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Hong Kong

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气候组织  
THE CLIMATE GROUP

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This is part of  
**THE CLEAN REVOLUTION**

# PUBLIC CONSULTATION ON THE FUTURE DEVELOPMENT OF THE ELECTRICITY MARKET

June 2015 | Hong Kong electricity consultation: Our response

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The Government of Hong Kong's Environment Bureau opened a three-month Public Consultation on the Future Development of the Electricity Market earlier this year. The Climate Group produced a formal, public response, which you can read below.

## 1. How important is choice to you in respect of the supply of electricity? What objectives do you consider should be achieved through introducing competition to the electricity market?

The Climate Group believes that allowing and streamlining grid access by third-party suppliers and introducing competition at the generation level are essential steps to open the door to clean energy developments in the city.

Energy-related emissions are a fundamental factor to keeping the increase of global warming under 2 degrees Celsius based on pre-industrial levels, the threshold recognized by the international community to avoid the worst effects of climate change. In fact, electricity generation accounts for around 70% of Hong Kong's greenhouse gas emissions.

Past experience in Hong Kong has proved that the current SCAs are insufficient to stimulate and incentivize renewable energy investments from the two power companies. Currently, even if consumers are willing to pay a premium for cleaner energy, there is no alternative option available.

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## 2. To what extent do you think the current contractual arrangement by SCAs has allowed us to achieve the energy policy objectives of safety, reliability, affordability and environmental protection, and what problems do you see with this regulatory approach?

Currently, the concept of "environmental protection" in the context of SCAs refers mainly to pollutants such as SO<sub>2</sub>, NO<sub>x</sub> and particulates. While this helps achieve the air quality objectives, climate change is currently not covered under the environmental protection objectives.

Considering the power companies are the main carbon emitters in the city, there is a scope to include GHG emissions as one of the environmental targets under the SCAs. By doing so, the power companies can then decide on the most economic ways to achieve such targets, allowing flexibility for deployment of new technologies in the future (e.g. renewables, carbon capture and storage, etc.).

### 3. What is your view on the following areas in the future contractual arrangement (if any) between the Government and the power companies?

#### (a) duration

While the SCAs provide the two power companies with the necessary policy certainty over the course of 10 to 15 years, flexibility should also be built in the SCAs to allow potential integration of renewable energy, riding on its rapid technological development and declining costs. For instance, a regular review mechanism on grid access schedule, rules and costs should be put in place to allow earliest reform on grid access.

#### (b) permitted rate of return

The Climate Group does not have a view on this specific aspect.

#### (c) tariff approval mechanism

The Climate Group does not have a view on this specific aspect.

#### (d) fuel cost arrangement

Currently the fluctuations of fuel costs are solely borne by consumers and thus power companies are not incentivized to explore cheaper fuel options. While fossil fuel power plants remain as the main business of both power companies, in the absence of third-party generators, consumers cannot exercise any right of choice.

It should also be noted that since there is no carbon price in Hong Kong, currently the external costs to climate change are not included in the fuel price. In the future, fossil fuel price may exceed the current projection when a global carbon price is in place.

The inclusion of renewable energy can help lower the impact of electricity tariff imposed by rising fuel costs. To facilitate such development in Hong Kong, the government should accelerate the grid access process, and put forward suitable policies to encourage supply and uptake of renewable energy (please refer to Q4 and Q6).

#### (e) incentive and penalty scheme relating to the performance of the power companies

Currently only incentives (additional 0.01% on permitted rate of return) are used in the SCAs to encourage energy efficiency. However, past experience has shown that this has not been sufficient to drive such investments.

The Climate Group suggests that both carrots and sticks should be used to encourage energy efficiency. For example, power companies can be allowed extra profits for achieving energy efficiency targets, but lowered profits if such targets are not met. This could be applied to the new generating units in operation after 2018.

In addition, the current incentive (0.01% upon reaching the target) is insufficient to drive maximum energy efficiency. The government could consider increasing the percentage, and reward power companies according to the amount of power saved (rather than all-or-nothing for reaching or failing a single target).

