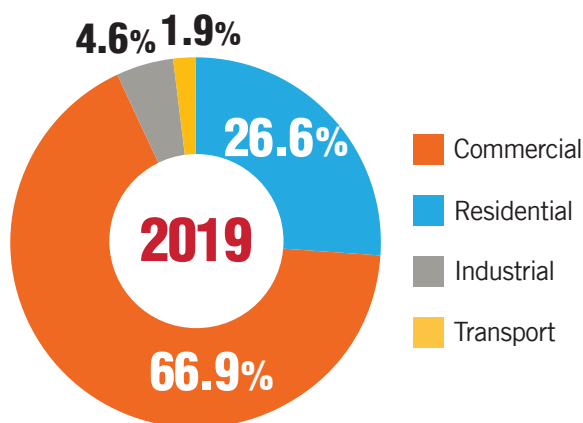


Energy Saving and Green Buildings

4.4.1 Being an international financial and commercial centre, the majority of Hong Kong citizens' daily activities take place in skyscrapers. The resulting use of air-conditioners, lifts, lighting and various electrical appliances consumes a large amount of energy. Buildings account for about 90% of Hong Kong's total electricity consumption, and over 60% of our carbon emissions is attributable to generating electricity for our buildings. Achieving net-zero electricity generation requires enormous amount of capital and resources, and will increase the cost of electricity generation. Various sectors of the community and members of the public will inevitably have to share the cost. Through regulation as well as promotion and public education in energy saving, we can reduce the overall electricity consumption of buildings, and hence lower the cost of adopting new zero-carbon energy. This is conducive to maintaining Hong Kong's overall competitiveness in the global arena, in turn

benefitting enterprises and citizens. The benefits will be even more significant if the amount of energy conserved exceeds the increase in the cost of achieving net-zero electricity generation.

Hong Kong's Electricity Consumption in 2019



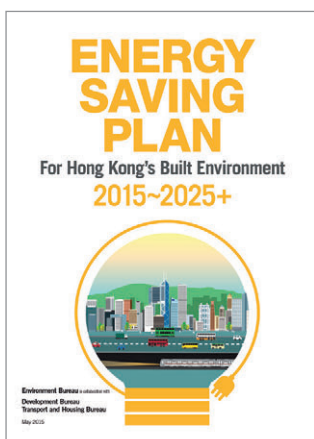
Long-term targets: Reduce the electricity consumption of commercial buildings by 30% to 40%, and that of residential buildings by 20% to 30% by 2050

4.4.2 The Energy Saving Plan for Hong Kong's Built Environment 2015~2025+ promulgated by the Government in 2015 has set a target of reducing energy intensity by 40% by 2025. So far, the energy intensity in Hong Kong has decreased by over 30%. We are also one of the best performers in terms of reduction in energy intensity among the member economies of the Asia-Pacific Economic Cooperation. As mentioned above, buildings account for about 90% of Hong Kong's total electricity consumption, and over 60% of our carbon emissions is attributable to generating electricity for our buildings. In order to achieve carbon neutrality, we need to step up efforts in promoting energy conservation in buildings, and set a more proactive and targeted energy saving goal. In this connection, we will strive to gradually reduce the electricity consumption of new and existing commercial

buildings by 30% to 40%, and that of residential buildings by 20% to 30% by 2050, using the operational conditions of 2015 as the comparison basis.

4.4.3 To achieve the above targets, we need to adopt a multi-pronged approach in planning for energy conservation. The Government will lead and coordinate efforts in the continuous refinement of energy saving strategies. We will make use of the prevailing legal basis to continue to enhance the energy performance of buildings and appliances, and promote the systematic exploration and realisation of decarbonisation opportunities in buildings. Outside the legal framework, we will also consider encouraging the trades to proactively raise energy saving performance to a new level beyond the statutory requirements.

4.4.4 We will work on the infrastructure by integrating energy efficient facilities in development projects. We will study the feasibility of incorporating DCS in more new development areas, such as Hung Shui Kiu/Ha Tsuen New Development Area and the artificial islands in the Central Waters, so as to promote energy efficiency and mitigate the heat island effect in the areas.



4.4.5 We will also watch out for and make full use of the energy saving opportunities arising from green I&T development, and strive for breakthroughs in various fields. For example, we will study innovative energy-saving technologies to further improve the energy efficiency performance of buildings and DCSs, including the use of big data and artificial intelligence, etc., to optimise the operation of the facilities.

4.4.6 Government-led measures alone are not sufficient. To maximise the effectiveness of energy saving measures, we should pursue tripartite collaboration that involves the community, the business sector and the Government. We will promote cross-sector cooperation through different platforms to pursue our shared vision in energy saving.

Medium-term targets: Reduce the electricity consumption of commercial buildings by 15% to 20%, and that of residential buildings by 10% to 15% by 2035

4.4.7 To promote continuous decarbonisation in buildings, we have also set a medium-term target of reducing the electricity consumption of new and existing commercial buildings by 15% to 20%, and that of residential buildings by 10% to 15% by 2035, using the operational conditions of 2015 as the comparison basis. More green innovations and energy efficient elements will also be added to the design of new government buildings to achieve an energy efficiency performance of 10% better than statutory level, with a view to leading the trades to further optimise the energy efficiency performance of new buildings.

