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Proposed Amendments to the Buildings Energy Efficiency Ordinance (Cap. 610) and its Subsidiary Legislation

PURPOSE

This paper recommends that the Buildings Energy Efficiency Ordinance (the “Ordinance”) (Cap. 610) and its subsidiary legislation should be amended to enhance the energy efficiency management regime of Hong Kong, so as to contribute to the achievement of the target of attaining carbon neutrality by 2050.

BACKGROUND

2. Currently, buildings account for 90% of Hong Kong’s electricity consumption, and over 50% of Hong Kong’s carbon emission is attributable to generating electricity for them. Improving energy efficiency of buildings will reduce the demand for power consumption and generation, which will reduce carbon emission as well as the financial burden on the public.

3. To promote energy efficiency in buildings, the Ordinance has come into operation since September 2012. Currently, the Ordinance mainly requires –

- (a) 13 types of buildings (listed at Annex A) to comply with the energy efficiency standards of building services installations¹ stipulated in the Code of Practice for Energy Efficiency of Building Services Installation (the “Building Energy Code”) when they are newly constructed or when major retrofitting works are carried out; and
- (b) two types of existing buildings (listed at Annex B) to conduct energy audits in accordance with the Code of Practice for Building Energy Audit (the “Energy Audit Code”) at intervals no longer than 10 years.

¹ The concerned building services installations are air-conditioning installations, electrical installations, lift and escalator installations, and lighting installations.

For cost-effectiveness and heritage conservation, the Ordinance does not apply to buildings with low electricity consumption², small houses and historical buildings/monuments³. Meanwhile, building owners may also apply to the Director of Electrical and Mechanical Services (“DEMS”) for exemption from certain requirements under the Ordinance based on heritage preservation or technical or operational reasons.

4. Since the implementation of the Ordinance, there are over 2 300 new buildings and over 15 000 major retrofitting works in existing buildings that meet the energy efficiency standards. In addition, around 2 700 buildings have completed their first energy audits, with over half of them having had their second energy audits completed. To raise the overall buildings energy efficiency standard in Hong Kong, the Electrical and Mechanical Services Department (“EMSD”) conducts three-yearly updates to the Building Energy Code and the Energy Audit Code under the Ordinance in consultation with the trade. The energy efficiency standards of the latest 2024 version of the Codes are 20% higher than the 2015 version. Compared to the 2015 version, we estimate that the updated standards will help save about 5.4 billion kilowatt-hours (kWh) of electricity per year in buildings in Hong Kong in 2035. To strengthen the relevant efforts of promoting buildings energy efficiency, the Chief Executive’s 2023 Policy Address announced that the Government would consult the trade on the proposal of amending the Ordinance, including extending the scope of regulation to cover more types of buildings, mandating the disclosure of information, and shortening the interval of energy audit.

PROPOSED AMENDMENTS

5. The proposed amendments to the Ordinance and its subsidiary legislation cover the following five areas, as detailed in the ensuing paragraphs –

- (a) regulate the energy efficiency standards of building services installations for all data centres in Hong Kong;
- (b) require more buildings to conduct regular energy audits;
- (c) shorten the intervals of energy audits;
- (d) publish certain technical information in energy audit reports; and

² Buildings of which the main electrical switch not exceeding 100A (1-phase or 3-phase).

³ Section 4 of the Ordinance refers.

- (e) include professional engineers in the energy discipline as one of the disciplines eligible for registration as Registered Energy Assessor (REA).

