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(Public Engagement on Long-term Decarbonisation Strategy)  
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**Submission on Long-term Decarbonisation Strategy  
Views from Business Environment Council Limited  
商界環保協會有限公司**

Over the last 27 years, Business Environment Council Limited 商界環保協會有限公司 (BEC) has played a leading role in advocating the business case for environmental excellence, given the importance of sustainable development to Hong Kong. Our members are committed to actively engage with the HKSAR Government (the Government) to help develop a supporting policy framework as well as impactful implementation in respect of environmental protection and sustainability.

Views expressed in this submission are those of BEC, in line with BEC's Mission and Vision as well as policy position on relevant issues, but may not necessarily be the same as the views of each individual member. BEC is an independent charitable membership organisation comprising over 200 member companies from Hong Kong's major holding companies to small and medium-sized enterprises.

Executive Summary

BEC welcomes the public engagement exercise initiated by the Council for Sustainable Development (SDC). As a leading business organisation in Hong Kong dedicated to improving the environment, BEC is strongly committed to the process of decarbonisation. Tackling climate change should be **the top and most urgent priority** for businesses and individuals alike; we support the objectives of the Paris Agreement to limit global average temperature rise and want to work with the Hong Kong Special Administrative Region Government (the Government) and the wider community to help Hong Kong play its part in what must be a global effort.

To achieve this, engagement of business and society at large will be key to gaining support for the transition to a low carbon economy. Towards this, we support the building of **a business coalition** of like-minded companies and organisations **with the Government**, looking to reduce our own emissions, help others to do so and hence lead by example. We would welcome further dialogue with the SDC after it has had time to consider community views, and with the Government as it moves to set a target for 2050 with a more concrete decarbonisation pathway.

It is very important that plans be put in place to help Hong Kong achieve its contribution to the Paris Agreement. However, our city can and should do more, setting aspirational targets which **set us on the road toward carbon neutrality** no later than the second half of this century. This can be achieved through a programme of progressive, deep

decarbonisation on a practical, step-by-step basis from where we are today. The programme should allow business to plan with certainty over the long term, at the fastest pace which the community as a whole feels it can afford and accept. We call on the **Government to make swift decisions** on an accelerated transition. In doing so, it will be essential to take an all-of-government approach: no single department or bureau is able to deliver the breadth and comprehensive nature of the action which is required.

We emphasise swiftness here because **the cost of inaction**, or simply of not keeping pace in business decisions or public policymaking will be much greater, and the consequence of greater climate impact too much to mitigate and adapt to.

The Government must be both clear and transparent about the economic impacts of decarbonisation strategies. The short-term costs may not be commensurate with the short-term gains. However, the cost of inaction will be even higher, and will grow as time progresses. Thus, it is important to proceed apace with a **level playing field** within Hong Kong at least, but better still in the Greater Bay Area where opportunities to scale up decarbonisation actions are available.

For Hong Kong, the first step is to start measuring and setting targets in terms of **absolute reduction in carbon** emissions, compared to the baseline of 2005, rather than using a measure of carbon intensity for our economy. Given the scale of adjustment needed, we suggest developing objectives and obtaining buy-in from the community now, perhaps with both a minimum and an aspirational level, and setting more ambitious targets as we go through the regular 5-yearly review process that Paris Agreement requires.

Not only is the end goal important but **the process** is as well – when and how we get there. Early reductions, for example by replacing coal with gas in local electricity generation, have an important time value in quickly reducing carbon with available proven technology at scale. Energy efficiency for the existing building stock will pay immediate dividends too. Future development of new technologies like carbon capture & storage or the development of infrastructure integration in the Greater Bay Area to facilitate the import of much larger volumes of zero-carbon energy will take longer but may ultimately drive greater reductions in emissions for our city. Experience overseas suggests that the transport sector is very hard to decarbonise quickly and for that reason, a forward-looking transition plan to lowering carbon needs to start now. All of these elements need to be included in successful planning for the changes ahead.

In this response, we consider specific proposals and the necessary **policy & financing** support, **technology and infrastructure** development required, as well as **education and communications** needed to implement our proposals. Three sectors, electricity generation and use, transport and waste represent around 90% of Hong Kong's carbon emissions, and a **clear and consistent roadmap** is needed for each in a way that the provision of these essential services can be maintained to keep our city functioning on a practical and efficient basis. We do not propose specific measures for Scope 3 emissions in detail, but they are particularly important in the case of Hong Kong and we call for the Government to take the lead in educating our community on the impact that their everyday purchasing decisions and lifestyle choices have on our planet.

