空氣質素指標檢討期間討論的改善空氣質素的可能新措施
List of Possible New Air Quality Improvement Measures Discussed During the Review of the Air Quality Objectives

空氣質素指標檢討專家小組討論了一系列改善空氣質素的可能新措施。在審議實施可能新措施的可行性時，專家小組考慮了多方面的因素，包括新技術的成熟程度及使用趨勢、國際間監管條例的發展、成本效益、及業界反應等。實施個別可能新措施的可行性可分為短期、中期、長期和其他四個類別(見表一)。實施可能新措施的可行性時間考慮到現行的指標預期於2020年或以前大致達標，以及法例要求須每五年至少檢討指標一次。

The Sub-groups of the Air Quality Objectives Review have deliberated on a number of possible new air quality improvement measures. When considering the practicability of implementing these possible new measures, the Sub-groups have considered a wide range of factors, e.g. technical maturity of new technology and the trend of usage, international regulatory development, cost effectiveness, trade reaction, etc. The implementation of individual possible new measures is classified into short term, medium term, long term and others (See Table 1). The timeline of implementing the possible new measures has taken into consideration the target of broadly attaining the current AQOs by 2020 and the need to review the AQOs at least once every five years.

表一　　實施改善空氣質素措施的可能新措施的可行性類別

Table 1 Category of Practicability for Implementing Possible New Air Quality Improvement Measures

短期措施 Short term	有關措施可能在2025年或以前可見成效 Likely to produce results by 2025 or earlier
中期措施 Medium term	有關措施會於下一次檢討期間再作考慮 Maybe ready for consideration in the next AOQ Review period
長期措施 Long term	有關措施需要更詳細規劃或進一步研究以確定在下一個檢討期以後的實施可行性 Require detailed planning or further study to ascertain the practicability for implementation beyond the next Review period
其他 Others	有關措施非切實可行、不具改善空氣質素的效益或合乎是次檢討範圍 Considered as not practicable, short of air quality benefits or not suitable to be considered under the current scope of the review

可能短期措施 Possible short-term measures

隧道的收費政策及模式

- 檢討隧道的收費政策及水平，達至紓緩交通擠塞，從而減少因隧道擠塞而造成的排放

Tunnel toll policy and toll collection method

- Review the tunnel toll policy and level to alleviate traffic congestion, thereby reducing the emission caused by congestion at the tunnels

車輛尾氣排放系統維修保養

- 建立車輛尾氣排放系統的維修數據平台
- 加強宣傳車輛維修保養的重要性

Maintenance and repair of vehicle exhaust system

- Establish a maintenance information database of vehicle tailpipe emission system
- Raise awareness on the importance of vehicle maintenance and repair

推動「行人友善」及「單車友善」環境

- 在現有新市鎮及市區推動「行人友善」環境(如擴闊行人道、興建有蓋步行徑、優化行人道網絡聯繫)，以鼓勵市民步行
  (註: 此措施被確認為短期及中期實施的可行措施。)
- 在現有新市鎮及市區推動「單車友善」環境，並研究提供配套設施 (如單車徑網絡、單車停放處、公共運輸交匯處的泊車轉乘設施及對公共交通乘客携帶單車的友善政策)
  (註: 此措施被確認為短期及中期實施的可行措施。)

Fostering a "pedestrian-friendly" and "bicycle-friendly" environment

- Foster "pedestrian-friendly" environment (such as widening of footpaths, construction of covered walkways and enhancing the pedestrian connections) to encourage people to walk in existing new towns and urban areas
  (Note: This measure is considered as short term and medium term practicability for implementation.)
- Foster “bicycle-friendly” environment and study into the provision of ancillary facilities for cycling (such as provision of cycling track network and bicycle parking spaces, park-and-ride facilities at public transport interchanges and bike-friendly policies to facilitate carriage of bicycles on public transport) in existing new towns and urban areas

  (Note: This measure is considered as short term and medium term practicability for implementation.)

