

ASEAN Capacity Building Training on Retro-commissioning

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Introduction

Ladies and gentlemen, distinguished speakers, good morning, and Happy Chinese New Year. Welcome to the ASEAN Capacity Building Training on Retro-commissioning. It is an honour for me to deliver the opening remarks.

Firstly, I would like to express my heartfelt gratitude to all the speakers and participants who have joined us for this training. Your presence is greatly valued as we embark on the first-ever energy-related ASEAN Project in Hong Kong, China. This training will provide valuable insights for all ASEAN member states on the implementation of Retro-commissioning (RCx in short).

I also take this opportunity to extend my warm greetings to you for the Chinese New Year.

Chinese New Year custom "Cleansing the House".

In our Chinese culture, the “Loong” represents the Chinese zodiac animal for this year. The Chinese zodiac, known as Shengxiao, follows a 12-year cycle, with each year associated with an animal. Each animal carries specific characteristics, which is believed to be able to influence the year. The “Loong”¹ - people usually call it the dragon - symbolises nobility, good fortune and vitality. I hope this will be a year of auspicious opportunities and dragon-sized blessings for us.

Talking about the Chinese New Year, I would like to introduce a traditional Chinese New Year custom called "Cleansing the House". In our cultural tradition, it is customary to thoroughly clean our homes before the the Chinese New Year Day, ensuring that we can embrace the New Year with fresh and well-maintained living spaces. The act of "Cleansing the House" symbolizes the removal of old and stubborn dirt, creating a fresh living environment.

This concept aligns with the purpose of RCx, which involves a comprehensive

¹ <https://www.info.gov.hk/gia/general/202402/10/P2024021000519.htm?fontSize=1>

examination of building facilities to identify and eliminate hidden defects, aiming to restore them to their original and optimal conditions.

Introduction of EMSD

I am from the Electrical and Mechanical Services Department (or EMSD in short) of Hong Kong, China. Let me first introduce the EMSD to you.

We are responsible for ensuring the safe operation of various installations, including electricity and gas systems, railways, lifts, escalators, amusement rides, and more. In addition to our regulatory functions, we actively promote energy efficiency and conservation through various programs and initiatives, such as RCx.

Introduction of RCx and Benefits

One might wonder, "What exactly is RCx and what benefits does it bring?"

Retro-commissioning, or RCx in short, is a systematic and cost-effective process of regularly assessing the energy performance and other aspects of existing buildings. The main objective of RCx is to improve the overall functionality, energy efficiency, and occupant comfort of buildings. By implementing RCx, building owners can optimize operational efficiency, reduce energy consumption, and achieve significant cost savings. This process also leads to the creation of a more comfortable and productive indoor environment for occupants.

Furthermore, RCx plays a vital role in promoting environmental sustainability. It helps reduce greenhouse gas emissions, making a positive contribution to global efforts to combat climate change. Additionally, RCx aligns with water conservation initiatives by promoting the efficient use of this valuable resource.

Five treats of RCx in HKC

I would like to introduce to you another tradition of the Chinese New Year: the Chinese candy box known as the "cuán hé". In this delightful custom, Chinese families fill bright red and gold candy boxes with a variety of specially selected candies, each representing wealth and good fortune. These delicacies symbolize wealth, happiness and good fortune. Today, I am pleased to share with you five blissful treats brought to us from RCx.

A – Achievement

The first treat is achievement.

Building Energy Consumption and Energy Efficiency

In Hong Kong, China, over 50% of our carbon emissions are attributable to generating electricity for buildings. In line with our commitment to carbon neutrality, our goal is to improve the overall energy performance of government buildings and infrastructure by more than 6% by 2024-25. To achieve this goal, several initiatives and collaborations have been undertaken in Hong Kong, including the implementation of Retro-commissioning (RCx).

Building services installations in new buildings are tested and commissioned satisfactorily before putting into operation, but they may not perform as expected after years of extended use. Reasons such as deviation between design and actual operation, change of usage, behavioural change of occupants, etc can contribute to this discrepancy.

Given the high building density in Hong Kong, Retro-commissioning proves to be invaluable in identifying energy-saving potential across a large number of buildings.

By conducting RCx assessments, building owners and operators can uncover opportunities to optimize energy performance

S – Steering

The second treat is the steering opportunity. EMSD plays a steering role in developing RCx in Hong Kong.

Technical Guide

Firstly, we have developed comprehensive Technical Guidelines on RCx specifically for building owners and practitioners. The guidelines serve as an informative resource, providing practical advice, step-by-step guidance and best practices on implementing RCx measures and optimizing the energy performance of buildings.

Lead-by-example: Pilot Study

EMSD has taken an active approach to lead by example in promoting energy efficiency. To initiate this effort, we conducted a pilot study of Retro-commissioning (RCx) for various government premises from 2016 to 2017.

The study was completed with 96 Energy Saving Opportunities (ESOs) identified. This

initiative resulted in achieving 5% energy savings on average across these buildings.

The payback period for these ESOs ranged from several months to a few years, with an average of about 3 years.