## 1. Introduction

On 14 June 2019, the Council for Sustainable Development (SDC) launched a public engagement exercise on Hong Kong's long-term decarbonisation strategy. In the public engagement document,<sup>1</sup> the impacts of climate change, the reasoning to set a decarbonisation target for Hong Kong and the need to step up action are explained. SDC calls for all members of society to provide views and solutions, and all inputs collected during the public engagement period will be consolidated into a report to be submitted to the Secretary for the Environment for consideration.

As a supporting organisation of this public engagement exercise, BEC organised a briefing session for our members on 27 June to better understand the main objectives of the public engagement and how the business community can contribute to this process. To support this important cause, BEC encourages our members, through different channels, to submit their individual and professional views to SDC. We also set up a working group of BEC members to prepare this BEC submission.

BEC supports the Hong Kong Special Administrative Region Government (the Government) setting a long-term decarbonisation target for 2050 and establishing a clear pathway and comprehensive strategy to achieve it. In fact, BEC business leaders have long recognised the physical and transition risks of climate change to their business operations and staff wellbeing, and they are ready and willing to provide inputs to the Government in developing a decarbonisation strategy. Tackling climate change should be *the* top and most urgent priority for businesses and individuals alike.

The Government must make swift decisions on an accelerated transition. The cost of inaction, or simply of not keeping pace with business decisions or public policymaking, is too high. A myriad of reports and events – from the latest IPCC reports to the burning of the Amazon – indicate that the tipping point where it is simply too late to avoid the impacts of dangerous climate change is fast approaching.

BEC believes the target must align with the goals of the Paris Agreement. This necessitates an objective of limiting average global temperature rise to under 2°C while striving for a 1.5°C limit to temperature rise by 2050. To fully achieve the latter, Hong Kong has to become carbon neutral no later than the second half of this century.

To prepare Hong Kong, and in particular the Hong Kong business sector, for carbon neutrality, the Government must be forthcoming in explaining the target for our city in absolute reduction terms rather than carbon intensity terms. The Government must also initiate a programme of progressive, deep decarbonisation which can be achieved on a practical, step-by-step basis from where we are today. The programme should allow business to plan with certainty over the long term, and at the fastest pace which the community as a whole feels it can afford and accept.

The business sector is open to stretch targets. Gaining acceptance and action on such targets, however, will require policy certainty, a consistent roadmap, and a level playing field.

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<sup>1</sup> Council for Sustainable Development (2019) *Long-term Decarbonisation Strategy: Public Engagement*, June 2019. [https://www.susdev.org.hk/download/pe\\_document\\_e.pdf](https://www.susdev.org.hk/download/pe_document_e.pdf)

Process will be important. The strategy must include both inclusive consultation and a strict timeline that does not allow the process to be bogged down. Moreover, a successful plan will comprise the necessary policy and financing support, technology and infrastructure development required, as well as education and communications needed to ensure successful implementation.

In the following sections, BEC is pleased to contribute important ideas to transform energy supply and demand, transportation, and waste management, and to suggest changes to individual lifestyles and consumption patterns. Discussions on adaptation and resilience, as well as the opportunities offered by the Greater Bay Area (GBA) are also included.

## 2. Energy Supply and Demand

### *Supply-side decarbonisation*

In 2016, electricity generation (including the production of Towngas) accounted for 66.5% of Hong Kong's GHG emissions, based on a fuel mix of approximately 50% coal, 25% gas and 25% nuclear. Decarbonising the fuel mix has long been taken as a key driver in reducing carbon emissions from the energy supply.

The Government has already set a 2020 target to increase gas to around 50% of the fuel mix, which could mean a reduction in carbon emissions from electricity generation of around 20%. Looking ahead to 2030, the Government expects to further phase down the use of coal and increase the use of non-fossil fuels.<sup>2</sup>

Electricity represents 55% of all energy end-use in our city and we depend on it for all aspects of daily life. Maintaining the world-class reliability we enjoy today in any future decarbonisation plan is critical for BEC's members and the community as a whole.

Further decarbonising our fuel mix may also increase costs to consumers<sup>3</sup> as per unit cost of local renewable energy (RE)<sup>4</sup> ranges from \$3 to \$5 with zero-carbon emissions, compared to about 80 cents per unit for gas and about 30 cents per unit for coal, with medium and high carbon emission per unit, respectively.

The costs that electricity consumers pay are considered very important by society and this is likely to be an essential part of decisions on how far and how fast to decarbonise, with the Government's readiness to smooth out the pace and degree of such changes an important element in setting future targets.