土地及運輸基建規劃

- 透過良好的城市規劃及設計，配合交通管理，從而改善高密度發展所引起的空氣流通問題
- 加強推動巴士路線重組的地區宣傳

Land use and transport infrastructure planning

- Use urban planning and design solutions together with transport management to improve air ventilation in high density development
- Enhance district-based publicity on bus route rationalisation

管理路面空間

- 增加較污染車輛的首次登記稅及牌照年費，以及控制車輛(尤其是私家車)的增長
- 加強打擊違例泊車
- 檢討路旁停車位收費

Managing road space

- Raise the first registration tax and annual licence fee of more polluting vehicles, as well as to manage the growth of vehicles in particular private cars
- Enhance enforcement against illegal parking
- Review on-street metered parking fees

運用智能運輸系統

- 推出一站式的流動應用程式以供市民選擇最省時、最省錢及低排放的交通模式
- 推出統合各停車場空置泊車位實時資訊的流動應用程式，讓市民選擇最佳的泊車地點並縮短行車距離
- 引入智能運輸系統 (如監控交通燈號以控制交通流量、安裝智能感測器和攝影機處理違例泊車)
  (註: 此措施被確認為短期、中期及長期實施的可行措施。)

Utilisation of intelligent transport systems

- Launch one-stop mobile app for the public to choose the most time-saving, economical and low-emission transportation mode
- Launch one-stop mobile app for the public to access real-time information on car parking vacancies which helps them choose the best parking location and shortening the driving distance
- Introduce intelligent transport systems (e.g. manage traffic flow by traffic signal control, install smart sensors and surveillance cameras for illegal parking enforcement)
  (Note: This measure is considered as short term, medium term and long term practicability for implementation.)

其他建議

- 提高市民的環保意識，推廣良好的個人環保習慣，鼓勵市民使用公共運輸系統或低排放的交通模式

Other suggestions

- Raise public awareness on environmental protection, promote green living and encourage the public to use public transport systems as well as low emission transportation options

可能中期措施 Possible medium-term measures

土地及運輸基建規劃

- 全面檢討陸路運輸建設的發展和道路網絡(如興建新的隧道和道路)，以配合人口的增長，改善塞車問題

Land use and transport infrastructure planning

- Conduct comprehensive review on the development of road transportation infrastructure and networks (such as construction of new tunnels and roads) to cope with population growth and to tackle road traffic congestion

其他建議

- 改善重型車輛在停泊、用餐及休息的問題(如葵涌貨櫃碼頭區)，以處理重型車駕駛者的個人及營運需要，從而降低重型車空轉引擎所造成的空氣污染

Other suggestions

- Address the personal and operational needs of heavy vehicle drivers, such as provision of parking space and arrangement of meal and rest breaks at the Kwai Chung Container Terminals area, so as to reduce air pollution arising from idling engines

可能長期措施 Possible long-term measures

推動「行人友善」及「單車友善」環境

- 在新發展區推動「行人友善」環境(如擴闊行人道、興建有蓋步行徑、優化行人道網絡聯繫)，以鼓勵市民步行
- 在新發展區推動「單車友善」環境，並研究提供配套設施(如提供單車徑網絡、單車停放處、公共運輸交匯處的泊車轉乘設施及對公共交通乘客携帶單車的友善政策)

Fostering a "pedestrian-friendly" and "bicycle-friendly" environment

- Foster "pedestrian-friendly" environment (such as widening of footpaths, construction of covered walkways and enhancing the pedestrian connections) to encourage people to walk in new development areas
- Foster “bicycle-friendly” environment and study into the provision of ancillary facilities for cycling (such as provision of cycling track network and bicycle parking spaces, park-and-ride facilities at public transport interchanges and bike-friendly policies to facilitate carriage of bicycles on public transport) in new development areas

- 在海濱用地建造單車與行人共享空間
- Set up cycling and walking shared space at harbourfront areas

推動低排放的交通模式 / Promotion of low-emission transport mode

- 推出單一路線電動車試驗計劃，將指定路線的現有車隊轉換為電動車
- Electric vehicles pilot schemes - switching the existing vehicle fleet of selected routes to electric vehicles

