

**Joint Meetings for Expert Group on Energy Efficiency and Conversation
(EGEE&C) 53 and Expert Group on New and Renewable Energy Technologies
(EGNRET) 52 of Asia Pacific Economic Cooperation (APEC) in
Hong Kong Special Administrative Region (HKSAR)**

Welcome Speech by Ir Alfred Sit JP, Director of Electrical & Mechanical Services

Good Morning, Dr. Li Pengcheng (EGEE&C) and Dr. Tom Lee (EGNRET), honourable guests, distinguished representatives and experts from APEC member economies, ladies and gentlemen! I would like to express my warmest welcome to all of you to Hong Kong for the Joint Meeting of EGEE&C 53 and EGNRET 52. Hong Kong has been an APEC member economy since 1991 and it's the first time we host this very meaningful joint meeting event to show our active participation on APEC's activities.

I understand that you all have a very busy meeting schedule. However, please do take a chance to walk around Tsim Sha Tsui in these days before and to enjoy the international food and harbour-front environment of our Victoria Harbour. You can easily get to shopping malls by well-established pedestrian and transportation network nearby. Our transportation network not only facilities people to travel around the city, but also enable Hong Kong as the transportation hub of the region. Apart from the International Airport, we have two mega-scale infrastructures recently commissioned – one is the “Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)” which linked to mainland's 25,000 kilometre national high-speed rail network. The other one is the “Hong Kong–Zhuhai–Macao Bridge” which is the world's longest bridge-cum-tunnel sea crossing structure (nearly 30 km) linked Hong Kong to the Mainland and Macau.

Since 1960s, the world urbanization rate has been increasing, reaching about 54.8% in 2017. Following fast development over past decades, Hong Kong has now become a fully-urbanized city. In APEC, most economies will reach urbanization rates above 65% by 2040.

The rapid urbanization process also happened in HK? In the 1970s, Hong Kong's population was around 3.9 million with nearly ten thousands (10,000) buildings. In 2018, Hong Kong's population is almost doubled, reaching 7.4 million people (1.9 times of 1970s). The number of building has increased by 5 folds (of 1970s) to about 50,000, including over 1,300 high-rise buildings with height over 100 metres. As urbanization

process creates enormous energy demands, more energy-efficient urban design strategies are essential.

Hong Kong is now one of the most densely populated cities, each person occupies around 152m² only. Hong Kong's sub-tropical climate with high temperature and humidity leading to high-demand of air-conditioning for buildings, which resulted in high electricity consumption. Buildings in Hong Kong consume over 90% of the total electricity and over 60% of total energy of the city. Promoting energy efficiency of buildings has accorded top priority in Hong Kong.

Since 2006, Hong Kong's building stock has significantly increased by over 20% to cope with population and economic growth. While the electricity per capita from 2006 to 2016 only increased by 2% through effective implementation of energy efficiency measures over the past.

To support the energy intensity reduction target set by the APEC EWG, we published two major plans in 2015 and 2017 respectively to show our commitment to environmental protection and demonstrate the progressiveness of Hong Kong in tackling the global problem of climate change. The "Energy Saving Plan for Hong Kong's Built Environment 2015~2025+" launched in 2015 set a new energy intensity reduction target of 40% by 2025, using 2005 as the base. In 2017, the Hong Kong Government also launched the "Hong Kong's Climate Action Plan 2030+" which outlined the Government's longer-term actions to combat climate change. The Government has set a target to reduce carbon intensity by 65% to 70% by 2030, using 2005 as the base.

To achieve the ambitious reduction targets on energy and carbon intensities, Hong Kong makes use of a three-pronged strategy, they are "Lead, Pull and Push". In brief, Hong Kong government takes lead by examples, encourages public engagement and incentive; as well as legislations and enforcement. We take lead to construct the first-of-its-kind District Cooling System (DCS) in Hong Kong at our Kai Tak Development Area to promote the use of energy-efficient air-conditioning systems. The Government's effort alone is definitely far from adequate. Hence, we engaged different sectors of the community through the Energy Saving for All campaign under the 4T partnership framework including set Target and Timeline, work Together and Transparency on energy saving achievements. On the strategy of Legislation and Enforcement, the Government has implemented two energy efficiency ordinances, focusing on "plug-in"

electrical appliances and “built-in” central building services installations.

To keep abreast of worldwide developments in energy efficiency technologies, we have actively participated, shared experience and information in different international organizations, including APEC events. In May last year, we hosted the APEC 55th Energy Working Group Meeting. Following this joint APEC expert group meeting, we will host another APEC expert group on energy data analysis (EGEDA) in the next year.