Looking ahead to 2050, BEC expects the regular use of coal for electricity production to be phased out completely, replaced by lower carbon fuel sources. We recognise that given limited local land and natural resources, and with today's technologies, the contribution from local RE and waste to energy (WTE) projects where practicable<sup>5</sup> to meeting Hong Kong's needs may be limited to less than 5%. Nonetheless, BEC urges the Government to develop a policy that would maximise and help harvest that

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<sup>2</sup> <https://www.enb.gov.hk/sites/default/files/pdf/ClimateActionPlanEng.pdf>

<sup>3</sup> <https://www.clp.com.hk/en/community-and-environment/green-tools/energy-costs>

<sup>4</sup> [https://re.emsd.gov.hk/english/fit/int/fit\\_int.html](https://re.emsd.gov.hk/english/fit/int/fit_int.html)

<sup>5</sup> EMSD has recently suggested that rooftop PV may only contribute at most 1-2% for example [https://re.emsd.gov.hk/english/files/2019\\_Executive\\_Summary\\_for\\_PV\\_Study\\_EN.pdf](https://re.emsd.gov.hk/english/files/2019_Executive_Summary_for_PV_Study_EN.pdf)



potential even if the percentage appears to be small. The Government should also seriously consider setting a forward-looking target for zero-carbon energy in Hong Kong for 2050.

Replacing coal-fired generation (and potentially gas-powered generation units) as we move towards 2050 could be accomplished through either new high-efficiency combined cycle gas turbine (CCGT) units built locally, or through regional co-operation with the Mainland. CCGTs located in Hong Kong can make a direct contribution to maintaining supply reliability. The challenge is that this would increase our city's dependence on just one fuel – natural gas which emits carbon. In the very long term, there may be the option to reduce such emissions if acceptably economic and energy-efficient carbon capture usage & storage (CCUS) or zero-carbon hydrogen as an energy carrier can be developed commercially for implementation at a reasonable cost.

Another possibility would be to increase regional co-operation, which would allow the importation of zero-carbon energy through a new interconnection for both HK Electric and CLP to the Mainland<sup>6</sup>. This would create the opportunity to significantly reduce carbon emissions over time and, moreover, help other sectors decarbonise by switching to very low carbon electricity. Regional co-operation would also have many challenges as major cross-boundary infrastructure projects would need strong support from communities and governments on both sides of the boundary and may take 10 years or more to build.

The nature of the zero-carbon energy to be imported would also be critical to maintain Hong Kong's supply reliability and energy security. More RE generation is likely to be added in Guangdong and the southern part of the Mainland in the next 20-30 years and we would hope that, despite competition from neighbouring cities, Hong Kong would be able to purchase some of that RE at a reasonable price from validated sources. RE, however, is intermittent in nature. To be certain of meeting Hong Kong's peak electricity demand, it would be necessary to contract for dispatchable zero-carbon energy that would be available 24/7 and which could be directly connected to Hong Kong's grid to maximise reliability. Nuclear power fulfils that role and has reliably provided about 25% of Hong Kong's electricity for more than 20 years at a relatively low price, which has given tariff stability with zero-carbon emissions. Additional nuclear power stations are being developed in Guangdong. Thus, BEC believes it would seem sensible to consider a blend of both RE and nuclear going forward to provide relatively stable prices and meet our essential need for reliability.

Any regional co-operation for new interconnections must be designed in a way that ensures that all customers in Hong Kong can benefit, that any energy imported is from a designated zero-carbon generation source (rather than say purchasing 'grid' power), that Hong Kong has the opportunity to purchase from a range of zero-carbon energy sources to get a deal which makes commercial sense and, above all, that this is done so that Hong Kong's world-class electricity supply reliability is not put at risk.

Technology in the energy sector is evolving fast and both new local gas generation and regional co-operation would require further study of opportunities, costs, timing

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<sup>6</sup> At present, only CLP has any interconnection to the Mainland to access supplies of zero-carbon energy in bulk

and technical considerations before a final decision is made. While these possibilities are not mutually exclusive, and there is probably a need for both local generation/back-up as well as increased access to supplies of zero-carbon energy in volume from outside our city, BEC would suggest that in the longer-term regional co-operation offers a more certain route to a deeper decarbonisation based on the technologies available today.

In 2016, the generation of electricity accounted for just less than 66% of Hong Kong GHG emissions. With the change to 50% gas in the fuel mix around 2020, that is expected to fall to closer to 60%. Even if all electricity were to be carbon free, we would still emit 40% of our current carbon footprint. In other words, other fossil fuels (gas and diesel used in buildings and production processes, oil and its derivatives used in transportation) will also need to decarbonise or be replaced.

#### *Demand-side decarbonisation*

BEC supports the measures set out in the Government's Energy Saving Plan for Hong Kong's built environment 2015-2025+<sup>7</sup>: the Government should take the lead for its buildings, seek a review and tightening of energy efficiency standards, boost educational activities and embrace public/private partnership initiatives. However, we are mindful that more must be done and that the next stage of policy proposals and tighter targets for the period 2025-2035 now need to be developed.

