

**The Hong Kong Air Conditioning and Refrigeration Association Limited (ACRA)**  
**56<sup>th</sup> Anniversary Dinner**

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

1. Good evening **CF** (President of ACRA), **Franklin** (Chairman of ACRA and Organizing Committee), friends of ACRA, distinguished guests, Ladies and Gentlemen.
2. It is my great honour to be here, for sharing moment of happiness with fellows and friends from the ACRA and trades of air conditioning and refrigeration.

Small Experiment

3. Before I start, would **CF** please do me a favor to turn off the air-conditioning and don't turn it back on until end of my speech. **CF** and guests, I hope all of you won't mind, my speech will be just less than an hour.
4. Just kidding. Tonight, the outdoor temperature is around 20 degree Celsius. It is cool outside but we have about 700 fellows and friends in this ballroom. Heat generated from our bodies would make it unavoidable to use air-conditioning. Hot is uncomfortable. It reduces your concentration and may even suppress your appetite tonight. Air-conditioning was a luxury in the past but it is a fundamental component of our modern life. At home or in office, working or shopping, we all enjoy the comfort of air-conditioning everywhere and all year round. However, air-conditioning comes with a hefty price tag.
5. Since the industrial revolution, the use of fossil fuels and the consequent emission of greenhouse gases has been a significant driver of global warming and climate change. From the perspective of electricity consumption, air-conditioning and refrigeration systems, in total account for about 37% of Hong Kong's electricity consumption by end-uses, serving a wide range of services in residential, commercial and industrial segments including manufacturing process, fresh food delivery and controlled indoor environment.
6. Air-conditioning is energy-intensive. We need to strike a balance between energy use and the desirable comfort level, by leveraging new technologies and innovative designs to achieve higher efficiencies in air conditioning. Turning off the air conditioning systems is definitely not the best solution to achieve energy saving.

## Global Climate Change

7. This summer, Hong Kong has been hit by five tropical cyclones with Signal No. 8 or above. Interesting enough and really unfortunately to someone who long for an extra holiday during typhoon, three of the five typhoons were on Sunday. It is foreseeable that global climate change will bring more extreme weather to the world and of course Hong Kong is not possible to stay aloof or immune from it. In fact, Hong Kong has experienced a significant warming trend beginning from the 19th century as a result of increasing greenhouse gas emissions.

8. To mitigate climate change and to make Hong Kong be a more sustainable city, the Government published the *Energy Saving Plan* in May 2015 and *Hong Kong's Climate Action Plan 2030+* in January 2017. These two strategic guides explicitly set Hong Kong's target in combating climate change – first, to reduce energy intensity by 40% by 2025; and second, to reduce carbon intensity by 65% to 70% by 2030, both using 2005 as the base year. In order to demonstrate the Government's determination to materialize these ambitious targets, the Chief Executive reiterated in her *2017 Policy Address* that promoting territory-wide energy saving is one of the multi-pronged approach adopted to combat climate change. The collaboration from the Government and trades through technological advancement, enactment of necessary legislation and social mobilization are perhaps the only keys to make the energy saving journey in Hong Kong a success.

## Roles of Regulator, Services Provider, Facilitator and Promoter

9. As you all may know, EMSD plays a dual role in Hong Kong – not only act as a regulator to regulate E & M safety and promote energy efficiency and conservation, but also a provider of E&M engineering services to other government departments and public sector organizations. Being a regulator, EMSD developed *Building Energy Code*, which set out standards in respect of the energy efficiency requirements governing the building services installations defined in the Ordinance. On the other hand, being a services provider, apart from providing the services by our own team, EMSD also promoted and worked with the trades to facilitate entry of more energy efficient products to local market through application of higher energy performance targets, like adopting higher coefficient of performance (COP) chiller plant during upgrading of aged air-conditioning equipment in government premises. It is also the duty of EMSD to facilitate local start-ups to develop new energy saving technology and innovative designs applicable to Hong Kong.

## Use of Innovative Initiatives and New Technology

10. To keep the momentum ahead with energy saving at full stream, the Government has been actively promoting the adoption of innovative initiatives and new technologies in air-conditioning and refrigeration systems with a view to achieving energy saving. Our considerations are all-round in refrigeration side, water side as well as air side, such as High Efficiency Variable Speed Chiller with higher COP, Variable Speed Chilled Water and Condenser Water Pumps with higher IE Class motor, Optimization Chiller Plant Control, EC Fans for AHU and ventilation system, Scale Prevention Technologies for chiller condenser, DC Fan Coil Unit and Inverter Type Window Room Cooler. These energy saving technologies not only cover the major capital replacement of whole system, but also involve the minor improvement of equipment or component.