運用智能運輸系統 / Utilisation of intelligent transport systems

- 在繁忙路段實施電子道路收費，處理繁忙路段的交通擠塞情況
- Implement electronic road pricing scheme to tackle road traffic congestion at busy roads

土地及運輸基建規劃 / Land use and transport infrastructure planning

- 透過妥善的土地規劃，改善居所與就業地點分佈失衡的現狀，使居民可以在當區就業，從而縮短交通時間和減少使用私家車次數
- Through proper land use planning to redress the current imbalance in home-job distribution and bring jobs closer to home so as to reduce commuting time and private car usage
- 為新發展區的居民提供低排放的交通模式
- Provide low-emission transport mode to the residents of new development areas

其他Others

隧道的收費政策及模式 / Tunnel toll policy and toll collection method

- 考慮以全自動的收費系統取代現有系統
- Consider replacing the existing toll collection system with completely automatic systems

車輛尾氣排放系統維修保養 / Maintenance and repair of vehicle exhaust system

- 建議使用功率機檢驗車輛尾氣排放
- Propose to use chassis dynamometer for testing vehicle tailpipe emissions
- 收緊私家車的檢驗年期，由現時車齡超過 6 年減至超過 3 年(或考慮以行車里數作為檢驗準則)
- Tighten the annual vehicle examination for private cars from over six years old to over three years old (or consider adopting vehicle kilometres travelled as the vehicle examination criterion)
- 提供尾氣排放檢驗儀器，供中小型維修業界租用
- Provide vehicle tailpipe emission testing equipment for rent by small and medium-sized vehicle repair workshops

推動「行人友善」及「單車友善」環境 / Fostering a "pedestrian-friendly" and "bicycle-friendly" environment

- 在學校區、老人院舍區及社區路段設立低車速限制區(如每小時 30 公里)，以改善步行環境 (註: 由於這措施與上述「行人友善環境」措施的理念相同，這項措施與該措施一併評估。)
- Establish lower vehicle speed limits zones (e.g. 30km/h) in community roads, school zone and areas with elderly centres, to foster pedestrian environment
(Note: This measure has been assessed together with “Foster “pedestrian-friendly” environment” above as it carries the same spirit.)

推動低排放的交通模式

- 在繁忙路段(如彌敦道)推行電車或電動巴士轉乘計劃，以取代現時在該路段行駛的專營巴士服務，從而減少在同一路段行駛及上落乘客的巴士數目
- 推動使用混合動力私家車
- 探討新能源車種的使用

Promotion of low-emission transport mode

- Tram or electric bus interchange schemes at busy road sections (e.g. Nathan Road) to replace the franchised bus services so as to reduce the number of buses and boarding / alighting passengers on the road section
- Promotion of hybrid private cars
- Exploring the use of new-energy vehicles

其他建議

- 提供車輛能源效益、廢氣排放、噪音數值等資訊以方便市民作出更環保的選擇
- 訂立使用更清潔車用燃料的目標/政策
- 擴大現時低排放區的範圍及涵蓋至其他車輛種類
- 設立連貫有效的公共車輛優先道路網
- 檢討替換專營巴士的政策
- 設立基金資助區議會推行改善空氣質素的項目

Other suggestions

- Provide information on the energy efficiency, emission performance and noise level of vehicles, etc. to facilitate the public to make a more environmentally-friendly choice
- Set out objectives / policies to support the use of cleaner vehicle fuels
- Extend the coverage areas of the existing low emission zones and their restriction to other vehicle types
- Set up a continuous and effective priority road network for public vehicles
- Review the policy on replacement of franchised buses
- Provide funding to support District Councils for implementing air quality improvement projects

可能短期措施 Possible short-term measures

使用清潔燃料

- 遠洋船停泊時須使用含硫量上限不超逾0.1%的船用柴油
- 本地船隻泊岸時使用岸上的電力

Use of clean fuel

- Ocean-going vessels at berth to use marine diesel with lower fuel sulphur content, e.g. not exceeding 0.1%
- Local vessels to use electricity from the power grid while at berth

