

Energy Efficiency Retrofitting of Existing Buildings for Carbon Neutrality in Hong Kong: Policy Recommendations and Guidelines for Overcoming the Challenges

Abstract

In response to combating climate change, the Chief Executive announced in the 2020 Policy Address that Hong Kong will strive to achieve carbon neutrality before 2050. To achieve this carbon neutrality goal, it is important to retrofit existing buildings for energy efficiency, since they account for over 90% of electricity consumption and 60% of carbon emissions in Hong Kong. Most Hong Kong buildings were built over 30 years ago and embody the lower energy efficiency standards of the times in which they were built. Without a successful urgent, large-scale retrofitting and transformation of these “substandard” buildings, it would be difficult to achieve the goal of carbon neutrality before 2050. There is a need to act now. However large-scale retrofitting of the Hong Kong existing buildings for energy efficiency is never an easy task. To be successful, the Government and other stakeholders need to “fully” understand and overcome the challenges involved.

The research team will collaborate with the Hong Kong Green Building Council (HKGBC), the industry-led body promoting awareness and solutions, to comprehensively investigate the key technical, financial, institutional, social, environmental, and regulatory challenges facing existing building energy efficiency retrofitting (EBEER) in Hong Kong. And to provide policy recommendations and guidelines for overcoming these challenges to support wider EBEER in Hong Kong.

The study will adopt mixed research methods, namely literature review; multiple case studies with a combination of interviews, “hard” archival data, and fuzzy Delphi survey; and focus group meetings. The literature review will study the (1) state-of-the-art development of global EBEER research in terms of the research trends, market (cross-country) trends, and retrofitting objectives, technologies, instruments, and strategies; (2) status quo of EBEER policies, guidelines, regulations, laws, and standards in different countries/jurisdictions; and (3) technical, financial, institutional, social, environmental, and regulatory challenges for EBEER. Multiple case studies with a combination of semi-structured interviews, hard archival data analysis, and fuzzy Delphi survey will be conducted to verify and prioritize the technical, financial, institutional, social, environmental, and regulatory challenges facing EBEER in Hong Kong. Based on the findings, an innovative EBEER guide and policy recommendation packages that address the challenges will be formulated. The proposed EBEER guide, policy recommendation packages, and research findings will be validated through focus group meetings.

The research findings are anticipated to help the Government formulate and evaluate EBEER policies and guides. They will help to promote wider EBEER towards reaching Hong Kong’s net-zero target by 2050.