#### What other improvements would you suggest?

The current energy efficiency targets for the two power companies cover less than 0.1% of the city's total electricity consumption. The Climate Group suggests that the target should be raised, taking into account the committed energy reduction by the government buildings.

In addition, a reduction target on peak demand should also be set, such that the need of new fossil fuel generating units can be reduced in the long run. This could also encourage market-driven innovation for demand side management, such as through smart technologies or special agreements with large power consumers.

In the long run, when competition is introduced to the electricity market, the government could also consider creating a negawatt market, which allows demand side resources to participate in the energy market and get compensated for energy saved rather than produced.

#### 4. Should Hong Kong further promote renewable energy despite its higher tariff implications; and if so, about how much (in terms of percentage of your electricity bill) are you prepared to pay?

Global evidences have shown that renewable energy does not necessarily imply a higher tariff, provided that a level playing field is provided between renewable energy suppliers and fossil fuel power plants.

##### Global development trend

Renewable energy, increasingly recognized as one of the key means to curb carbon emissions, is transforming the energy industry globally. In 2014, renewables accounted for over 60% of all new power generation created; clean energy investment also rose for the first time in three years, as technology innovation is continuously driving down the costs of renewables – so much so that solar could be the cheapest source of energy very soon.

Based on the Intended Nationally Determined Contributions (INDCs) – climate action plans from countries as part of the Paris agreement – submitted so far, a new International Energy Agency (IEA) report forecasts that renewables will become the leading source of electricity by 2030.

Renewables are also taking an ever-increasing market share with a growing number of leading companies committing to ambitious renewable power targets. As part of The Climate Group's RE100 program, an initiative in partnership with CDP that supports companies committed to 100% renewable power, IKEA, Infosys, M&S, Swiss Re, BT, Formula E, H&M, KPN, Mars, Nestle and Philips, among others, are setting bold renewable energy targets and taking steps to drive the clean energy revolution.

There are also new applications of renewable energy technologies. For instance, California, Japan and India has installed floating solar PV panels on water bodies (e.g. lakes, hydro-power plants), which not only save land space, but also bring along other benefits such as reduced water loss through evaporation and increased solar PV efficiency through the cooling of PV panels by water.

Hong Kong should ride on this global development trend, not only for the multiple environmental benefits of renewable energy, but also for the enhanced energy security, as well as social and economic benefits (e.g. job creation, competitiveness, fuel cost savings) in the long run.

##### Tariff implications

The price for natural gas in Asia has quadrupled over the past 20 years due to growing demand. Owing to its lower carbon emissions and pollution levels, natural gas plays an increasingly important role in the global energy market. The IEA estimates that the global demand for natural gas would surpass coal by 2040, with China being the biggest driving force.

Currently the fuel clause charge constitutes 21% (for CLP) and 24% (for HKE) of the average net tariffs. Between 2009 and 2015, the fuel clause charge has increased 129% (for CLP) and 27% (for HKE), which along with the increase in basic tariff, has resulted in a 28% rise (for CLP) and a 12.5% rise (for HKE) in electricity price per kWh. The future replacement of coal-fired power plants with natural gas facilities, along with the rising price for natural gas, will impose a heavy pressure on Hong Kong's electricity tariff in the coming years.

With suitable policies in place, renewable energy (in particular distributed renewables) has a potential to stabilize and even lower electricity tariff in Hong Kong, eliminating the price pressure brought about by fuel cost in the long run.

### Public acceptance

The Hong Kong public and political parties in general are supportive of initiatives with significant environmental benefits. However, in order to make an informed decision, a comprehensive short-term and long-term cost comparison amongst various options including renewable energy applications, increased use of natural gas, and other alternatives (such as electricity import from China) is needed.

The Consumer Council estimates that a 5% renewable energy mix in Hong Kong would only lead to a \$0.03 increase in the basic tariff. While this estimation assumes the additional costs are borne by consumers, with a feed-in-tariff, there may not be any additional costs to consumers.

