Response to the

LONG-TERM DECARBONISATION STRATEGY

Public Engagement

September 2019

A MESSAGE FROM THE MANAGING DIRECTOR OF CLP POWER

The Council for Sustainable Development has launched an important public engagement on the need to substantially reduce Hong Kong's carbon emissions. Carbon is a key factor in global warming and all countries have to reduce their emissions if the worst consequences are to be avoided.

Other cities have already published ambitious plans for carbon reduction and as a World City we need to play our part. Making the transition will not be easy. It will take a sustained effort throughout the community and from all sectors of the economy.

Carbon reduction will affect all of us in many ways – in how we use energy, how we travel, our lifestyles at home and in the work we do, what we eat and the waste that we create. We will all have to take up our share of the task.

One focus area is the electricity sector. Although we have been successful in reducing our carbon emissions over the last 20 years or more, we know that there is still a lot more to be done if we are to reach the long term goal of truly low carbon electricity production. Other sectors, which also use fossil fuels, also have to do their part.

Given our population density and our high-rise buildings, Hong Kong requires an extremely high level of electricity reliability. Electricity plays a key role in keeping our city alive. We will use our expertise to ensure that the high levels of reliability provided for our customers can be maintained throughout the transition.

In this response to the public engagement we aim to set out different possibilities for a lower carbon future for electricity, focussing on phasing down coal generation in favour of more gas generation locally and/or sourcing more zero-carbon energy through regional cooperation. Technologies are changing fast and both will require further study to maximise the opportunities that these could bring.

In the following pages we highlight both the challenges and the opportunities to move forward in a transformation that has many complexities along the way. By doing so, we hope to help the community in understanding the challenges and opportunities of the upcoming transformation.

CLP supports the need for deep decarbonisation of electricity generation. When this public engagement has concluded and the future policy is subsequently formulated by the government, we will use our power expertise to support this to ensure a reliable, efficient and low carbon electricity sector.

We encourage everyone to share their views. Please contribute your views to the Council at (https://www.susdev.org.hk/en/index.php).

T.K. Chiang
Managing Director
CLP Power

Dealing with Climate Change

Climate change is a critical challenge for society as a whole to meet. Carbon emissions are now widely acknowledged as a key contributor to climate change. Following on from the adoption of the Paris Agreement on climate change in 2015, Hong Kong has set initial targets to reduce its carbon emissions for 2020 and 2030. Many developed nations are now looking ahead to 2050 and developing proposals for further reductions in carbon. The Council for Sustainable Development has published a public engagement document to seek views from the community and help Hong Kong determine appropriate 2050 targets. In this response we set out what we believe can be done to reduce the electricity sector's carbon emissions.

CLP's Commitment to Decarbonisation

Recent scientific research makes it clear that all nations need to accelerate decarbonisation efforts if the world is to avoid even more destabilising climate change and we are keenly aware of the important role that electric utilities have in moving to a lower-carbon future. CLP supports the need for deep decarbonisation in line with meeting the objectives of the Paris Agreement and in 2018 we further strengthened the carbon reduction commitments we have already made for our business. We will continue to look for new ways to decarbonise the electricity supply we provide for our customers, in Hong Kong and across the Asia Pacific region.

The analysis in the public engagement document shows that significant carbon reductions by the electricity sector alone are unlikely to be enough for Hong Kong's long-term decarbonisation objectives to be achieved. Other sectors such as transportation, suppliers and consumers of fossil fuels, buildings, businesses and individuals will also need to do their part in a community-wide effort.

The Role of Electricity

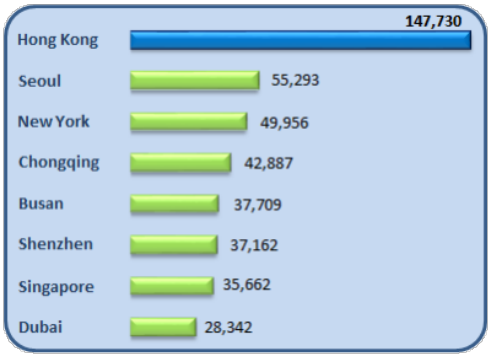
Electricity Dependency

Hong Kong is extremely dependent on electricity.

