

# 立法會 *Legislative Council*

LC Paper No. CB(1)1083/18-19(04)

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## **Panel on Environmental Affairs**

**Meeting on 27 May 2019**

### **Updated background brief on promotion of energy efficiency and conservation and renewable energy in Hong Kong prepared by the Legislative Council Secretariat**

#### **Purpose**

This paper provides updated background information on the promotion of energy efficiency and conservation ("EE&C") and renewable energy ("RE") in Hong Kong. It also gives a brief account of the major views and concerns expressed by Members when related issues were discussed by the relevant committees of the Legislative Council.

#### **Background**

2. On 14 May 2015, the Administration published the Energy Saving Plan for Hong Kong's Built Environment 2015~2025+, which sets out the target to reduce Hong Kong's energy intensity by 40% by 2025 as compared to 2005. Pursuant to the adoption of the Paris Agreement, a legally binding global deal to combat climate change, by 195 countries including China in December 2015,<sup>1</sup> Hong Kong (as part of China) needs to draw up its own long-term decarbonization strategies up to 2050 by 2020. Meanwhile, the Administration announced in the Hong Kong's Climate Action Plan 2030+ ("the Action Plan") published in January 2017 the carbon intensity reduction target for 2030, i.e. to reduce Hong Kong's carbon intensity by 65% to 70% by 2030 compared with the 2005 level.

#### Energy efficiency and conservation

3. The Administration has set a target to reduce electricity consumption in government buildings by 5% from 2015-2016 to 2019-2020, using comparable operating conditions in 2013-2014 as the base. In this connection, the Government has completed energy audits for

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<sup>1</sup> The Paris Agreement came into effect in November 2016.

about 340 major government buildings (as at April 2019) and earmarked some \$900 million to implement energy saving projects progressively in various government departments. These projects include retrofitting more energy-efficient lighting and control systems, light emitting diode lighting and floodlights, and more energy-efficient air-conditioning and management systems, etc.

4. The Government has also been conducting retro-commissioning in government buildings and promoting such measure to the private sector, tightening the statutory requirements on building energy efficiency (including reviewing the Building Energy Code once every three years),<sup>2</sup> implementing the district cooling system at the Kai Tak Development in phases for full commissioning by 2025 and considering the provision of such systems in new development areas.

### Renewable energy

5. As stated in the Action Plan, the Administration has estimated that Hong Kong has about 3% to 4% of realizable RE potential arising from wind, solar and waste-to-energy that can be exploited between early 2017 and 2030, and that about 1% to 1.5% of Hong Kong's total electricity need can be powered by solar by 2030.

6. As electricity generation accounts for about two-thirds of Hong Kong's carbon emissions, the Administration considers that the most important vehicle to reduce carbon emissions will be changing local fuel mix for electricity generation. To achieve the carbon reduction target for 2030, the Administration will replace the coal-fired generating plants due to retire gradually with more natural gas generation. However, if a more aggressive carbon reduction target is to be adopted beyond 2030, it will be necessary to significantly increase the proportion of zero-carbon energy in the overall fuel mix for electricity generation. In this connection, as announced in the 2018 Policy Address, the Administration will continue to take the lead to develop RE in a systematic manner.

7. Currently, the Administration applies RE based on mature and commercially available technologies with the public sector taking the lead, and creates the conditions to facilitate the private sector to adopt RE. Examples of RE projects initiated by the Administration include the solar farm at Siu Ho Wan Sewage Treatment Plant, the hydropower

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<sup>2</sup> The Building Energy Code sets out the technical guidance and details in respect of the minimum energy efficiency requirements governing the building services installations defined in the Buildings Energy Efficiency Ordinance (Cap. 610). Building services installations designed, installed and maintained to a design standard in accordance with the Code are deemed to have satisfied the relevant requirements of the Ordinance in the technical aspects.

generation facility at Tuen Mun Water Treatment Works, and the pilot floating solar photovoltaic systems ("PV") at the Shek Pik and Plover Cove Reservoirs. The Administration has indicated that it will explore the installation of more floating PV systems at suitable locations in reservoirs and solar PV systems at suitable landfills.

8. For the private sector, the Administration has introduced Feed-in Tariff ("FiT") and RE Certificates to provide incentives for individuals and non-government bodies to invest in RE. Under the FiT Scheme, distributed electricity generated by RE systems invested by the private sector and the community can be sold at a rate higher than the normal electricity tariff rate to the power companies, whereas RE Certificates are sold by the power companies for electricity generated from RE sources such that the buyers can claim that their operation helps reduce carbon emissions. The revenue from the sale of RE Certificates will be used to alleviate the overall tariff impact of the FiT Scheme for all consumers.

#### The post-2018 Scheme of Control Agreements

9. Under the post-2018 Scheme of Control Agreements ("SCAs") signed between the Government and the two power companies in April 2017,<sup>3</sup> new initiatives are introduced and existing schemes are expanded to further promote EE&C and RE. For the promotion of EE&C, the two power companies has set up various programmes with a view to offering financial support to residential and small and medium enterprise business customers, non-Government organizations as well as disadvantaged groups in implementing energy saving measures. For example, new funds have been introduced to assist tenants of subdivided units to replace or purchase energy efficient electrical appliances as well as install separate electricity meters. As regards the promotion of RE, the two power companies have introduced their FiT Schemes in October 2018 and January 2019 respectively and have been receiving applications for the schemes.