11. You may note that quite a lot of these energy saving measures have already been installed in government premises including EMSD Headquarters with remarkable results in energy saving. Nevertheless, the Government will continue to take the lead to facilitate the application of these energy saving measures in more government premises, while at the same time will conduct more pilot projects to identify, measure and verify new technologies which can contribute further energy saving in the air-conditioning and refrigeration systems, as well as to take actions to promote the awareness and acceptance of the trade on these new technologies. So, ladies and gentlemen, if you know any new technology which can help Hong Kong in our energy saving journey and plan to put it to Hong Kong market, please let us know and we are very pleased to work with you to facilitate their trial in our government projects.

12. In response to Government's investment in amount of \$2 billion as Innovation and Technology Venture Fund provided to local technology start-ups as mentioned in **2017 Policy Address**, as said, EMSD being a promoter, will also offer the professional advice, support, measurement and validation of these new and innovative ideas and pilot projects. Besides, we have planned to offer our Headquarters building at Kowloon Bay as a trial site for all local technology start-ups to test and verify their new technology and products which can promote E & M safety and energy efficiency and conservation. EMSD will connect and collaborate with all local start-ups in development of new technology, and as a professional engineering government department, we stand ready to help the local start-ups to measure and ascertain the effectiveness the new technology and products developed by the local start-up impartially and as their partner, to promote with them those new technologies which have been proven effective in our trial. For example, EMSD recently collaborates with the start-ups associated with City University of Hong Kong in application of their Smart Thermostat for conventional Fan Coil Units in EMSD Headquarters building. I

believe that, given time, more and more local start-ups are willing to put greater efforts into innovation and new technology development in the air-conditioning and refrigeration trade.

#### Future Development of Energy Savings in Air Conditioning & Refrigerant Systems

13. In Hong Kong, more than 50% of commercial and private office buildings are aged over 25 years and most of these buildings were built with less concern of energy saving measures comparative to recent years. With long time operation and certain extend of usage change in buildings, energy efficiency of air-conditioning and refrigerant systems may not be as good as that in their newly installed stage.

14. In view of large portion of energy consumption in these aged buildings, implementation of retro-commissioning is one of the key initiatives to perform energy saving effectively. Energy consumption of air-conditioning and refrigerant systems are usually more than 50% of that in a commercial building, therefore retro-commissioning for such systems definitely plays the key role to save energy. According to the result of retro-commissioning works conducted in 6 government buildings, the average energy saving is about 5% of total building energy consumption. In which, energy saving in air-conditioning system has contributed more than 50% of total. Obviously, it is worth to invest Energy Saving Opportunities (ESOs) in air-conditioning system and it should subsequently create a lot of business opportunities in the trades.

15. Taking the lead by the Government, the Technical Guidelines on Retro-commissioning has been developed in this year with a view to driving wider spread of Energy Saving Opportunities (ESOs) in existing buildings. During the process, thanks to the valuable inputs from the ACRA being one of the members of the Working Group for the Building Retro-commissioning.

#### Closing with Thanks

16. As one of the largest trade associations having over 170 members in Hong Kong, ACRA not only provides an interactive platform for ideas exchange, but also works hand in hand with the Government to motivate the sustainable development of industry.

17. ACRA is one of the members of the Taskforces of the ***Building Energy Code***. With the support and professional advices given by ACRA, the Code was fully implemented in September 2012. We are looking for the continuous support from ACRA as the 2nd comprehensive review for the ***Building Energy Code (2018 edition)*** has just been commenced. The professional advices from ACRA on uplifting energy

efficient requirements of air-conditioning and refrigeration systems will be a key factor for successfully completion of the review and further launching of the Code by 2018.

18. I would like to take this opportunity to express our sincere thanks to ACRA and its members, in particular of Mr. Dave Chan, Mr. Franklin Lau, Mr Ringo Shea and Mr. Kelvin Tang for the participation and contribution in the Building Energy Code Taskforce and Retro-commissioning Working Group, collaboration with concerned stakeholders in preparing and implementation of the relevant Codes of Practice and Technical Guidelines. Your unfailing support is essential in making Hong Kong to reach the milestones of energy saving.

19. Tremendous effort has been spent by air-conditioning and refrigeration trades to reduce energy consumption in the past. With technology advancement, we believe that rooms are always available for further improvement on the use of energy. I am looking forward to continuously strengthening our connection and collaboration with ACRA and all major stakeholders of the air-conditioning and refrigeration trade to foster a more sustainable environment for our future generations. I also look forward to working with you all in facilitating and promoting more new and innovative technologies to Hong Kong.

20. Thank you very much for your attention. Bon appetite. .

27 November 2017