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(Public Consultation on Air Quality Objectives Review 2030)  
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**Submission on Air Quality Objectives Review  
Views from Business Environment Council Limited**  
商界環保協會有限公司

Over the last 31 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 non-profit membership organisation comprising over 270 member companies from Hong Kong’s major holding companies to small and medium-sized enterprises.

## 1. Introduction

To continuously enhance air quality and safeguard public health, Air Quality Objectives (“AQOs”) Review is conducted by the Hong Kong Government at least once every five years in accordance with Section 7A of the Air Pollution Control Ordinance (Cap. 311) (“APCO”). The Government established the Air Quality Objectives Review Working Group (“the Working Group”) and commissioned consultants to evaluate the progress of air quality in Hong Kong, based on the interim targets and air quality guideline (“AQG”) levels outlined in the World Health Organization (“WHO”) WHO Global Air Quality Guidelines (“WHO AQGs”) published in September 2021.

Overall, the AQOs review seeks to enhance air quality, protect public health, and align Hong Kong's standards with international benchmarks and best practices. By evaluating the progress and identifying areas for improvement, the review aims to guide the development of effective strategies and policies to achieve cleaner air in Hong Kong.

## 2. The Proposed New AQOs

BEC expresses its support for the Government's decision to adjust the AQOs with reference to the latest WHO AQGs 2021. This demonstrates the ongoing commitment to improving air quality in Hong Kong. The proposal includes tightening the 24-hour AQO for Respirable Suspended Particulates (“PM<sub>10</sub>”) from 100 µg/m<sup>3</sup> (WHO IT-2) to 75 µg/m<sup>3</sup> (IT-3), as well as

reducing the annual level of PM<sub>10</sub> from 50 µg/m<sup>3</sup> (IT-2) to 30 µg/m<sup>3</sup> (IT-3). We also acknowledge the stricter 24-hour AQO for Fine Suspended Particulates (“PM<sub>2.5</sub>”) from 50 µg/m<sup>3</sup> (IT-2) to 37.5 µg/m<sup>3</sup> (IT-3), with a reduction in allowed exceedances from 35 to 18 per year, and the annual AQO of PM<sub>2.5</sub> from 25 µg/m<sup>3</sup> (IT-2) to 15 µg/m<sup>3</sup> (IT-3). Additionally, we back the recommendation to tighten the 24-hour AQO for Sulphur Dioxide (“SO<sub>2</sub>”) from 50 µg/m<sup>3</sup> (IT-2) to 40 µg/m<sup>3</sup>, in line with the AQG level. As of this point, having more ambitious targets is of utmost importance which is why we urge the Government to tighten the adjusted AQOs even closer to the AQGs.

The Government aims to establish new AQOs based on the recently introduced WHO AQGs. The new objectives include a 24-hour Nitrogen Dioxide (“NO<sub>2</sub>”) level of 120 µg/m<sup>3</sup>, a peak season AQO for Ozone (“O<sub>3</sub>”) at 100 µg/m<sup>3</sup>, and a 24-hour AQO for Carbon Monoxide (“CO”) at 4,000 µg/m<sup>3</sup>. However, it is worth noting that the AQOs for 24-hour NO<sub>2</sub> and peak season O<sub>3</sub> are only set at IT-1 level, which is the least strict. The Government also plans to keep the AQOs for annual NO<sub>2</sub> and 8-hour O<sub>3</sub> at IT-1, remaining unchanged from the previous AQOs. The Government highlights ongoing challenges on reducing NO<sub>2</sub> and O<sub>3</sub> concentration, and air quality assessment results indicate that the peak season ozone levels in all districts of Hong Kong will not meet the IT-1 level set out in the latest WHO AQGs, based on the Government’s modelling that includes emission reduction potential in Hong Kong and regional areas until 2030. However instead of back casting, a major purpose of setting AQOs is, through progressive targets, the Government can design different policies and action plans to reduce corresponding air pollutants. Unfortunately, it is not the current case for NO<sub>2</sub> and O<sub>3</sub>. The Government should provide additional information and analysis of NO<sub>2</sub> and O<sub>3</sub>, for example, whether air quality improvement measures in Annex 3 can be expanded or strengthened; and whether there is longer-term action plan with Guangdong Province beyond those stated in the 14<sup>th</sup> Five-Year Plan of the Province (as we are already half-way through the 2021-2025 Plan).

### 3. Air Quality Management Strategy

In our previous submission during the AQOs review in 2019 we recommended the Government to prioritise continuous revision of its air quality management framework. As a result, we emphasise our support and commend the 2021 published Clean Air Plan for Hong Kong 2035 (“CAP2035”), which outlines strategies aimed at enhancing air quality management in the city. The Clean Air Plan, along with the Hong Kong Climate Action Plan 2050, will serve as a solid foundation for shaping and aligning the Government’s strategy in addressing the problem of air pollution.