Regulate the energy efficiency standards of building services installations for all data centres in Hong Kong

6. The development of data centres in Hong Kong has been growing fast in recent years. As at mid-2024, the floor area of data centres has reached 970 000 m², accounting to about 4.4% of Hong Kong's total electricity consumption of buildings. While the Ordinance has regulated the energy efficiency standards of building services installations of data centres in buildings under its coverage (such as commercial buildings), it has yet to cover stand-alone data centres⁴ and portions of industrial buildings being built as and converted to data centres. These two categories of data centres have accounted for more than 75% of the gross floor area of all data centres in Hong Kong. Considering the high electricity consumption of data centres, and that more of them will be completed as Hong Kong continues to spearhead the development of smart city, we propose extending the coverage of regulation of buildings energy efficiency standards to all data centres. This would mean to expand the scope of regulated buildings under the Ordinance from the current 13 types of buildings to 15 (listed at Annex A). We estimate that an additional 50 million kWh of electricity, equivalent to the annual electricity consumption of about 15 000 three-person households, will be saved in 2035 when this arrangement comes into full effect.

Require more buildings to conduct regular energy audits

7. Currently, the Ordinance requires that commercial buildings and portions of a composite building for commercial use to conduct energy audits at an interval no longer than 10 years, through which energy saving potentials of buildings could be identified. Based on the energy audit reports of buildings having had conducted their second energy audit, the energy utilisation index of these buildings have dropped by 20% on average compared to their first energy audit. This has demonstrated that energy audits can help building owners to strengthen the management of energy use and achieve energy savings for buildings. We therefore propose to expand the scope of regulated types of buildings under the Ordinance from the current two types to 11 (listed at Annex B). The nine additional types of buildings proposed to be included are –

- (a) a building that is occupied principally for education purpose;
- (b) a building that is occupied principally as a community building including a community hall and social services centre and composite building occupied as two or more such places;

⁴ They are mostly high-tier data centres, and tend to concentrate in places like Tseung Kwan O, Tsuen Wan, Kwai Chung, Shatin and Chai Wan.

- (c) a building that is occupied principally as a municipal services building including a market, cooked food centre, library, cultural centre and indoor games hall and composite building occupied as two or more such places;
- (d) a building that is occupied principally for medical and health care services including a hospital, clinic and rehabilitation centre;
- (e) a building that is owned by the Government and used principally for the accommodation of people during the performance of any function of the Government;
- (f) the passenger terminal building of an airport;
- (g) railway stations;
- (h) a building that is occupied principally as a data centre; and
- (i) the portion of an industrial building that is occupied principally as a data centre.

8. With reference to the implementation experience of the Ordinance, data from energy audit reports, and views collected through public consultation (at paragraph 13 below and Annex C), it would be more cost-effective to conduct energy audits in larger buildings given their larger energy saving potential. Therefore, we recommend with the exception of data centres, small and medium-sized buildings with a gross floor area not exceeding 7 000 m² should be exempted from conducting energy audits. Based on estimates from energy audit reports and other information collected by EMSD, the electricity consumption of these small and medium-sized buildings only comprised 10% of the total electricity consumption for the corresponding building types. We estimate that the total electricity consumption regulated by the Ordinance will increase by 1.4 times from around 3.9 billion kWh to date to around 9.5 billion kWh. In terms of electricity savings, we estimate that an additional 450 million kWh of electricity, equivalent to the annual electricity consumption of about 136 000 three-person households, will be saved in 2035 when this arrangement comes into full effect.

Shorten the interval of energy audits

9. With the rapid technological advancement, there are more available and affordable green building services installations and technologies (e.g. inverter type air-conditioning system, internet-of-things based energy management system and artificial intelligence optimisation control) which can bring further energy savings to existing buildings. To encourage the timely adoption of these equipment and technologies in existing buildings, thereby utilising the benefits of conducting energy audits, we propose shortening the interval of energy audits from current 10 years to five years. This will make our practices comparable to those in our neighbouring regions, such as the Mainland, Singapore, and Tokyo, Japan.

Publish certain technical information in energy audit reports

10. The existing Ordinance requires Registered Energy Assessor (REA)⁵ to send a copy of Energy Audit Form and energy audit report to the Director for review and record after completion of an energy audit. The Ordinance also requires the owner of a building to exhibit copy of the Energy Audit Form at the main entrance of the building to acknowledge that the building had carried out an energy audit. To enhance data transparency, we propose publishing the technical information in the energy audit report on EMSD's website through a new data disclosure form⁶. The proposed data disclosure form will set out the technical information to be disclosed, including the energy efficiency coefficient, year of service, control system and energy saving potential, etc. of major building services installations. By publishing the technical information, apart from allowing the public to inspect the energy performance of the major building services installations of the buildings concerned, the trade can also be encouraged to offer energy saving proposals to building owners or property management companies proactively. This could expedite the implementation of energy saving measures and further promote green economy.