Around 90% of electricity and close to 70% of gas<sup>8</sup> is used in buildings, so improving the efficiency with which these fuels are used in buildings can achieve major savings in carbon emissions. It is important all fuels/energy end-uses are included in the decarbonisation plan. Although electricity dominates, over the last 5 years for which figures are available, non-residential, non-transport gas sales have grown faster than non-residential electricity sales. Increasing the efficiency with which other commodities are used (e.g. water) and reducing waste created from buildings can also offer pathways to carbon reduction.

The Government is a major owner and operator of buildings across the city. It has the unique opportunity to better understand the key factors which drive the efficiency (in megajoule per square metre) of the total energy used in buildings, as it understands all the end-use equipment in use, the construction, aspect, age and operation of the building, the tenant mix and other relevant factors. Given the in-house expertise of the Electrical and Mechanical Services Department (EMSD), big data/regression analysis should reveal the key drivers most important for determining relative energy efficiency. This can be shared with other building owners and operators and can contribute significantly to the development of new benchmarking indices for buildings in Hong Kong.

For new buildings, the Government should take the opportunity to modernise the buildings approval regime – particularly the Codes and approach taken by the Buildings Department to approve structural and other engineering designs. The current approach is one of the most significant inhibitors of innovation in design and

<sup>7</sup> <https://www.enb.gov.hk/sites/default/files/pdf/EnergySavingPlanEn.pdf>

<sup>8</sup> Around 30% of gas (including LPG) is used in the Transport sector, based on EMSD energy end-use statistics.

construction. This makes modular integrated construction difficult, drives up cost, increases embedded carbon and leads to more waste.

The Government should increase the requirement for obtaining the 10% gross floor area (GFA) concession to a minimum Gold BEAM Plus rating and should link GFA concessions proportionately to achievements under the BEAM Plus scheme. It should develop a mechanism where property developers provide a deposit to the Government upon being granted additional GFA, to be returned to the developer upon receiving evidence that the building is built and operated to the proposed energy efficiency level. The operational performance should be monitored regularly and if it drops below the intended level, levies or taxes should be raised accordingly.

For the existing building stock, the Government should lead the way by adopting an operational building performance rating scheme for all government buildings initially, with the intention that the Hong Kong Green Building Council instigates such a scheme for all buildings over time, say within 5 years. The National Australian Built Environment Rating System (NABERS), which is also being trialled in the United Kingdom, is a good reference.

Under the Buildings Energy Efficiency Ordinance (BEEO), energy audits must be carried out every 10 years but the Energy Management Opportunities (EMOs) identified in these audits do not need to be implemented. The Government should consult with key stakeholders on making the implementation of the most significant EMOs before the next audit is due a requirement under BEEO. The frequency of mandatory energy audit for buildings should also be reviewed and reduced.

Green lease trials in government owned and rented premises – as well as existing commercial green leases – provide case studies for further analysis and impact assessment. The Government should take this action as a first step to incentivising green leases in the city.

The Government should also set minimum energy performance standards for electrical and gas appliances and progressively remove relatively inefficient models from the market. The coverage could be expanded in phases, starting with energy intensive appliances like air conditioners, boilers/water heaters and refrigerators.

Education plays a key role in energy saving. The Government should continue public education programmes and complement them with a new 1-stop-shop website for energy saving information, as current resources are scattered across many different web-locations.

The Government should support and supplement the financial incentives offered by power companies under the Scheme of Control Agreements. It should also consider providing support for ongoing energy efficiency management and continuous improvement in buildings.

### 3. Transport

According to EMSD, transport accounted for approximately 31% of total energy end-use in 2016.<sup>9</sup> In terms of carbon emissions, contribution from the transport sector was about 18%. To decarbonise Hong Kong's transport sector, BEC proposes a two-pronged approach, addressing supply and demand.

#### *Transport supply*

BEC strongly urges the Government to accelerate the transition of Hong Kong's vehicular and local vessel fleets, as well as non-road mobile machinery from diesel/petrol-driven to being powered by new energy. New energy vehicles should not necessarily be limited to electric vehicles (EVs). The use of other fuels such as biodiesel, preferably sourced from local waste feedstock, as well as hydrogen/methanol fuel cell technologies, should be thoroughly explored.

Amongst different types of vehicles, special emphasis should be placed on commercial vehicles, given their greater contribution to carbon emissions. In the short term, light goods vehicles (LGVs) should be targeted as their performance on emission reduction and operating cost savings were the most promising compared to diesel- and petrol-powered LGVs according to trial results under the Pilot Green Transport Fund.<sup>10</sup> For the medium and long term, the Government should develop a plan to completely transition medium and heavy commercial vehicles to new energy vehicles, including heavy duty trucks and buses (franchised and non-franchised).