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<sup>3</sup> The regulation of the electricity market has been exercised through SCAs signed between the Government and each of the power companies (i.e. the CLP Power Hong Kong Limited and Castle Peak Power Company Limited (referred to collectively as "CLP")), and The Hongkong Electric Company, Limited ("HKE"). These agreements set out the rights and obligations of the power companies, the returns for shareholders of the power companies and the arrangements by which the Government monitors the electricity-related financial affairs of the power companies as well as their reliability and environmental performance in providing electricity. The post-2018 SCAs for CLP and HKE have taken effect from October 2018 and January 2019 respectively, both for a term lasting until end-2033.

## **Major views and concerns expressed by Members**

10. The major views and concerns expressed by Members during relevant discussions in recent years are summarized in the ensuing paragraphs.

### Renewable energy generation target

11. Members generally supported the development of RE in Hong Kong and requested the Administration to, with reference to comparable overseas jurisdictions, set a more ambitious long-term target for RE generation. In particular, the proportion of RE to electricity demand in Hong Kong should be raised above the 1% to 2% estimated under the Action Plan.

12. The Administration advised that the focus of RE generation target of Hong Kong would continue to be placed on solar generation as it was a more available and reliable RE source in Hong Kong. Although the RE targets set by overseas jurisdictions were generally high, the majority of those places depended on other RE sources such as hydropower and geothermal power, the supply of which was very limited in Hong Kong. The Administration would take the opportunity of the next five-year review required by the Paris Agreement to re-examine Hong Kong's RE generation target.<sup>4</sup> The Administration would study the feasibility of raising the estimate on the realizable RE potential, having regard to relevant factors such as the development of RE technologies. In addition, the Council for Sustainable Development had been invited to conduct a public engagement exercise in 2019 on carbon reduction measures, which would cover the development of RE.

### Feed-in Tariff Scheme

13. Members welcomed the introduction of FiT Scheme under the post-2018 SCAs. They asked if the Administration would consider requiring the two power companies to purchase electricity from each participating RE system for a fixed period of time (i.e. 10 years or above) and provide subsidies to electricity sellers so as to provide sufficient incentives to potential RE developers and owners. Members also expressed concerns that the laws/regulations involved in the installation of solar power devices such as PV systems at building rooftops had deterred potential RE developers from participating in the FiT Scheme. Members urged the Administration to formulate policies and offer

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<sup>4</sup> The Paris Agreement requires parties to the United Nations Framework Convention on Climate Change to review their greenhouse gas emission reduction targets every five years.

suitable assistance with a view to facilitating the installation of PV systems.

14. The Administration advised that while there was not a fixed FiT payment period, it was guaranteed to all participants that FiT would be offered until 2033 under the post-2018 SCAs. Those who joined the FiT Scheme early would enjoy an "early-bird advantage" and receive FiT for a longer period. The Administration would keep in view the FiT Scheme and ensure the annually-reviewed FiT rates were attractive to the private sector and the community to consider investing in RE.

15. The Administration stressed its commitment to facilitating the installation of distributed PV systems on different premises. For instance, subject to the fulfilment of specified conditions, the Administration had suitably relaxed the requirements in relation to installation of PV systems on the rooftops of New Territories Exempted Houses such that residents might continue to use their roofs for legal purposes while combating climate change. Similarly, the Administration would also consider making appropriate relaxations for other private buildings, in particular the low-rise ones. The Administration also intended to introduce legislative amendments to exempt individuals from the requirements to apply for business registration and file profits tax returns in respect of their participation in the FiT Scheme by installing RE systems at their residential premises.

#### Development of large-scale renewable energy projects

16. Members enquired if the Administration planned to develop more large-scale RE systems and/or encourage the private sector to provide such systems on their premises.

17. The Administration advised that the Government would take the lead in installing RE facilities at its buildings and premises. To support the development of such facilities, \$800 million had been set aside under the 2018-2019 Budget, on top of the allocation of \$200 million in the financial year 2017-2018. According to the experiences of other places, the contribution from distributed RE systems to the overall electricity demand was limited. Nevertheless, it was expected that the implementation of the FiT Scheme would be conducive to the development of RE in Hong Kong by promoting public participation. The Administration would continue to explore further measures to facilitate installation of distributed RE systems in both new and existing buildings in collaboration with relevant professional bodies such as the Hong Kong Green Building Council.

## Measures to promote energy efficiency and conservation

18. Members enquired about the Administration's measures to further promote energy saving and efficiency, including research on the application of new energy efficiency and RE technologies.