The high density urban nature of Hong Kong translates into 50% of our population living or working above the 15th floor. Our community depends on electricity in all aspects of our lives:

- The railway system is electric and carries around 5.5 million passengers every day.
- Hong Kong as an international financial centre relies heavily on electricity for 24/7 commerce.
- Water cannot be pumped into our homes and offices without electricity.
- Airports, roads or hospitals cannot function without electricity.
- All telecommunications equipment is powered by electricity.

High Rise Density : Hong Kong ranks highest



Source: Emporis Skyline Rankings
https://www.emporis.com/statistics/skyline-ranking

Life in Hong Kong cannot continue properly without an extremely reliable supply of electricity – we must maintain our world-class reliability, something that our customers say is their number one priority.

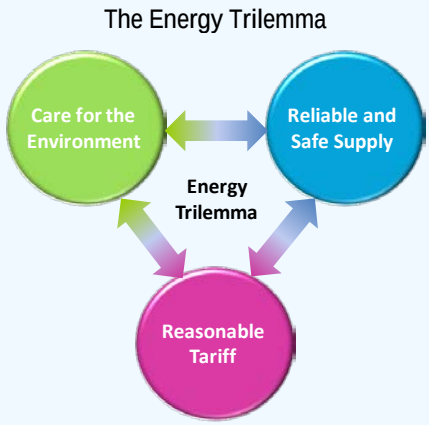
Electricity is essential to everyday life but with current technologies much of its production causes carbon to be emitted. Around $^{2}/_{3}$ of current carbon emissions in Hong Kong arise from electricity production. This creates both a challenge and an opportunity. The challenge is to lower carbon in the fuel mix in a way that ensures our city's world-class reliability can be maintained; the opportunity is that if we can do that, then we can help to further decarbonise other sectors of the economy.

Energy Policy

The government's energy policy objectives [1], which provide the framework for determining how to reduce carbon emissions, are clear. They are:

- to ensure that the energy needs of the community are met safely, reliably, efficiently and at reasonable prices; and
- to minimise the environmental impact of energy production and use and promote the efficient use and conservation of energy.

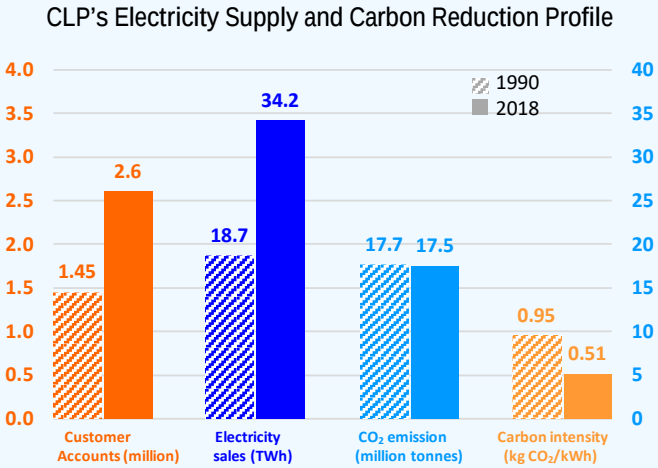
One concept used internationally to describe the balance between these energy policy objectives is known as the Energy Trilemma. This takes into account the need to deliver reliable supplies at a reasonable cost with a good environmental performance.



Our customers repeatedly tell us that reliability is their first priority. This is only one element in the energy trilemma, however, and we need to get the right balance between all three elements. Improving any one element of the trilemma usually impacts, sometimes adversely, on the other two. Nevertheless, for many years, we have delivered world-class reliability at competitive tariffs with an improving environmental performance.