In the AQOs review, the Working Group thoroughly examined 21 air quality improvement measures pertaining to key sectors, including road transportation, marine transportation, power generation, and other significant emission sources. Given these sectors play a crucial role in contributing to air pollution, it is indeed significant to prioritise efforts and focus on addressing their impact.

In recent years, there has been a consistent improvement in the air quality of Hong Kong due to the implementation of various measures aimed at enhancing air quality. Significant reductions of 43% to 62% have been observed in the annual average concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, and SO<sub>2</sub> between 2013 and 2022. The number of hours with reduced visibility has decreased from 1,570 hours in 2004 to 401 hours in 2022. These findings demonstrate

the effectiveness of the Government's efforts in controlling air pollution from most emission sources, although NO<sub>2</sub> and O<sub>3</sub> are yet to compile with the prevailing AQOs.

### Rise in Ozone Levels and Collaboration with GBA

When examining O<sub>3</sub> levels, a constant rise is observable. It is also important to note that the projected O<sub>3</sub> levels for 2030 are expected to increase due to the influence of high regional background concentrations. Rapid economic development in the Guangdong-Hong Kong-Macao Greater Bay Area (“GBA”) has resulted in significant ozone pollution, posing detrimental effects on human health and property. In this regard, continuous regional cooperation is key to reduce ozone concentration. We appreciate the Government’s study collaboration with Guangdong province to enhance the understanding of the sources of ozone precursors, particularly volatile organic compounds (“VOCs”), ozone formation mechanisms, and regional and super-regional transportation patterns in the GBA. BEC also acknowledges the Government’s plan to tighten the control of VOCs in products supplied to the local market. On the other hand, the Government, should take further steps to work with Guangdong authorities regarding implementation of emission reduction targets for nitrogen oxides (“NO<sub>x</sub>”) and VOCs, which act as precursor pollutants for ozone formation, between 2025 and 2030 in GBA, to collectively address the regional ozone problem.

### Increased Efforts on NRMMS

BEC recognises the progress on the control of emissions from non-road mobile machinery (“NRMMS”). Meanwhile, noting an international trend in electrifying some of the NRMMS, the Government should further strengthen its Technical Circular DEVB TC(W) No. 13/2020<sup>1</sup> that public infrastructure procurement terms should favour early electrification in construction sites and development projects. A BEC sectoral initiative, namely the “Power Up Coalition”, has been promoting projects in the private sector to adopt similar approach. This would cut pollutant emissions, including NO<sub>x</sub> and VOCs as ozone precursors, from diesel combustion and usage onsite.

### Challenges of Roadside Air Pollution and Importance of Integrated Approach

Between 2013 and 2022, there has been a notable reduction of 47% to 64% in roadside concentrations of major pollutants in Hong Kong as a result of tightened emission standards as well as the popularisation of electric vehicles (“EVs”). Despite these improvements, roadside air quality remains a pressing issue. Monitored concentrations of NO<sub>2</sub> often breach the AQOs, especially for the roadside stations. To address the challenge of roadside air pollution, carbon emissions, and traffic congestion, BEC continues to emphasise the importance of adopting an integrated approach. This approach includes strategies such as trip avoidance/reduction, transport demand management, and the promotion of new energy vehicles.

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<sup>1</sup> DEVB TC(W) No. 13/2020: Timely Application of Temporary Electricity and Water Supply for Public Works Contracts and Wider Use of Electric Vehicles in Public Works Contracts

BEC supports the 12 improvement measures by the Government<sup>2</sup>, which are aligned with the strategies outlined in CAP2035, the Hong Kong Roadmap on Popularisation of Electric Vehicles ("EV Roadmap"), and the Hong Kong's Climate Action Plan 2050. These measures focus on the electrification of government vehicles, buses, motorcycles, taxis, as well as the phasing out of old diesel cars, and the support for the popularisation of EVs. The Government should also continue to provide policy support and financial incentives, where appropriate, to facilitate the transition to new energy vehicles, such as payload concession or exemption for EV batteries in medium goods vehicles ("MGVs") and heavy goods vehicles ("HGVs"). BEC also welcomes the Government's move to formulate the "Strategy of Hydrogen Development in Hong Kong" as raised in the recent 2023 Policy Address, noting the potential of hydrogen in commercial vehicles and HGVs.

The Government's initiative to incorporate green features, including pedestrian-friendly and bicycle-friendly infrastructure, in urban areas, new towns, and new development areas, should further be mainstreamed. This approach encourages people to choose alternative modes of transportation like walking and cycling for short-distance journeys, thereby reducing reliance on motorised transport, and promoting sustainable mobility practices.