To do this, Hong Kong requires a roadmap for the transition with clear targets and a well-defined phase-out strategy. Such a plan should include the following:

- Policy/regulation – including, for example, a clear timeline to phase down new sales of internal combustion engine vehicles in Hong Kong; a timeline to discuss and unify fast-charging standards; policy support for potential and emerging new energy as short-to-medium term solution (such as biodiesel from local feedstock) and long-term options (such as fuel cell); and tighter roadside air pollution limits to improve public health as well as facilitate carbon reduction.
- Technology/infrastructure – for example, provision of support for local research and development in advanced technologies if not extant elsewhere (such batteries, clean energy, real-time data system); provision of necessary infrastructure to support new energy vehicles/vessels, such as charging stations and repair workshops; etc.
- Education/communications/public acceptance – for example, the Government should explain to the public and the business sector the costs of the transition versus the costs of inaction, both in terms of carbon and public health; and

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<sup>9</sup> Electrical and Mechanical Services Department, HKSARG. (2018). Hong Kong Energy End-use Data 2018. [https://www.emsd.gov.hk/filemanager/en/content\\_762/HKEEUD2018.pdf](https://www.emsd.gov.hk/filemanager/en/content_762/HKEEUD2018.pdf)

<sup>10</sup> The trial reports are available on [https://www.epd.gov.hk/epd/english/environmentinhk/air/prob\\_solutions/pilot\\_green\\_transport\\_fund\\_trial\\_reports.html#Trial\\_Reports\\_EV](https://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/pilot_green_transport_fund_trial_reports.html#Trial_Reports_EV).



- Financing – for example, allow funds from the Pilot Green Transport Fund to support trials to accelerate a wholesale transition; provide financial incentives or disincentives that encourage carbon reduction in the transport sector, including electrification of diesel-powered non-road mobile machinery; etc.

### *Transport demand*

BEC emphasises that while the transition to new energy vehicles and the use of clean fuel will reduce carbon emissions to a significant extent, such transitions will not reduce the number of vehicles on the road and the total mileage travelled. To further decarbonise the transport sector, BEC strongly suggests the Government to implement a comprehensive transport demand management strategy through an “Avoid-Shift-Improve” approach.

In essence, this approach aims to avoid unnecessary, short-distance journeys on mechanised transport by promoting walking and cycling for the first and last mile; shift essential, long-distance journeys from a road-based, mechanised mode of transport to public, mass transport (preferably rail-based); and improve remaining but essential road-based, mechanised travel by using new energy vehicles, retrofitting existing vehicles with emission reduction devices and ensuring those already fitted are working properly.

Specifically, the Government should improve the walking environment and pedestrian experience in order to encourage people to walk more and become less reliant on vehicles, hence consuming less energy, reducing carbon and air pollutant emissions and making people healthier. Likewise, infrastructure such as well-connected cycling tracks and parking facilities might support cycling for the first and last mile. Transport Department and Planning Department will have joint-responsibility in taking a people-based approach in urban and transport planning and also urban renewal.

On public transport, BEC supports a rail-based system due to its low carbon footprint. However, efficient mass carriers such as buses should also be an integral part of the system, especially from the resilience point of view. The Government should therefore consider measures that would enhance bus services and efficiency, such as adding bus priority lanes to improve the level of services. Carbon-based performance indicators such as passenger/tonne-kilometres could replace the conventional vehicle-kilometres to measure and drive improvement.

There are other means to improve efficiency of the remaining but essential road-based, mechanised travel. For example, revamping the first registration tax system to be based on a vehicle’s stress on road infrastructure (through road price) and its stress on the environment (through emission charge) could fully reflect the real cost and impact of driving and hence put a check on the number of vehicles and kilometres travelled. During peak hours, congestion charging or Electronic Road Pricing (ERP), based on the user-pays principle, would play a key role in managing traffic demand and improving road use efficiency in congested areas. Off-peak incentives could be offered to commercial vehicles in tunnels to rationalise traffic flow. Real-time travellers’ information should be provided to passengers in a co-ordinated manner so that they can make informed travel decisions to reduce travel time and carbon emissions. Intelligent transport systems and smart parking systems could help smooth traffic flow and reduce vehicle idling time, especially in the use of cross-harbour tunnels.

Last but not least, BEC reminds the Government that freight transport forms an important part of our transport system and contributes to Hong Kong's economy, but the freight sector also contributes to carbon emissions. Decarbonising the freight sector will require measures to improve efficiency of the logistics sector so that freight loading per trip can be optimised and dead mileage can be minimised.