Reducing Carbon Emissions from Electricity

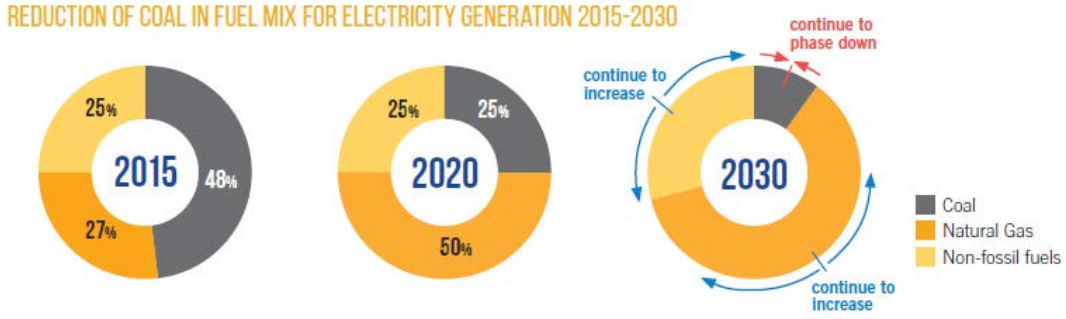
Improving the environmental performance of our fuel mix is something CLP Power has already been doing very successfully for more than 25 years. Over that period, CLP has held carbon emissions steady, whilst at the same time meeting an 80% increase in demand from customers. We have also reduced air emissions by over 80%.



[1] https://www.enb.gov.hk/en/about_us/policy_responsibilities/energy.html

Going forward, we have to do more. In 2018, the carbon intensity of our electricity supply was 0.51 kg CO_2 equivalent for every kWh of electricity supplied. With the new projects currently underway to increase the proportion of gas in our fuel mix for 2020, we expect the figure to then fall by a further 20% to around 0.4 kg/kWh. Prior to the current engagement exercise, Government had already set an expectation for a further phasing down in the use of coal and a consequent increase in the use of natural gas and non-fossil fuels, as the chart below shows.

Reduction of Coal in Fuel Mix for Electricity Generation 2015-2030 [2]



The 2015 Paris Agreement now requires all of us to think much further ahead.

Setting Carbon Reduction Expectations for 2050

The Paris Agreement required countries to commit to ambitious carbon reduction targets up to 2050. The current public engagement exercise identifies three broad levels of carbon reduction from the 2005 level which the community may want to set as an expectation for the longer term in Hong Kong, the reductions contributing to higher or lower levels of increase in global temperatures:

Carbon Reduction Scenarios in the Public Engagement Document

- 60%	- 80%	net zero
limit increase in global temperature to 2°C	limit increase in global temperature to between 2°C and 1.5°C	limit increase in global temperature to 1.5°C
2 tonnes of carbon emitted per capita	1 tonne of carbon emitted per capita	net zero carbon emission

These three scenarios will inevitably place a considerable emphasis on decarbonising energy supply given that it currently accounts for a significant proportion of Hong Kong's total carbon emissions. In this document we discuss the challenges in achieving further carbon reductions and how we may be able to meet those challenges.

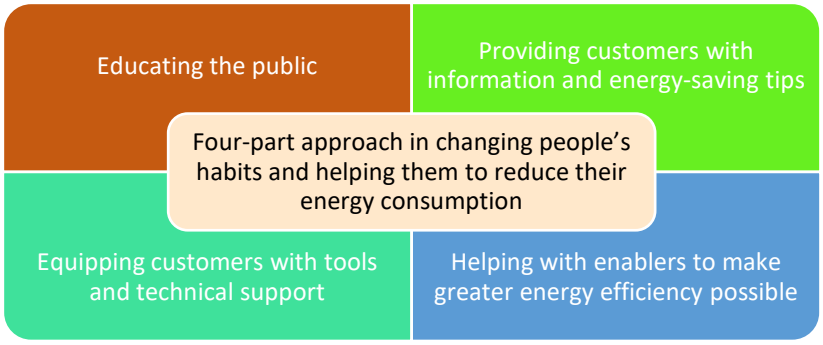
[2] https://www.enb.gov.hk/sites/default/files/pdf/ClimateActionPlanEng.pdf

What Can We Do to Reduce Hong Kong's Electricity Carbon Emissions Further?