Over the past years, we have learnt much from different APEC regions such as Singapore’s BCA Green Marks, Energy Labelling System in Vietnam, Indonesia, Malaysia as well as the energy plans from Philippines and other APEC Regions. Such exchange of global experience enlighten us to formulate our energy efficiency policies. Please accept our gratitude to you all who had shared with us your valuable experience or provided supports to us in the past.

Upon formulating our energy efficiency policies by learning from other APEC economies, our building sector has contributed over 70% of our energy saving amount. Through continuing efforts in energy efficiency and conservation in building sector, the overall Hong Kong energy intensity has reduced to 28% from 2005 to 2016.

To meet our energy intensity reduction target of 40% by 2025 from 2005, we will regularly tighten our energy efficiency standards of Building Energy Code and Mandatory Energy Labelling Scheme with a view to catching up with technological advancements and market changes for further energy saving. We also set target to reduce electricity consumption in government buildings.

Green building recognition implemented by Hong Kong Green Building Council is one of energy saving tools. All new government buildings shall achieve at least the second highest grade under the Green Building Certificate System in Hong Kong.

To tackle Hong Kong’s sub-tropical climate leading to high demand in air conditioning, our first district cooling system (DCS) in the Kai Tak Development Area was commissioned in 2013. DCS could save up to 35% of electricity as compared with traditional air-cooled systems. We are now planning new district cooling systems in all our sustainable new development areas.

As our urbanization started in 1970s, now about 65% of Hong Kong's buildings are over 20 years old. Over the past years, we pay much effort on replacement and retrofitting of aged facilities to achieve the energy saving target. To further enhance the energy performance on aged building's facilities with relatively shorten payback period, last year, we launched Retro-commissioning on existing buildings with a view to identifying operational improvements for enhancing building energy performance.

We have established a new InnoOffice and E&M-InnoPortal to engage and match startups, universities and government departments to co-innovate and co-develop energy-saving technological solutions. Our goal is to promote and deploy these solutions together with Internet-of-Things, big data and artificial intelligence for greater energy efficiency in government and eventually throughout HK.

On renewable energy, Hong Kong does not have favourable conditions for large-scale commercial RE generation due to limited land and hilly terrain.

Although HK has modest RE potential, over the past years Hong Kong still endeavours to develop renewable energy, such as solar energy, waste-to-energy and wind power. Let me show you some local examples.

On solar energy, we are exploring floating photovoltaic (PV) systems on our reservoirs. The first pilot system was successfully installed at the Shek Pik Reservoir in Feb 2017. Apart from harvesting RE from the sun, major benefit of the system is saving precious land resources. Another example is the solar farm at the Siu Ho Wan Sewage Treatment Works, which can generate about 1.1 million kilowatt-hours of electricity annually.

On the private sector, we have created favourable conditions to encourage the private sector adopting RE through feed-in Tariff and RE certificates. Feed-in tariff of \$5/kWh for 10kW PV system to below provides sufficient incentive to encourage the community to invest distributed RE as the payback period of their RE investment is just around ten years. Whereas, through RE Certificates, the community can also show its support on RE

Early this month, we launched the 'Solar Harvest' is a solar energy support scheme for eligible schools and welfare Non-Government organizations (NGOs). The scheme will

encourage students and young people to get a better understanding of RE, and to “cultivate” and “harvest” electricity together.

Another potential aspect on renewable energy development is the Waste-to-energy, Hong Kong is already on a committed path for the long-term development. T. Park is a representative example to turn sludge treatment to energy. By adopting advanced technology and it can handle a maximum of 2,000 tonnes of sludge per day, producing at most 2 mega-watt (MW) of surplus electricity for 4,000 households.

Hong Kong has three strategic landfills (NENT, SENT, WENT) for handling municipal solid wastes. Decomposition of organic portions of the solid wastes will produce landfill gas, such as methane for generating electricity. Besides, the treated landfill gas is blended with town gas for injection to the supply grid for the public. We will continue to harness waste-to-energy as a promising source of renewable energy for Hong Kong.

Apart from the Government’s commitment, the power companies take an initiative to install the Hong Kong first wind turbine at Lamma Island with a rated power of 800kW in 2006. There are two possible off-shore sites suitable to develop wind power on a commercial scale, at the South West of Lamma Island and South East of Ninepin. We will keep abreast of worldwide developments in evolving wind power technologies and regional developments, and keep our options open for the future.

In recognition of our efforts and achievements in energy efficiency and renewable energy, we have an honour to receive three regional awards from the Association of Energy Engineers (AEE) in the United States over the past two years.

In order to meet the goal of the APEC, we trust that collaboration with APEC economies is a crucial factor. Through the collaboration, we can learn more and make contributions to meet our goal in energy saving and adopting Renewable Energy.

So, leaders and gentlemen, let us work together for a better and greener APEC.

Thank you!

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