#### 4. Waste Management

Waste contributed about 6% of total carbon emissions in Hong Kong. BEC recommends a circular economy approach to resource management as a means to reduce carbon from the waste sector and to recapture potential value from different waste streams.

Integral to the transition from a linear to a circular economy, and hence to conserve resources and to reduce energy use in unnecessary production and processing, is the development of a comprehensive circular economy strategy and action plan. Such a strategy should cover the following components with adequate funding, a detailed roadmap and critical milestones:

- Clear policy and supporting regulation to encourage and support the avoidance and reduction of waste at source. For example, the Government should consider eco-design of products and new regulations on Styrofoam;
- Clear policy and standards on the use of recycled materials in new products as a means to create demand for green products and encourage the use of recycled materials as alternatives. For example, the Government should enhance their green procurement standards to support circularity and to promote the uptake of green procurement through guidance documents, eco-label accreditation and training/outreach;
- Implementation of the municipal solid waste (MSW) charging scheme as soon as possible and extended implementation of producer responsibility schemes (PRS) to cover all significant waste streams in order to reduce waste generation and to improve the material recovery rate;<sup>11</sup>
- Development of waste stream reduction and treatment plans for specific products, such as construction waste, with measurable targets. For food waste, the Government could encourage better collaboration between the food and beverage industry and food rescue agencies to take back unconsumed food, and support the industry to separate food waste at source in their kitchens for recycling at the Organic Resources Recovery Centre (ORRC); and
- Provision of support to establish an effective and financially viable recycling ecosystem that turns waste into valuable resources, including not only recycling and reprocessing facilities, but also the entire logistics mechanism. For example, the Government could consider mandating source separation in commercial and industrial buildings, allocating more space for recycling in new and existing buildings, and testing equipment to separate recyclables from mixed waste to reduce the

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<sup>11</sup> PRS on food and beverage containers should cover all packaging types so that migration from one packaging type to another will be discouraged.

challenges in individual existing buildings. In addition, the Government could explore the opportunities for non-polluting, waste-to-energy treatment as a option to manage waste and supply energy.<sup>12</sup>

## 5. Low-carbon Lifestyle

In addition to recommendations directly related to specific business sectors, BEC also suggests changes in individual lifestyle choice and decisions. Some of these examples highlight the important, but often overlooked, concept of embodied carbon.

Carbon emitted from air travel is classified as Scope 3 emissions which is excluded from the current public engagement exercise. To give a sense of proportionality, however, the energy (and hence carbon) savings of a typical family household using electricity over a year could be easily outweighed by a single-family trip to Japan. In this respect, BEC wants to highlight the importance for the Government to also support and facilitate airlines and the Hong Kong air transport community to decarbonise.

Most of the food and goods consumed in Hong Kong are imported and the embodied carbon footprints involved are significant. These emissions are consumption-based and thus outside of the scope of the current public engagement exercise. Nevertheless, modifying eating habits and consumption decisions greatly influences global carbon emission through the production and transportation of food and other products. BEC urges the Government to study the benefits of promoting a more plant-based (versus an animal-based) protein diet, as well as the potential for urban farming and local-sourced produce in reducing carbon emissions from both production and transportation. Similarly, studying the benefits of low-carbon / local goods and making these data available could encourage better decision making.

The promotion of walking and cycling has been discussed under the section on “Transport”. However, promoting walking amongst the elderly people should be considered an important strategy for various benefits, including carbon reduction. Hong Kong has an ageing population. In order to support active ageing and retirement, walking facilities and public open spaces should be improved to become age-friendly. This will encourage elderly people to go out in their neighbourhoods and remain socially active, without over-relying on vehicular transport.

Last but not least, BEC encourages businesses and individuals to conserve resources. Other than saving energy, which has attracted most attention in society thus far, we should also conserve water. The supply of water (fresh and grey) and its consequent treatment consumes a lot of energy and hence reducing water use<sup>13</sup> would also reduce energy use.

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<sup>12</sup> Waste-to-energy (WTE) plants will also supply energy. However, WTE can only have a benefit to decarbonisation if the energy generated is of a lower carbon content than the alternative supply.

<sup>13</sup> See BEC’s views on the supply of recycled water and water conservation in Hong Kong [https://bec.org.hk/files/images/Resource\\_Centre/Submission/20181212\\_BEC\\_Submission\\_on\\_the\\_Supply\\_of\\_Recycled\\_Water.pdf](https://bec.org.hk/files/images/Resource_Centre/Submission/20181212_BEC_Submission_on_the_Supply_of_Recycled_Water.pdf)

## 6. Climate Resilience and Adaptation

While this submission mainly focuses on decarbonisation, a decarbonised Hong Kong without the strength to withstand the climate impacts of an increasingly warm planet will lose much of its attractiveness as a business and investment destination and will suffer reduced liveability for citizens. Future planning must include both carbon reduction (to reduce further damage to the climate) and investment in resilience (to protect people, infrastructure and essential services from the harsh impacts the climate is likely to deliver).