We see two broad and separate elements in reducing further carbon emissions. The first is to help our customers with Energy Efficiency and Conservation thereby reducing the need for electricity generation. The second is to continue our efforts to further decarbonise the generation of electricity. Both areas need significant effort from the community to contain the adverse impacts of climate change.

Helping Customers with Energy Efficiency and Conservation (EE&C)

CLP is firmly committed to energy efficiency and conservation and we have a wide range of programmes to encourage both residential and business customers and the Hong Kong community at large to use energy more efficiently and change their behaviour, so that they save energy and help to create a better environment.



The new Scheme of Control Agreement, effective from October 2018, has introduced a range of new EE&C initiatives, including the CLP New Eco Building Fund and the CLP Community Energy Saving Fund.

Over the next few years, CLP will install digital smart metering as an Advanced Metering Infrastructure for all of its residential and small business customers, enabling Hong Kong to become a Smart City. This will enable CLP to provide timely electricity usage information as well as other related services to customers, empowering customers to more efficiently manage their consumption.

Decarbonising Electricity Generation

Our Portfolio Today

Today, CLP operates a mix of local plant, primarily gas and coal fired that we own together with a small volume of Renewable Energy (RE) that we purchase, and zero carbon energy imported under CLP's control, primarily nuclear from Daya Bay. For many years, we have delivered very high reliability with this mix of plant. We do this by designing our system to make sure that we have sufficient reliable plant that we know will be under our control and available when needed to meet demand, that we have a direct connection of Daya Bay Power Station to our grid so that its power could still flow through to us even if the local grid experienced unforeseen difficulties, whilst at the same time having enough in reserve to deal with unanticipated events.

In doing so, we take careful account of generation costs. The table below sets out our approximate energy costs for different generation types in 2018, together with the associated carbon emissions:

CLP's Generation Costs and Associated Carbon Emissions

Type	Energy Cost per unit	Carbon Emissions per unit
Coal	~ 30 ¢	High
Gas	~ 80 ¢	Medium
Nuclear	~ 50 ¢	Zero
Local RE **(Feed-in-Tariff)**	$3 - 5	Zero

The Role of Local RE

We intend to use as much renewable energy (RE) as practicable from local sources. RE is zero carbon and it allows us to reduce our fossil fuel burn and hence our carbon emissions. Given Hong Kong's small size and current land utilisation, there are physical constraints on how much RE can be produced with today's technologies. In order to incentivise the community's drive to maximise RE production, we have already introduced Feed-in-Tariffs for RE systems with more than 4,300 applications received up until the end of July 2019 and more than 80% already approved or connected to our system, although these are generally of small scale. We will also take excess power from government's Waste-to-Energy schemes, another form of RE. We are currently building a small generation plant at the Western New Territories Landfill site, to burn landfill gas which would otherwise add to the greenhouse effect in the atmosphere. We will instead convert it to electricity and this is expected to be commissioned around the end of 2019.

Looking ahead, we will continue to look for ways to maximise the development of more RE locally, as new technologies mature and costs reduce, although we agree with the assessment in the public engagement document that land and other constraints may limit its potential to provide a high proportion of Hong Kong's total electricity requirements.

Going Forward

Beyond 2020, we expect gas to increase still further as our second new Combined-Cycle Gas Turbine (CCGT) comes on stream and in 2025 we plan to complete the enhancement to CLP's Clean Energy Transmission System (CETS). The CETS links our high voltage network with China Southern Power Grid and Daya Bay Nuclear Power Station, giving us the flexibility to use more zero-carbon energy to manage our fuel mix. Taken together, the new CCGTs and the CETS will allow us to reduce coal generation and further reduce carbon emissions. The Environment Bureau has estimated that this enhancement will enable us to advance significantly the achievement of Hong Kong's carbon intensity reduction target for 2030 by as much as 5 years[3].

Technologies in the power sector are changing fast. There are many new developments in energy storage, distributed generation, carbon capture and storage, as well as new energy carriers like hydrogen. All of this suggests that we should keep a range of possibilities open in moving forward.