可能中期措施 Possible medium-term measures

技術性措施

- 為本地船隻舷外引擎訂立排放標準

Technical measures

- Impose emission standards on outboard engines of local vessels

節省燃料、能源效益及港口管理

- 研究向遠洋船公司提供經濟激勵或抑制措施，鼓勵它們使用較環保的遠洋船進入香港

Fuel economy, energy efficiency and port management

- Explore financial incentive and disincentive schemes to encourage liners to use less polluting ocean-going vessels calling Hong Kong ports

可能長期措施 Possible long-term measures

使用清潔燃料

- 研究於船隻上使用液化天然氣
- 研究於船隻上使用生物燃料(如 B5 生化柴油)、燃料電池、液化石油氣、壓縮天然氣、甲醇、核能和再生能源，如風力和太陽能等
- 研究使用混能、柴油電力和電動船
- 遠洋船停泊在郵輪碼頭時使用岸電

Use of clean fuel

- Explore the use of Liquefied Natural Gas for marine vessels
- Explore the use of biofuel (e.g. B5), fuel cell, Liquefied Petroleum Gas, compressed natural gas, methanol, nuclear and renewable energy, etc. for marine vessels
- Explore the use of hybrid, diesel electric and electric vessels
- Ocean-going vessels to use on-shore power supply while at berth at Cruise Terminal

節省燃料、能源效益及港口管理

- 鼓勵學術界研究本地船隻在運作及保養方面的節省燃料和能源效益措施；及學術界和本地船運業界合作以制訂最佳作業指引及設立獎項，促進業界採用有關措施

Fuel economy, energy efficiency and port management

- Encourage academia to carry out studies on fuel and energy efficient measures in terms of operation and maintenance for local vessels; and collaboration between academia and local marine trade for the development of best practice guidelines and award system to facilitate adoption of the measures

其他 Others

使用清潔燃料

- 內河船在碼頭停泊時使用岸電
- 遠洋船停泊在貨櫃碼頭時使用岸電

Use of clean fuel

- River trade vessels to use on-shore power supply while at berth at terminals
- Ocean-going vessels to use on-shore power supply while at berth at container terminals

技術性措施

- 於本地船隻引擎上安裝排放消減器件(例如粒子過濾器) 以減低粒子排放
- 管制本地船隻引擎的氮氧化物排放

Technical measures

- Install emission reduction device (e.g. particulate filters) to reduce particulate matters emitted from local vessels
- Impose control on nitrogen oxides emissions from engines of local vessels

節省燃料、能源效益及港口管理

- 優化港口運作效率以縮短遠洋船和內河船於貨櫃碼頭、內河碼頭及公眾貨物裝卸區的靠泊及作業時間
- 遠洋船於香港水域內減速航行

Fuel economy, energy efficiency and port management

- Optimise port efficiency to shorten waiting and turnaround time of ocean-going vessels and river trade vessels at container terminals, river trade terminals and public cargo working areas
- Slow-steaming of ocean-going vessels in Hong Kong waters

其他建議

- 清理海面垃圾，使小型本地船隻運作更暢順
(註: 此措施與改善空氣質素無直接關係，因此相關專家小組並無作進一步討論。)
- 政府加快審批新船的過程
(註: 此措施與改善空氣質素無直接關係，因此相關專家小組並無作進一步討論。)

Other suggestions

- Remove floating rubbish for smooth operation of small local vessels
(Note: This measure is not related to air quality improvement and not further discussed in the respective Sub-group.)
- Government to expedite the approval process of new local vessels
(Note: This measure is not related to air quality improvement and not further discussed in the respective Sub-group.)