BEC would like to echo its recommendation again to the Government regarding the provision of real-time roadside air quality data as part of the smart city initiative. The availability of up-to-date data and the presentation of air quality information in a more detailed manner are crucial in enabling the public to make informed decisions regarding their travel plans while considering local roadside air quality conditions and associated health risks. Equally important is that local policymakers can utilise this data to further develop effective control measures.

To achieve this, the Government should also consider expanding the number of roadside air quality monitoring stations to enhance data collection and spatial coverage. Currently, there are still only three such stations in place. BEC welcomes the plan to incorporate smart and innovative technologies to further improve the data availability and accessibility of the monitoring system, as mentioned in the CAP2035.

### *Combating Marine Vessel Emissions and Promoting Sustainable Shipping Practices*

According to the latest air pollutant emission inventory compiled by the Environmental Protection Department ("EPD"), vessels remained to be the largest local emission source of NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and the second largest source of SO<sub>2</sub> and CO. Significant achievement has been made since the implementation of the vessels' regulation in January 2019, which requires the use of compliant fuel within Hong Kong waters. This has resulted in substantial reductions in emissions, particularly for SO<sub>2</sub>. Nevertheless, there is still room for improvement, particularly regarding the emission of NO<sub>x</sub> and CO.

In this regard, BEC supports the replacement of traditional ships with new energy ones. While liquefied natural gas ("LNG") and biofuels are considered as transitional fuels and practical solutions for now, alternative fuels such as methanol and hydrogen show potential as cleaner and lower carbon choices in the longer term. Electrified options are also increasingly viable for short-sea passenger ferries. BEC urges the Government to intensify its efforts in reducing

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<sup>2</sup> Part A, Annex 3 of the Public Consultation Booklet

the environmental impact of the marine industry and promoting clean shipping practices, such as providing onshore power supply, planning for the regulations and infrastructure for a smooth transition to cleaner alternative fuels while maintaining near-term support for low-emission transitional fuels. Singapore serves as an example with its implementation of the “Maritime Decarbonisation Blueprint”. The country is actively developing green notations for ships to promote and recognise environmentally friendly practices, which addresses both climate change and air pollution at the same time. As an international shipping hub, Hong Kong certainly needs more specific roadmaps for the marine sector. Furthermore, the promotion of green financing plays a crucial role in supporting sustainable maritime activities.

### Health Risks and Impacts of Air Pollution

Air pollutants have significant impacts and risks on human health, making it crucial to prioritise efforts towards improving air quality. According to the 2030 air quality assessment results, the measures taken by the Government will bring about notable health and economic benefits. Nonetheless, it remains imperative to address both the immediate and long-term health impacts of air pollution.

To achieve this, there is a pressing need for the Government to tighten the existing Air Quality Health Index and consider new comprehensive indicators which effectively assess air quality. It is essential to consider human health risks as a comprehensive indicator, as this will provide a clearer understanding of the impact of pollutants on public health. By communicating these risks in a more accessible manner, the Government can raise public awareness and ensure that air quality is taken seriously by the population.

In addition, it is important to note that the quality of outdoor air can greatly affect the indoor air quality (“IAQ”). Research shows that individuals typically spend 90% of their lifetime in indoor environments, making it crucial to maintain good IAQ. While the Indoor Air Quality Objectives (“IAQO”) were last revised in July 2019, we strongly recommend conducting regular reviews of the IAQO to safeguard the health of Hong Kong's citizens.

By prioritising human health risks, tightening air quality standards, and adopting comprehensive indicators, the Hong Kong Government can effectively combat air pollution and safeguard the well-being of its residents.

## **4. Conclusion**

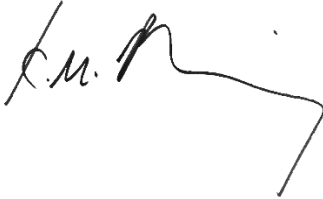
It is crucial for Hong Kong to establish a long-term air quality management goal aligned with the WHO AQGs. Achieving these guidelines is not only essential for the well-being of the population but also holds significance for the business sector. Clean air serves as a key consideration for attracting talented individuals to work in Hong Kong and for attracting investors to establish businesses in the region.

In this context, BEC continues to support the regular review mechanism for the AQOs as a continuous process for evaluation and improvement. BEC acknowledges the commendable work and impact of the Working Group. However, we recommend exploring the possibility of a more proactive engagement with the public, soliciting the opinions of different stakeholders at an earlier stage of the process. This would enhance public involvement and ensure a broader range of perspectives are considered during the decision-making process.

## Enquiries

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

Yours sincerely,



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