

By post and by email at olposurvey@eeb.gov.hk

11 September 2024

Miss LEUNG Cheuk Wan Irene
Environment and Ecology Bureau
33/F, Revenue Tower
5 Gloucester Road
Wan Chai, Hong Kong

Dear Miss LEUNG

**Views from The Hong Kong Institution of Engineers
regarding the Proposal to Regulate and Phase Down
Hydrofluorocarbons for Implementation of the
Kigali Amendment to the Montreal Protocol**

On behalf of the Institution, I am pleased to present to you our views and suggestions as set out in the enclosure for your consideration on the captioned subject.

The Institution welcomes the opportunity to work with the Government and offer our expertise and experience on the area of concern if and when it is needed.

Thank you.

Yours sincerely



Ir Peter SI
Director

AS/PS/SS

Enclosure

Views from The Hong Kong Institution of Engineers on the Proposal to Regulate and Phase Down Hydrofluorocarbons for Implementation of the Kigali Amendment to the Montreal Protocol

As the Environment and Ecology Bureau (EEB) puts forward the proposal to combat climate change by formulating effective policies and measures to regulate hydrofluorocarbons (HFCs), encourage the adoption of low-global warming potential (GWP) refrigerants and equipment, and ensure a smooth transition towards sustainable practices, The Hong Kong Institution of Engineers (HKIE) would like to express its views on the proposal. As a professional body committed to promoting engineering excellence and sustainability, the HKIE fully supports the Government's effort in this regard, yet we believe it is crucial to consider the potential effects and impacts of these measures on various aspects of the industry.

2. We acknowledge that there are currently limited suppliers offering low-GWP alternatives and technologies for chillers in the market. This constraint may pose challenges in transitioning to low-GWP refrigerants. As such, we appreciate and support the adoption of GWP750 for water cooler chillers in the revised proposal as an approach that ensures a smooth transition without causing disruption to the industry.

3. The challenge with alternative chillers with low-GWP refrigerants should also be acknowledged. Some chiller manufacturers have developed alternative chillers using low-GWP refrigerants such as R-514A, R-1233zd(E), R-1234ze(E), and R-513A to replace high-GWP refrigerants like R-410A and R-134a. While these HFO chillers offer lower GWP, they also present challenges in terms of overall size and coefficient of performance (COP). Due to the low-pressure characteristics of some HFO chillers, chillers of larger size may be required to meet the Building Energy Code (BEC) COP requirement. This could pose difficulties in using low pressure and low-GWP refrigerant chillers in upcoming projects, particularly in chiller replacement projects with limited space.

4. We recommend the EEB to communicate clearly the effective dates for enforcing regulatory controls and its grace period for restricted equipment. Nonetheless, exemption for regulatory control on project works in old buildings that already commenced should be considered due to the space limitation in old buildings which render accommodation of large size chillers impossible. We propose that the exemption could be based on the date of tender invitation preceding the effective date of enforcement. Additionally, the registration of restricted equipment could be extended to three months from the completion of installation. For new development projects, practical completion as issued by the architect or project administrator should serve as the reference point. In the case of replacement works, successful testing and commissioning and handover should be the reference point for determining the registration deadline.

5. To enhance clarity of the demarcation for restricted equipment, we suggest renaming room air-conditioners with cooling capacities below 7.5kW as “single split type or window type.” This clear demarcation will facilitate better understanding and compliance.

6. Regarding concerns on the safe handling of refrigerants and the mentioned occupational risks including flammability, toxicity, and high pressure, we support the implementation of control mechanisms for these risks based on the properties of the substances. However, we further recommend aligning the classification and practices with international standards and codes, such as those established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and ensuring consistency with relevant local ordinances and regulations. We would like to emphasise that the toxicity classification class A and B (ISO 817 / ASHRAE) is intended for safety provision in plant rooms, as stated in ASHRAE 15. It is important to note that ASHRAE 15 and ASHRAE 34 are sister standards that should be used together with their companion standard, Designation and Safety Classification of Refrigerants (ASHRAE 15, Forward). Referring to ASHRAE 6.2, the safety group classification, in accordance with Section 6.1, should be used in conjunction with other relevant safety standards, such as ASHRAE Standard 15.

7. In addition, we refer to the consultation in May 2024 for the definition of High Operating Pressure Refrigerants from the Electrical and Mechanical Services Department (EMSD). The definition or classification should also align with internationally recognised codes and regulations to ensure consistency. We suggest including Class A in Group II or using the toxic classification in Table 4 of ASHRAE 34 as a wholistic safety approach. The EEB is also recommended to consider the following translations for clarity:

- Toxicity (毒性)
- Higher Toxicity (毒性較高)
- Lower Toxicity (毒性較低)
- Toxic (有毒)
- Highly Toxic (高毒性)

8. The HKIE appreciates the EEB’s dedication to addressing climate change through the regulation and phase-down of HFCs. We believe that by considering the points raised above, we can ensure a smoother transition towards sustainable and environmentally friendly practices. We remain committed to collaborating with the Government and relevant stakeholders to achieve our climate goals.