[3] https://www.legco.gov.hk/yr17-18/english/panels/edev/papers/edev20180704-enbcr145760818pt28_enbcr245760818pt27-e.pdf

To lower the carbon intensity even further, there are two broad directions which could unfold, which are not mutually exclusive:

Increase Gas-fired Generation	Increase Zero-carbon Energy through Regional Cooperation
• This will involve maximising local renewable energy potential and building more gas units in Hong Kong.	• This will involve maximising local renewable energy potential and using more zero carbon energy than is generated locally in Hong Kong.
• These units will still emit carbon, so it would mean a more gradual approach to decarbonisation initially.	• This means new interconnection and imports of zero carbon energy.
• This could change if, in the longer term, new technologies such as hydrogen and carbon capture and storage mature and become viable.	• This could mean potentially earlier and greater reductions in emissions in the run up to 2050.

(i) Increase Gas-fired Generation

In this approach, we could operate a fleet of new and existing gas fired units alongside locally produced renewable energy and zero-carbon energy imported through our Clean Energy Transmission System infrastructure. This approach would require access to a range of sources of gas, to reduce our exposure to any failure of supply from a single source, but it also exposes our customers to the volatility of gas prices, which has been high in recent years.

Because using gas still emits carbon, this approach will limit the level of carbon reductions, based on current technologies. If Hong Kong wants greater levels of reduction, then technological innovations will be needed. At least two possible innovations are relevant here:

Hydrogen

There is interest in hydrogen replacing natural gas as a fuel as its burning is carbon free. As a gas, hydrogen does not occur widely in nature and there are two principal ways of producing it: from fossil fuels or from water-electrolysis. The former produces significant amounts of carbon as a by-product and the latter requires significant amounts of water and electricity which, unless from carbon-free sources, does not allow the resultant hydrogen to be used as zero carbon. If zero carbon hydrogen is available, then it may in future be possible for it to be used in gas fired power stations once they and their feed-in pipelines have been converted to allow hydrogen to be transported and burned. Developments in this area are in the early pilot stages with challenges surrounding technical feasibility, commercial applicability and being assured that the hydrogen is produced in a carbon-free manner. It is uncertain when hydrogen can become a genuinely carbon-free cost-effective replacement for natural gas.

Those countries who are able to access adequate and reliable supplies of zero carbon electricity (nuclear or RE) may use this electricity directly as an energy source. For those without, although a much less energy efficient process, hydrogen produced from carbon-free sources could be transported to power plants to generate electricity.

Carbon Capture and Storage (CCS)

CCS involves the capture of carbon from various production processes and then its storage so that the relevant process can be deemed almost carbon free. This technology, if applied to existing gas fired power stations, would remove the carbon they produce and so transform them into almost zero carbon generators. The technology shows some progress but for a long time has been difficult to get to the industrial scale needed for commercial application. In addition, finding suitable storage sites to capture the carbon without the risk of release back to the atmosphere is a major challenge. CCS usually relies on underground storage of carbon, so power stations that are not close to suitable underground sites would face challenges.

Because the production of hydrogen from other sources than zero carbon electricity can itself produce carbon, some see a combination of the above two technologies as the way forward – the hydrogen production process may produce carbon as well, but that is then disposed of with a CCS facility so that the resultant gas is almost carbon free.

These and other technological developments may in future allow gas fired generation to transition to zero carbon. For current planning purposes, such developments are still uncertain. If new technologies, such as zero carbon hydrogen or CCS do not prove viable, then carbon would still be produced from gas fired generation units, limiting Hong Kong's ability to contribute to carbon reduction by 2050.

(ii) Increase Zero-carbon Energy through Regional Cooperation

Regional cooperation will mean bringing into Hong Kong extra supplies of zero carbon energy from the Mainland. To do so, we would have to find such supplies and deliver them to customers throughout Hong Kong, all whilst maintaining our city's world class standards of reliability.