Include professional engineers in the energy discipline as one of the disciplines eligible for registration as Registered Energy Assessor

11. According to the current Buildings Energy Efficiency (Registered Energy Assessors) Regulation (Cap. 610B) (the "Regulation"), a person who is a registered professional engineer (RPE)⁷ or a corporate member of the Hong Kong Institution of Engineers (MHKIE) in the electrical, mechanical, environmental or building services discipline is eligible to apply for registration as REA. When the Ordinance came into implementation in 2012, RPE or MHKIE in the energy discipline had not been set up. Upon the establishment of energy discipline in 2014, the trade has been suggesting the inclusion of professional engineer in the energy discipline as one of the disciplines eligible for applying for registration as REA.

12. Given that professional engineers in the energy discipline are well-possessed of relevant professional knowledge for REA and the average number of buildings required to carry out energy audit per year will double after the proposed

⁵ To facilitate the developer, owner or responsible person of the buildings to comply with the Ordinance, the Ordinance provides for the regime for registration and regulation of Registered Energy Assessor (REA) who are tasked to certify the compliance of energy efficiency standard and to conduct energy audit, in respect of building services installations.

⁶ According to section 46 of the Ordinance, the Director may specify any form to be used for the purposes of any provision of the Ordinance.

⁷ A Registered Professional Engineer refers to registered professional engineer as defined in the Engineers Registration Ordinance (Cap. 409).

legislative amendments, the inclusion of professional engineers in the energy discipline as one of the disciplines eligible for application for registration as REA is conducive to the implementation of the amended Ordinance. Consequentially, we also propose including a professional engineer in the energy discipline as the member of the Buildings Energy Efficiency Disciplinary Board Panel⁸ and Buildings Energy Efficiency Appeal Board Panel⁹ respectively.

PUBLIC CONSULTATION

13. Since November 2023, we have consulted more than 300 organisations and associations via consultation seminars and Business Impact Assessment. They include trade associations, property management sector, construction industry, professional bodies, public services bodies and other stakeholders (such as the welfare and education sectors). Views received are positive in general. EMSD has also set up a dedicated website and uploaded the consultation paper for the public and stakeholders to make written submissions, and issued over 7 000 letters/e-mails to invite organisations, associations and individuals, including building owners, relevant institutions and REAs to offer comments. The vast majority of over 50 written submissions and comments received are supportive, with the views conveyed suitably incorporated to the proposal as set out in Annex C.

14. The Energy Advisory Committee and the Council for Carbon Neutrality and Sustainable Development were consulted in January and December 2024 respectively. They were both supportive of the proposals. We also consulted the Panel on Environmental Affairs of the Legislative Council on 20 January 2025. Members generally supported the proposed amendments to the Ordinance.

LEGISLATIVE AND IMPLEMENTATION TIMETABLE

15. We are in the process of drafting the amendment bill, and aim to introduce the Amendment Bill into the Legislative Council in March/April 2025. Our target is for the proposed amendments to the Ordinance to come into full operation by end-2026. To ensure the smooth implementation of the amended Ordinance, we propose staged commencement of the proposed amendments in the following manner –

⁸ The Buildings Energy Efficiency Disciplinary Board Panel is a statutory body established under Section 15 of the Regulation to facilitate the appointment of members to form a disciplinary board to hear disciplinary cases concerning a REA.

⁹ The Buildings Energy Efficiency Appeal Board Panel is a statutory body established under Section 34 of the Ordinance. Its set up is to facilitate the appointment of members to form an appeal board to handle appeal filed by any person aggrieved by the Director's decision or direction in respect to the implementation of the Ordinance.