### *Strategies and Action Plans*

From the business perspective, Hong Kong needs a clear and comprehensive climate resilience and adaptation plan. BEC calls for the establishment of a cross-departmental resilience team and the recruitment of a Chief Resilience Officer to prepare the plan, to co-ordinate climate resilience and adaptation efforts amongst government bureaux and departments, as well as to foster and strengthen partnerships between the Government, the business sector and other stakeholders in society.

Concrete steps to respond and adapt to climate change should include, but are not limited to:

- Investing in climate-resilient infrastructure and flood prevention projects to respond to future sea-level rise and storm surge;
- Enhancing the existing drainage master plan and systems to cope with increasing flood risks and sea level rise;
- Drafting plans to address extreme heat – both incident response and long-term planning with passive strategies such as landscaping and green roofs, as well as providing shelter for those who are homeless or lack adequate housing;
- Preparing water and food security contingency plans and backup plans for critical infrastructure like telecommunications, power, water, transport and fuel; and
- Strengthening the current land use and building policies and design guidelines with more climate resilience considerations that would allow developers and property owners to build more climate/flooding risk adaptability into their buildings. For example, one suggestion is to build adaptation and resilience planning into the BEAM Plus green building system and the Hong Kong Planning Standards and Guidelines.

These measures are expected to help enhance the climate resilience of Hong Kong and they will also demonstrate a strong commitment to address future climate risks and their impact on business and society.

### *Public-private Partnership*

BEC believes the Government should enhance public-private partnerships on addressing climate resilience, for example, through organising regular business and community forums and meetings by the Inter-Departmental Steering Committee on



Climate Change, to report on actions taken and progress made, as well as to stimulate dialogue and collaboration with businesses and communities on developing different climate resilient development solutions. In this respect, BEC would welcome further dialogue with the Government, after the conclusion of the current public engagement exercise.

The Government should also earmark a percentage of the budget to finance innovative climate adaptation and resilience projects formulated by communities and businesses.

#### *Data Accessibility for Corporate Assessment*

The Government should provide (a) datasets of sector-specific, climate-related issues (e.g. projected frequency and severity of flooding), and (b) standards or assumptions used for assessing the financial/non-financial impact of these issues. Without such data, it would be difficult for businesses and investors to understand or assess the full climate impact. The proposed Chief Resilience Officer and his/her office should become the one-stop shop for data enquiries and provision.

#### *Climate Finance*

The Government should strengthen efforts to make Hong Kong a centre of green finance, and to position it as a leader to raise funds to finance climate adaptation and resilience projects.

The Government should encourage application of high standards to Green Bonds through (a) setting up a local Green Bond Index which enables transparency as to issuances, setting out standards, how proceeds are to be used, whether for refinancing or otherwise, and how use will be monitored over time; and (b) establishing tax incentives e.g. super tax deductions on interest, to issuers and investors to support green bond issuances that deliver substantial carbon reductions and enhance climate resilience.

## 7. Greater Bay Area

### *Context*

The GBA, comprised of 11 cities, has a population of more than 70 million and represents 12% of China's total GDP. It is expected to reach a GDP of US\$4.6 trillion by 2030, more than double today's levels.

This monumental economic growth must be achieved without an equivalent cost to the environment, in carbon emissions, air and water quality or in other key environmental indicators. In 2016, we understand that the total carbon emissions of the 11 cities were around 610 million tonnes<sup>14</sup>, of which Hong Kong accounted for around 42 million tonnes.

The Outline Plan for the GBA published in February this year<sup>15</sup> calls for the GBA to become a model of high-quality development and a leading international area for living,

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<sup>14</sup> Emissions and low-carbon development in Guangdong-Hong Kong-Macao Greater Bay Area cities and their surroundings in Applied Energy 228: 1683-1692 – October 2018

<sup>15</sup> [https://www.bayarea.gov.hk/filemanager/en/share/pdf/Outline\\_Development\\_Plan.pdf](https://www.bayarea.gov.hk/filemanager/en/share/pdf/Outline_Development_Plan.pdf)

working and travelling. Specifically, it sets out a vision to implement major conservation and restoration projects, protect coastlines and the marine environment, strengthen environmental protection and management across the GBA as well as to “explore the potential of reducing greenhouse gas emissions, adopt proactive measures and actively adapt to climate change.”