19. The Administration advised that the second review on Building Energy Code was completed in 2018 which was expected to achieve a further energy saving of 18% compared with the 2012 edition. The new edition would come into force in mid-August 2019. The Electrical and Mechanical Services Department would commence three studies on the application of new energy efficiency and RE technologies in 2019, including immersion cooling technology for servers in data centers; solar control window films; and hybrid wind-solar power generators. The interim reports of such studies were expected to be completed in 2019-2020.

## **Council questions**

20. At the Council meetings of 12 July 2017, 25 October 2017, 31 January 2018 and 23 January 2019, Hon Kenneth LEUNG, Hon Kenneth LAU and Hon Martin LIAO raised questions relating to the promotion of EE&C and RE. The questions and the Administration's replies are hyperlinked in the **Appendix**.

## **Recent development**

21. At the meeting on 27 May 2019, the Administration will brief the Panel on Environmental Affairs on the initiatives to further promote EE&C and RE through adoption of innovation and technology.

## **Relevant papers**

22. A list of relevant papers is set out in the **Appendix**.

## Energy efficiency and conservation and renewable energy

## List of relevant papers

Date	Event	Paper
23 January 2017	Policy briefing cum meeting of the Panel on Environmental Affairs ("EA Panel")	Administration's paper on "2017 Policy Address – Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. <a href="#">CB(1)451/16-17(01)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)683/16-17</a> )
26 June 2017	Meeting of EA Panel	Administration's paper on "Hong Kong's Climate Action Plan 2030+" (LC Paper No. <a href="#">CB(1)1164/16-17(03)</a> )  Updated background brief on "Combating climate change" prepared by the Legislative Council Secretariat (LC Paper No. <a href="#">CB(1)1164/16-17(04)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)23/17-18</a> )
30 October 2017	Policy briefing cum meeting of EA Panel	Administration's paper on "2017 Policy Address – Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. <a href="#">CB(1)75/17-18(01)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)399/17-18</a> )  Follow-up paper (LC Paper No. <a href="#">CB(1)589/17-18(02)</a> )
17 April 2018	Special meeting of the Finance Committee ("FC") for examination of Estimates of Expenditure 2018-2019	Written questions raised by Members and Administration's replies (Reply serial numbers: <a href="#">ENB208</a> , <a href="#">209</a> , <a href="#">289</a> )

Date	Event	Paper
23 April 2018	Meeting of EA Panel	<p>Administration's paper on "Implementation Details concerning Renewable Energy, Energy Efficiency &amp; Conservation and Fuel Clause Charge Adjustment Mechanism under the Post-2018 Scheme of Control Agreements" (LC Paper No. <a href="#">CB(1)809/17-18(03)</a>)</p> <p>Background brief on "Energy saving and renewable energy arrangements under the Scheme of Control Agreements" prepared by the Legislative Council Secretariat (LC Paper No. <a href="#">CB(1)809/17-18(04)</a>)</p> <p>CLP Power Hong Kong Limited's paper on "New Initiatives under the New Scheme of Control Agreement" (LC Paper No. <a href="#">CB(1)840/17-18(01)</a>)</p> <p>Minutes of meeting (LC Paper No. <a href="#">CB(1)1110/17-18</a>)</p>
22 October 2018	Policy briefing cum meeting of EA Panel	<p>Administration's paper on "2018 Policy Address - Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. <a href="#">CB(1)10/18-19(01)</a>)</p> <p>Administration's paper on "Guidance Notes for Solar Photovoltaic System Installation" (LC Paper No. <a href="#">CB(1)42/18-19(01)</a>)</p>
26 November 2018	Meeting of EA Panel	<p>Administration's paper on "To Take Forward Tasks in relation to the Promotion of Renewable Energy and Long Term Development of the Electricity Market - Manpower Arrangement for the Environment Bureau" (LC Paper No. <a href="#">CB(1)189/18-19(03)</a>)</p> <p>Updated background brief on "Promotion of renewable energy in Hong Kong" prepared by the Legislative Council Secretariat (LC Paper No. <a href="#">CB(1)189/18-19(04)</a>)</p> <p>Minutes of meeting (LC Paper No. <a href="#">CB(1)595/18-19</a>)</p>



Date	Event	Paper
23 January 2019	Meeting of Establishment Subcommittee	Administration's paper on "making permanent of one Administrative Officer Staff Grade C (D2) supernumerary post in the Environment Bureau to continue to take forward tasks in relation to the promotion of renewable energy and long term development of the electricity market " (LC Paper No. <a href="#">EC(2018-19)27</a> )
9 April 2019	Special meeting of FC for examination of Estimates of Expenditure 2019-2020	Written questions raised by Members and Administration's replies (Reply serial numbers: <a href="#">ENB041, 043, 187</a> )

**Hyperlinks to relevant Council Questions:**

Date	Council Question
12 July 2017	<a href="#">Press release</a> on Council question (oral) raised by Hon Kenneth LEUNG
25 October 2017	<a href="#">Press release</a> on Council question (written) raised by Hon Kenneth LAU Ip-keung
31 January 2018	<a href="#">Press release</a> on Council question (written) raised by Hon Kenneth LEUNG
23 January 2019	<a href="#">Press release</a> on Council question (written) raised by Hon Martin LIAO Cheung-kong