4.4.8 To continuously improve the energy efficiency standards of buildings, we will make reference to the international standards and harness innovative and intelligent technologies to ensure the energy efficiency standards of building services installations are up to date. We will actively explore the possibility of expanding the scope of regulation to cover all buildings with high energy consumption, such as data centres, so as to further enhance the overall energy efficiency performance of buildings in Hong Kong.

4.4.9 To explore and utilise decarbonisation opportunities in a systematic manner, we will consider conducting energy audits more frequently and mandating the implementation of identified energy management opportunities. At the same time, we will strengthen the promotion of RCx to check the performance of the existing buildings in energy and other areas and make appropriate adjustments to the systems, with a view to reducing electricity consumption. We will consider requiring large commercial buildings to carry out regular commissioning of air-conditioning systems and major building services installations to achieve optimal operational efficiency.

4.4.10 In addition, we will continue to encourage and promote enhancement of energy efficiency in

buildings to outperform the statutory requirements through the Hong Kong Energy Efficiency Registration Scheme for Buildings. We will collaborate with the trades and stakeholders to continue to explore acceptance of different forms and accredited certification schemes as registration requirements so that more buildings can achieve energy efficiency performance above the statutory requirements.

For energy saving, many a little makes a mickle

The Government has been taking the lead in energy saving. As mentioned in Chapter 2 above, the Government achieved the five-year target of reducing electricity consumption in government buildings by 5% in 2018-19, one year ahead of schedule, and achieved a final electricity saving of about 7.8%. We have also set a new Green Energy Target to further improve the energy performance of the whole Government by 6% by 2024-25.

Carbon reduction cannot be achieved by the Government alone. The active participation of every member of the society is essential. We will foster support for the carbon neutrality target in the business sector through the "Carbon Neutrality" Partnership. At the same time, we strive to encourage members of the community to practise low-carbon living in line with the spirit of energy saving. The Government has put in place the one-stop Energy Saving for All website (www.energysaving.gov.hk) to provide diverse and practical information on energy saving for members of the public. We will continue to regularly update the website, including various energy saving tips in daily lives. Let us work together to strive towards carbon neutrality!

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Energy Saving For All



4.4.11 To reduce electricity consumption on air-conditioning for commercial buildings and hotels, the Building (Energy Efficiency) Regulation (Cap. 123M) and the relevant codes of practice and practice notes require the external walls and roofs of these buildings to be designed and constructed with suitable Overall Thermal Transfer Value (OTTV). The Government is conducting a review on the OTTV, and plans to complete the review for tightening up the statutory standards by 2025. The Government also plans to complete two reviews on the Residential Thermal Transfer Value (RTTV) by 2023 and 2030. To lead by example, the OTTV of new government buildings will be at least 10% above the statutory standards.



DCS at Kai Tak Development

4.4.12 To strengthen the promotion of green buildings in the private sector, we will continue to share experience with stakeholders and explore strategies and measures to achieve deep decarbonisation of buildings. In pursuance of carbon neutrality, we will upgrade the “4T” Partnership to “Carbon Neutrality” Partnership to cover not only energy saving and green buildings but also other carbon reduction actions.



Smart meters can monitor and manage electricity consumption more effectively

4.4.13 As for infrastructure, following the Kai Tak Development, construction works of two more DCS projects in the Tung Chung New Town Extension (East) and Kwu Tung North New Development Area have commenced. When the two DCSs come into full operation, it is estimated that about 70 million kWh of electricity can be saved annually, and about 49 000 tonnes of carbon emissions can be reduced (i.e. around 0.12% of Hong Kong’s total carbon emissions).

4.4.15 The concise and easy-to-understand MEELS helps members of the public practise energy conservation in their consumption behaviour. We will keep the scheme under review. Apart from upgrading the grading standards, we will also consider setting a minimum energy efficiency requirement so that certain appliances must meet the minimum energy efficiency standards before they can be supplied in Hong Kong, with a view to further raising the energy efficiency performance of products. Moreover, we will consider expanding the scope of the scheme to cover non-domestic or commercial appliances.

4.4.14 To mobilise the community to take collective actions to conserve energy, we need to enhance the transparency of data and benchmarks. We plan to, through releasing energy data and introducing energy benchmarking tools, facilitate the comparison of building energy consumption performance and establish a two-way partnership in carbon reduction. Indeed, the two power companies are progressively installing smart meters for their customers across the territory according to their plans, so as to help their customers monitor and manage electricity consumption more effectively and encourage energy conservation. Smart meters also provide the smart infrastructure required for introducing demand-side management measures, such as consideration of setting time-of-use tariffs as in some other economies to encourage users to change their habits and reduce electricity consumption during peak demand hours.

Enjoy subsidy for energy saving, reduce expenditure with decarbonisation

Under the current Scheme of Control Agreements, the two power companies have established energy efficiency funds to provide subsidies of up to \$0.5 million on a matching basis for energy-saving improvement works in various types of buildings. The two power companies received over 1 600 applications from October 2018 to August 2021. Over 1 280 applications have been approved for implementing energy-saving improvement works, such as replacement of air-conditioning and lighting, RCx projects and installation of smart equipment in over 2 000 buildings.