*Opportunities for mutual co-operation & benefit*

The GBA outline plan specifically calls for:

- The green development of manufacturing centres, low carbon demonstration projects, and R&D for low carbon technologies – a process which Hong Kong should also strongly support in its own drive for innovation and a degree of reindustrialisation. We may be able to leverage Shenzhen’s low carbon technology R&D for commercial trials in Hong Kong; and
- An expanded producer responsibility system, green living campaigns, energy and water efficiency, and recycling. Given the scale of the GBA and the opportunities for developing a circular economy, Hong Kong should take steps to immediately encourage quality recycling, waste minimisation and the free movement of environmental management expertise and talent across boundaries. The Government and Hong Kong-based institutions and businesses have significant expertise to offer, as do the universities. Low-carbon strategies should be integrated into all business/engineering curricula at the university level.

The GBA Outline Plan also sets out specific proposals for the protection of coastal wetlands, re-afforestation and preservation of the natural habitat. Hong Kong should invest in such eco-system restoration and protection both to protect biodiversity and to create carbon sinks and enhance climate resilience for the region. It is important to note that carbon emissions from land use, agriculture etc. in Hong Kong are close to zero. Many countries have looked to turn this to a negative figure, with large scale planting to provide carbon sinks. Hong Kong should develop such a programme for both the urban and rural settings.

The GBA governments could work in parallel to identify key areas where their policies and standards can be harmonised. For example, science-based standards for resilience of buildings, building energy efficiency, critical infrastructure, and construction of environmental features (e.g. hillsides, reservoirs, waterways) are under-developed “greenfield” opportunities for collaboration, carbon reduction and closer GBA alignment.

Hong Kong also has expertise in capital and professional services germane to developing environmental and carbon reduction projects in the GBA. Guangzhou and Shenzhen are also C40 city members in addition to Hong Kong. There is a tremendous opportunity to share best practice and leverage talent and skills development in Environmental Management across the GBA.

GBA cities are working to develop greener transport systems. Shenzhen is a world leader in both the development of new technology and the deployment of established technologies, with thousands of electric buses already running in the city. Hong Kong could learn much from these developments. The logistics and marine transportation sectors play a key role in the GBA. A joint approach could be taken to decarbonise

shipping (as is happening with the current use of marine fuels and the move to lower air emissions) and aviation. Ports in Guangdong already use electricity in both container handling and dockside and neighbouring jurisdictions are developing liquefied natural gas (LNG) bunkering. This experience could also be extended to Hong Kong to develop a common standard for ships calling anywhere in the GBA.

The Outline Plan also looks to “develop a clean, low-carbon, safe and efficient energy system” through the use of natural gas and RE, progressively developing wind power resources and photovoltaic (PV) generation, and developing the safe and efficient use of nuclear power. Much of the GBA development of RE will be in Guangdong, as Hong Kong lacks zero-carbon energy resources. On the other hand, Guangdong is home to both new nuclear power plants and the development of new RE projects. If developments suggested in the Outline Plan for the GBA are realised, Hong Kong may be able to obtain supplies of RE or nuclear power from Guangdong. This will depend upon the growth in generation and on whether Hong Kong will be able to source supplies, given that competition may be expected for zero-carbon energy amongst a number of GBA cities. (see Section 2 of this response for detailed discussion on this topic)

## 8. Conclusions

Businesses are in principle very interested in early actions for better planning. We see the value of a proactive target and a consistent transition roadmap. The Government must be clear and transparent about the economic impacts of decarbonisation strategies – the short-term costs may not yield short-term gains. However, the costs of inaction are unacceptable. The Government should aim for a level playing field within Hong Kong at least, but better still in the GBA where opportunities to scale up decarbonisation actions are available.

We see the need to treat climate change as the top and most urgent priority; time is no longer on our side for gradual change and piecemeal solutions. Systemic transformation and deep decarbonisation are needed, along with clear forward-looking guidelines that make the best use of the short time remaining for businesses to manage the transition successfully.

The transitions and actions that have to take place imply a complete re-calibration of the socio-technical makeup of Hong Kong, the success of which would be reliant on public policy and acceptance, in addition to technical and financial support. Hence, BEC strongly argues that Hong Kong’s decarbonisation strategy must duly consider the contribution of policy/regulation, technology/infrastructure, education/public acceptance, and financial support.

To achieve this, engagement of business and society at large will be key to gaining support for the transition. We offer to actively support the building of a business coalition of like-minded companies and organisations with the Government, looking to reduce our own emissions, help others to do so and hence lead by example. We would welcome further dialogue with the SDC after it has had time to consider community views, and with all the relevant government bureaux as it moves to set a target for 2050 with a more concrete decarbonisation pathway.

For queries related to this submission, please contact our Chief Executive Officer, Mr Adam Koo at [adamkoo@bec.org.hk](mailto:adamkoo@bec.org.hk).

Yours sincerely,



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