Supplies of Zero Carbon Energy

Based on today's technologies, there are only two sources of zero carbon energy available to us in quantity: renewable energy (RE) and nuclear. Although both are zero carbon, there are important differences in their characteristics, particularly in terms of maintaining reliability at our current high level.

RE is zero carbon, but in most cases intermittent, that is its output is subject to conditions outside the control of the plant operator, in particular weather. For example, a solar farm cannot produce electricity at night and a wind farm cannot produce electricity during low-wind periods. We could bring in large quantities of RE, but only if we have back-up arrangements in place to ensure reliability.

Another approach to intermittency is to introduce some form of storage, taking variable output from one or more RE generators, storing it and then releasing it in a much more predictable way. At present, the main storage solution, pumped storage, is available but at extra cost. Site selection of pumped storage plant is also constrained by geographical factors. In future, technological advances in solutions such as batteries may well mean that such facilities have a much more prominent role in our systems. It is uncertain when batteries or other storage devices can be available commercially to us at utility scale that would ensure the right level of reliability.

For these reasons, we could bring in large quantities of RE, but only if we have back-up arrangements in place to ensure reliability. As noted in the public engagement document, the total cost of using RE may therefore be significantly higher than other fuels.

Nuclear power plants produce zero carbon energy. We have been importing nuclear energy from the Daya Bay power station for 25 years and today it is an important part of our energy mix, providing about one third of our total supply at a stable and relatively low price.

We understand that there are public concerns over nuclear safety. We have always taken these concerns seriously and they were a key factor in our insisting upon co-ownership of the Daya Bay plant, enabling us to play an active part in the station's management and operation. We are in no sense complacent, but Daya Bay does play an important role both in reducing our carbon emissions and in delivering very dependable power that enables us to maintain our very high standards of reliability, something we know our customers value greatly. Daya Bay has supplied approximately 250 TWh of electricity to us over the past 25 years, saving around 200m tonnes of CO_2 emissions from Hong Kong. That's equivalent to planting around 350,000,000 trees.

If we source more zero carbon power from the Mainland, an appropriate mix of RE and nuclear in combination could ensure zero carbon performance as well as retaining the high reliability.

We would have to source the right profile of zero carbon energy, at reasonable prices and be certain that it could be delivered to all Hong Kong customers in a very reliable way. Zero carbon energy would have to be purchased from dedicated generation sources to ensure that the carbon content is truly zero and that safety and reliability can be properly managed.

To summarise, any regional cooperation arrangement with new interconnection must be done in a careful way that ensures that the whole of Hong Kong can benefit, that imports come from a designated zero carbon generation source, that Hong Kong has the opportunity to purchase from different providers to get a deal which makes the most sense and retain control and, most importantly, that this is done in such a way that Hong Kong's world-class electricity supply reliability is not put at risk.

Delivering Zero Carbon Energy Reliably to Hong Kong

CLP has a limited capacity of interconnection with the Mainland and HK Electric has no connection at all. So, if additional supplies of zero-carbon energy are to be made available for Hong Kong, additional interconnection will need to be developed. If this interconnection is not always reliable, it could cause severe consequences to our supply reliability especially as the importance of zero carbon energy increases towards 2050. There are two ways of providing additional interconnection:

- ⇨ One way is to connect directly to generation plants in the Mainland with a dedicated circuit similar to Daya Bay; this is a highly reliable approach.
- ⇨ Another way is to connect to the Guangdong Grid and receive the RE from generators in the Mainland through the grid, although this will also mean that we will be dependent upon the reliability of the Mainland grid itself.

Linking direct lines to dedicated generation plants makes sense for large reliable generation plants like nuclear but is not feasible for RE generators that may be scattered over a wide geographic area and which may not generate all the time. So, in practice a mixture of the above approaches to transmission will be required, although in that mixture we will need to ensure that we can maintain reliability at all times. This is possible with the right balance of directly connected plant, local plant and local energy storage facilities that can take over from imported RE if the latter suffers from intermittency problems or the Guangdong grid is unable to deliver energy to us in Hong Kong.