RCx Programme for Government Buildings

In 2018, EMSD embarked on a 7-year RCx programme from 2019-20 to 2025-26. As of 2024, more than 200 government buildings have commenced to conduct RCx, with ESO already implemented in over 80 buildings.

Throughout the program, we have gained extensive experience and knowledge of RCx. Actually, we have also encountered challenges that hindered the progress of RCx in some buildings. These difficulties arise when buildings are undergoing demolition or redevelopment plans, undergoing renovation works.

Drawing from our experience, we recommended early engagement with the building representatives to ensure a thorough understanding of the building operational conditions when planning the RCx program.

Our speakers will later provide comprehensive details about the RCx program during the morning sharing session.

E – Engagement

The third treat is engagement. RCx engages the collaborative effort of experts, professionals and stakeholders to move towards the goal of carbon neutrality. EMSD and other parties have implemented various measures to encourage the public and trade to conduct RCx.

RCx Competitions

To promote RCx, EMSD convened RCx Competitions in 2019 and 2022. In particular, the Wise Save @ RCx Competition in 2022 also promoted the adoption of innovation and technology (I&T) in RCx projects. Through these competitions, we recognize outstanding achievements in different sectors in implementing RCx projects to achieve carbon neutrality. These activities create a positive environment for building owners to engage in RCx practices, offering incentives and recognition for their efforts in achieving energy savings. In this training, we invited the winners of the RCx Competition to share their experiences.

Incentives for promoting RCx

To provide financial assistance and encourage wider adoption of RCx, utility companies in Hong Kong, namely CLP Power Hong Kong Limited (CLP) and Hong Kong Electric Company (HKE), actively contribute to the promotion of energy efficiency by offering a range of incentive programs tailored to encourage the implementation of RCx measures. These programs extend beyond financial incentives, as they also provide valuable technical support and resources to building owners. By fostering collaboration between the Government and utility companies, a comprehensive support system is created, enabling building owners and cultivating a culture of energy efficiency.

A – Alliance

The fourth treat is alliance. Riding on sharing our RCx knowledge, we formed alliances and partners in the Greater Bay Area and The Asia-Pacific Economic Cooperation (APEC) member economies.

Memorandum of co-operation on Retro-commissioning of Buildings in Guangdong-Hong Kong-Macao Greater Bay Area

Collaboration with the Hong Kong Green Building Council (HKGBC) has been instrumental in promoting RCx. In 2018, the EMSD, HKGBC and other five institutes signed a Memorandum of Cooperation (MoC) especially focused on RCx, highlighting their mutual commitment to promoting energy efficiency in buildings. The MOC aimed to promote further collaboration between various organisations in the Greater Bay Area and other Mainland cities to adopt RCx as a new platform for achieving building energy efficiency through the sharing of knowledge, experience and training. We believe that this arrangement can be promoted to other cities to achieve greater synergy in energy saving and emission reduction.

Promoting RCx in APEC

Moreover, Hong Kong, China is actively engaged in international partnerships aimed at advancing RCx. We assume the pivotal role of a "super-connector," effectively linking our local RCx expertise with global collaborations. APEC has duly acknowledged the significance of RCx and its positive impact on energy efficiency. Hong Kong, China has been actively participating in APEC's endeavours, exchanging experience and knowledge with other economies to promote RCx as a cost-effective approach for achieving energy savings. This international cooperation facilitates the exchange of

innovative ideas and best practices, thereby further enhancing the implementation of RCx in Hong Kong.

N – New Technology

The fifth and the last treat is application of new technology in the RCx processes.

Emerging I&T aim at RCx

Emerging Information and Technology (I&T) solutions present exciting opportunities for RCx, aligning with the ongoing digitalization and decarbonization efforts, and offering promising breakthroughs in our journey towards reducing carbon emissions.

The integration of emerging I&T solutions enhances data analysis capabilities, facilitates real-time monitoring and diagnostics, enables automated control systems, supports predictive maintenance, and promotes the integration of renewable energy sources. These technologies provide valuable insights, optimize energy usage, and drive continuous improvement in building performance, leading to greater energy savings, reduced environmental impact, and enhanced occupant comfort.

By leveraging emerging I&T solutions, RCx practitioners can access a wealth of data and utilize advanced algorithms to analyze building systems, identify patterns, and detect inefficiencies.

Conclusion

To conclude, the five treats from RCx to Hong Kong, China are achievement, steering, engagement, alliance and new technology, or using their capital letters, A-S-E-A-N in short. I hope this ASEAN message is one of the key messages that you can take away from the training.

During the upcoming 2-day capacity building training, we have invited speakers and experts from various sectors, including government officials, professional associations, property representatives from different sectors and winners of the RCx competition to share their insights.

I am confident that this ASEAN Capacity Building Training on Retro-commissioning will serve as an excellent platform for knowledge sharing, best practice exchanges, and capacity building among the ASEAN member states. I encourage all participants to actively engage in the training sessions, ask questions, and share your experience. Last,

but not the least, you should spare some time to go around Hong Kong.

Once again, I express my gratitude for your presence, and I extend my best wishes to all of you for a productive and successful training. Have a nice trip in Hong Kong and back home.