- (a) Stage 1 – for the provisions in relation to the inclusion of professional engineer in the energy discipline as one of the disciplines eligible for registration as REA to commence three months after gazettal of the amended Ordinance to facilitate the engineers’ early registration as REAs; and
- (b) Stage 2 – for the remaining provisions to commence 15 months after gazettal of the amended Ordinance to allow adequate time for the sectors to make necessary preparations.

ADVICE SOUGHT

16. Members are invited to offer comments on the Government’s legislative proposal to enhance the energy efficiency management regime of Hong Kong.

Environment and Ecology Bureau
Electrical and Mechanical Services Department
February 2025

**Types of buildings required for compliance with
the energy efficiency standards of building services installations
when newly constructed or carrying out major retrofitting works**

**Types of buildings that are currently covered by the Buildings Energy
Efficiency Ordinance**

1. Commercial building
2. A portion of composite building that is not for residential or industrial use
3. Hotel or guesthouse
4. Common area of a residential building
5. Common area of a portion of a composite building that is for residential or industrial use
6. Common area of an industrial building
7. Building that is occupied principally for education purpose
8. Building that is occupied principally as a community building including a community hall and social services centre and composite building occupied as two or more such places
9. Building that is occupied principally as a municipal services building including a market, cooked food centre, library, cultural centre and indoor games hall and composite building occupied as two or more such places
10. Building that is occupied principally for medical and health care services including a hospital, clinic and rehabilitation centre
11. Building that is owned by the Government and used principally for the accommodation of people during the performance of any function of the Government
12. Passenger terminal building of an airport
13. Railway station

Proposed additions

14. Building that is occupied principally as a data centre
15. Portion of an industrial building that is occupied principally as a data centre

Types of buildings required to conduct energy audit

Types of buildings that are currently covered by the Buildings Energy Efficiency Ordinance

1. Commercial building
2. A portion of a composite building that is for commercial use

Proposed additions

3. Building that is occupied principally for education purpose
4. Building that is occupied principally as a community building including a community hall and social services centre and composite building occupied as two or more such places
5. Building that is occupied principally as a municipal services building including a market, cooked food centre, library, cultural centre and indoor games hall and composite building occupied as two or more such places
6. Building that is occupied principally for medical and health care services including a hospital, clinic and rehabilitation centre
7. Building that is owned by the Government and used principally for the accommodation of people during the performance of any function of the Government
8. Passenger terminal building of an airport
9. Railway station
10. Building that is occupied principally as a data centre
11. Portion of an industrial building that is occupied principally as a data centre

**Major views received during consultation and
the Government's response**

<u>Major views</u>	<u>Government Response</u>
(a) Low cost-effectiveness for small and medium-sized buildings to carry out energy audits	• With the exception of data centres, small and medium-sized buildings with a gross floor area not exceeding 7 000 m ² are proposed to be exempted from conducting energy audits to balance the economic and regulatory benefits.
(b) Shortening the interval of energy audit may increase the operating costs, leading to rise in management fees and heavier economic burdens on the building owners	
(c) Energy audit reports may involve private and commercially sensitive data, leading to concerns about the disclosure of buildings' internal information	• The data to be disclosed only involves technical data related to energy efficiency. Sensitive information such as personal data or floor plans of buildings will not be disclosed. • EMSD will formulate a "new data disclosure form" setting out the types of technical data to be disclosed. The relevant sectors will be consulted when formulating and updating the data disclosure form.
(d) Professional engineers of the energy discipline may not be familiar with building services installations and the existing number of registered energy assessors (REA) is already sufficient	• EMSD will conduct interviews with applicants to ensure that they meet the conditions and eligibilities, including whether the applicants have practical experience in relation to buildings energy efficiency. • With the implementation of the amended Ordinance, the average number of buildings required to conduct energy audits every year will double. The inclusion of professional engineers of the energy discipline as one of the eligibilities for applying for registration as REA can smoothen the implementation of the Ordinance.