The regional cooperation approach also faces considerable challenges. Building a new interconnector will take 10 years or more and would be subject to engineering and environmental feasibility studies

to find a suitable route. Shenzhen is much more densely populated than 40 years ago and building a cross border interconnector nowadays will be very challenging. It would need strong support from the governments and the communities on both sides of the border. We would have to source the right profile of zero carbon energy, at reasonable prices and be certain that it could be delivered to all Hong Kong customers in a very reliable way. Zero carbon energy should be purchased from dedicated generation sources to ensure that the carbon content really is zero and that safety and reliability can be better managed. This would not be easy given the limited supply and the increasingly high demand for zero carbon energy on the Mainland.

As set out on page 28 of the public engagement document, the government will commission a study with the power companies to study detailed arrangements for further strengthening the interconnection between the Mainland and Hong Kong and CLP will provide our professional input.

Implications for Carbon Reduction

The different possibilities that we have discussed end up with different levels of carbon reduction. Preliminary study suggests that, without significant contributions from other sectors to decarbonise, increasing gas-fired generation on its own based on current technology is not able to meet an expectation that a minimum 60% emissions reduction is required to limit warming to 2°C under the Paris Agreement. For this approach to work two things are needed, significant reductions from other than the power sector and technological breakthrough to allow lower emissions from gas-fired plants before 2050, for example through carbon capture and storage or zero carbon hydrogen use.

Regional cooperation has the early benefit of delivering greater reductions from the medium term; even so, without significant contributions from other sectors of the economy and technological development it may only just deliver the minimum level of reduction by 2050 to meet the 2°C scenario. However, this assumes that we can overcome the challenges of getting approvals to build interconnection routes across the densely populated areas on both sides of the border and that zero-carbon energy, while in limited supply on the Mainland, will be made available to Hong Kong at reasonable prices.

Maintaining our High Standards of Reliability

Our customers continue to tell us that reliability is their number one concern. Whatever the future choices of technology to deliver decarbonisation, we must always consider our ability to maintain our world class standards of reliability.

In either principal approach, increasing gas-fired generation or regional cooperation, we must work from our current position to ensure that we have sufficient plant or sufficient contracts to safeguard our current high standards. We also see retention of appropriate levels of local plant as a further key to maintaining reliability.

Broader Efforts to Decarbonise

Using Low Carbon Energy to Decarbonise Other Sectors

If Hong Kong is to do better, it cannot just rely on changes in electricity generation. For example, electricity can help to decarbonise those sectors that switch to it from other forms of energy use and we can all reduce our carbon emissions through lifestyle changes.

The International Energy Agency in its 2018 World Energy Outlook[4] highlighted that the 'electrification of end-uses is a promising pathway to decarbonising energy use' on a global basis. With the exception of hard to electrify sectors like long-haul aviation and shipping, the IEA's 'future is electric' scenario identified electric cars, electric heating for buildings and industry and a digital economy based on electronic devices and appliances by 2040 as a good potential way forward.

As we have seen, around one third of carbon emissions in Hong Kong are from other sectors such as the use of fossil fuels in the transport sector and gas cooking and heating, LPG and diesel in buildings and industry. Over time, a low carbon electricity supply can help reduce that one third of carbon emissions if other sectors switch to low carbon electricity instead of other technologies. For example transport, which contributes around 18% of total Hong Kong emissions, can decarbonise by switching to electric vehicles and if cooking can switch to electric induction, these will offer a much lower carbon footprint and also improve indoor and outdoor air quality.

Moving to Greener Lifestyles

In Section 3 of its public engagement document, the Council highlights some of the choices we must all make in the way that we use resources, calling for participation by all citizens to lower their carbon footprint. To put the role of electricity in context from a carbon in the atmosphere perspective, even if we were able to fully decarbonise electricity supply, if a family eats extra meat, buys more clothes or takes one short holiday trip to Tokyo in a year, that would outweigh all of the carbon savings in electricity emissions made for that year for that family, so a team effort is needed.