可能短期措施 Possible short-term measures

建築物能源效益措施

- 鼓勵商界和非政府機構（例如大學及醫院）的持份者採取用電需求管理措施
- 對並未納入《建築物能源效益條例》的舊建築物，探討採用建築物能源效益措施

Building energy efficiency measures

- Encourage stakeholders in the commercial sector and the non-government sector, e.g. universities and hospital to adopt demand-side management measures
- Explore building energy efficiency measures for old existing buildings which are not covered by the Buildings Energy Efficiency Ordinance

使用可再生能源

- 鼓勵或提供誘因促使私人企業發展分布式可再生能源發電
- 促進分布式可再生能源發電系統接駁電網
- 鼓勵發展更多轉廢為能設施，例如廢物焚化爐、有機廢物處理廠等，以處置廢物的同時回收能源供地區使用
- 增加使用風力和太陽能發電

Use of renewable energy

- Encourage or provide incentives for the private sector to develop distributed renewable energy
- Facilitate distributed renewable energy systems to connect to the power grid
- Encourage the development of more waste-to-energy facilities, such as waste incinerators, organic resources recovery centres, etc. for waste disposal as well as recovering energy for local use.
- Increase the use of wind and solar energy in electricity generation.

發電燃料組合

- 以燃氣機組取代燃煤機組

Fuel mix for electricity generation

- Replacement of coal-fired generating units by gas-fired units

發電機組的操作

- 提升燃氣機組的燃燒器，以改善燃料效益和排放表現
- 檢討燃氣發電機組的運作模式，以尋找進一步的減排潛力

Operation of power generation plant

- Upgrade burners of gas-fired generating units to improve fuel efficiency and emission performance
- Review operations of gas-fired power generating units with a view to identifying further emission reduction potential

使用生物燃料

- 研究把玉米芯、廢木卡板等(生物材料)廢料用作燃料

Use of biomass as fuel

- Explore the use of waste materials such as corncobs, waste wooden pallets (i.e. biomass) as fuel

可能長期措施 Possible long-term measures

建築物能源效益措施

- 鼓勵主要電力用戶減少高峰期的電力需求，以減少燃煤機組為應付電力高峰需求的運作及排放

Building energy efficiency measures

- Encourage major electricity users to reduce peak load demand so as to reduce the operation and emissions from coal-fired generating units for coping with peak load demand

能源儲存	Energy storage
● 研究使用舊電動車電池作為電網的電力儲存系統	● Explore the use of old electric vehicles batteries as an electrical energy storage system for the power grid

其他 Others

發電燃料組合	Fuel mix for electricity generation
● 考慮由內地輸入更多核電	● Consider importing more nuclear electricity from the Mainland
新太陽能技術	**New solar energy technology**
● 探討「太陽能道路」概念，藉此推廣使用太陽能	● Explore the idea of “SolarRoad” for promoting the use of solar energy
能源儲存	**Energy storage**
● 研究以電動車作為電網的電力儲存裝置的可行性	● Explore the feasibility of using electric vehicles as electrical energy storage for power grid

可能新措施 (實施措施的可行性待定)	Possible New Measures (Practicability for implementation to be determined)
● 檢視就未受《空氣污染管制(揮發性有機化合物)規例》規管的消費品訂立揮發性有機化合物含量的限值的可行性	● Review the feasibility to impose volatile organic compounds limits on consumer products that are not regulated under the Air Pollution Control (Volatile Organic Compounds) Regulation
● 檢視進一步收緊受規管的建築漆料揮發性有機化合物含量的限值的可行性	● Review the feasibility to further tighten the volatile organic compounds limits on regulated architectural paints
● 探討收緊新供應香港的受規管機械及非道路車輛的廢氣排放標準的可行性	● Explore the feasibility to further tighten the emission standards on regulated machines and non-road vehicles newly supplied to Hong Kong
● 探討為獲豁免的受規管機械及非道路車輛進行改裝以改善其排放表現	● Explore the feasibility of retrofitting exempted regulated machines and non-road vehicles to improve their emission performance
● 研究新式飲食業防污設備應用於不同類型的餐廳的可行性	● Explore the feasibility to use of new types of air pollution control equipment for cooking fume control in different types of restaurants
● 推廣「低排放」煮食 (例如: 使用潔淨和高效爐頭)	● Promote "low-emission" cooking (e.g. use of clean and efficient cooking stoves)
● 檢視控制本地民用航空的排放	● Review the control on emission from aviation in local context