-renewable power. So the results in response to this question need to be treated carefully in terms of their impact on policy. Although RE opportunities in our highly vertical city are more limited than elsewhere, we think that more can be done to encourage local RE schemes.

**Q**  
5 What specific requirements would you suggest to be set out in the future contractual arrangement (if any) between the Government and the power companies to encourage the promotion of DSM and RE by the power companies?

**A** Given that the opportunities for more RE are limited in Hong Kong, we think that another way to achieve value for money is to encourage further energy efficiency and conservation. We already do a lot in this area, as explained in our response, and we are working on plans to expand our efforts further. One important opportunity could be a roll out of smart meters. The results of our smart meter trial are under assessment but they offer the promise of more active customer management of consumption patterns. More work is required to ensure that we get the incentives right so that they provide more encouragement for conservation. We will discuss with the Government how smart meters and other efforts to improve energy efficiency and conservation might be further promoted in the future.

**Q**  
6 Do you have any other comments and suggestions?

**A** Other than the matters that we discuss in our response, our final comment is that it is important that all elements in a set of regulatory arrangements have to be considered together. In a consultation of this type, it is natural to look at each element separately, but eventually their combined impact has to be considered and judged against how they interact and in particular how they deal with the tensions in the energy trilemma. Any changes must at least match the current high level of reliability and environmental performance and not cost more.