International Experience

International experience supports a multi-pronged approach to carbon reduction, as opposed to relying on one or two particular sectors. For example, as the public engagement paper notes, other cities and countries are exploring different ways to cut their emissions, including enhancing education and public awareness, improving the energy efficiency of buildings, decarbonising the energy sector and promoting green transport.

Experience overseas, notably the UK and other developed economies, suggests that an undue focus just on the electricity sector is not sufficient to reduce carbon emissions to meet carbon targets. As UK emissions in power, waste and industry have reduced significantly, transport has become the largest emitting sector. Even assuming all electricity were to be carbon-free in Hong Kong, repeating the UK experience with other sectors making limited progress would mean Hong Kong would only just be able to meet the 2°C target set out by the Council and no more.

Summary and Conclusions

Although 2050 seems a long way away, decisions will need to be taken carefully if we are to embark on a reliable pathway to a low carbon future, especially as technologies are changing so fast. For electricity, we have set out different possibilities towards a lower carbon future. Neither is mutually exclusive and each has its own opportunities and challenges. Increasing gas-fired generation may limit fuel choices and may not be able to get to the higher emissions reduction targets Hong Kong might adopt without breakthroughs or new technologies. Even if technology does allow further reductions later, the initial progress will mean higher carbon emissions in early years. Regional cooperation will

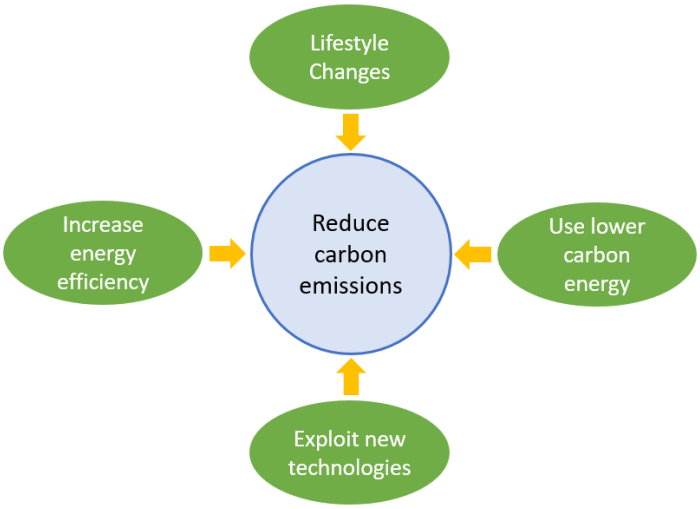
[4] https://www.iea.org/weo2018/electricity/

involve building new interconnection lines, whose permitting and construction may face major difficulties. There may also be problems in obtaining sufficient supplies of zero carbon energy that are necessary to give this option the faster start in carbon reduction. In either approach, however, our proposal to retain some local plant in a support capacity will ensure that we can maintain control over our reliability.

Both possibilities do give us the opportunity to reduce carbon emissions for electricity in our city and potentially for other sectors too. In setting a long-term decarbonisation strategy, CLP believes that a phased and flexible approach to determining future electricity generation would deliver the best long-term value for Hong Kong, although further studies will be necessary to more accurately chart the road ahead and maximise reduction opportunities. Careful setting of emissions reduction goals, perhaps in a range which would allow for further assessment of all the options and newly emerging technologies, would also seem sensible.

Even if electricity achieved the 80% or more ratio of zero carbon electricity by 2050 scenario that the public engagement paper highlights, and that is a very considerable challenge, it may be that for Hong Kong as a whole, without significant reductions in other sectors, it might still be difficult to achieve the Council's 60% reduction in 2050 baseline scenario.

Society will need to act in all areas



This chart highlights the key areas of action. Electricity has to be seen as part of a balanced policy with reductions by all carbon emitters and one that affects all aspects of our lives if a true low carbon future is to be obtained. CLP is strongly committed to play our part in the decarbonisation of the power system in Hong Kong by using our technical expertise to help deliver a practical and reliable solution for our city's future.

This is an important moment in Hong Kong's development. We urge all of our customers and the community as a whole to make their views known to the Council before 20th September.