The government should provide such information which reflects the updated upfront costs (taking into account the projected declining costs of renewables), long-term fuel costs, social and environmental costs (for example, taking into account a potential carbon price, as well as pollution-related medical expenses), as well as the risks of stranded assets resulting from fossil fuel-based generation capacity in the future.

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### 5. What specific requirements would you suggest to be set out in the future contractual arrangement (if any) between the Government and the power companies to encourage the promotion of demand side management and renewable energy by the power companies?

In order to promote demand side management and renewable energy development in Hong Kong, The Climate Group would suggest the following arrangements in the upcoming revision of SCAs with the power companies:

- A cap on GHG emissions in line with Hong Kong's emissions reduction target;
- A more progressive target on energy efficiency;
- A reduction target on peak demand;
- A reduction of permitted rate of return should the energy efficiency and peak demand targets are not met;
- Mandatory and streamlined grid access for small-scale renewable projects (e.g. up to 10kW);
- Disclosure and regular reporting of costs for grid, power generation and sales (which is needed for setting a fair price for grid connection by third-party generators and potential financial incentives to encourage renewable energy development);
- A regular review mechanism on grid access schedule, rules and costs.

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### 6. Do you have any other comments and suggestions?

SCAs should be viewed as one of the tools for the energy market development in Hong Kong rather than the only focus. While guaranteed grid access is a fundamental pre-requisite to encourage the development of distributed renewable energy, complimentary policies and actions are needed to foster such development.

The Climate Group suggests the following actions by the government to encourage the development of renewables in Hong Kong:

- Provide suitable financial incentives for renewable energy development (e.g. direct subsidies, interest-free loans, tax rebates, feed-in-tariff) for residential and commercial uses, building on best international practice and experience;
- Proactively deploy distributed renewable energy in its own premises (government buildings, reservoirs, public housing, parks, etc.);

- Encourage and incentivize the deployment of distributed renewables government subsidized entities and other related bodies (e.g. schools, universities, public housing by the Housing Society, new developments by the Urban Renewal Authority);
- Introduce suitable business models for distributed renewable energy (e.g. attracting overseas renewable energy investors through InvestHK) that could facilitate short-term and long-term renewables development in Hong Kong, in parallel with the preparation work for open grid access arrangements.
- In the long run, Hong Kong could also seek to increase the proportion of clean energy through direct power purchase from renewable energy power plants in China (similar arrangement to the current purchase of nuclear power).

Alongside with distributed renewable energy development, energy efficiency also plays a vital role in lowering the overall and peak demand (thus reducing the need of reserve capacity as well as the need of new generating units which both have tariff implications).

The Climate Group suggests the following actions by the government to encourage energy efficiency in Hong Kong:

- Review and tighten the Buildings Energy Efficiency Ordinance to reflect the latest development of commercially viable energy efficiency technologies;
- Considering air conditioning being the major power consumption in buildings, promote the deployment of insulation technologies (e.g. double-glazed windows) within public, residential and commercial buildings through legislation and/or financial incentives;
- Expand the scope of the existing Buildings Energy Efficiency Funding Schemes for additional energy efficiency measures (e.g. insulation, energy dashboards, green roof, water saving, etc.);
- Encourage the application of advanced technologies and elimination of inefficient equipment, such as by setting market access mechanisms through raising the bar for energy efficiency standards. Hong Kong may take reference to the Top Runner approach taken by Japan<sup>1</sup>;
- Encourage the development of energy services companies by lowering their capital costs (e.g. through promoting green loans, providing loan guarantees, etc.).

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#### ABOUT THE CLIMATE GROUP

The Climate Group is an award-winning, international non-profit. Our goal is a prosperous, low carbon future. We believe this will be achieved through a 'clean revolution': the rapid scale-up of low carbon energy and technology.

We work with corporate and government partners to develop climate finance mechanisms, business models which promote innovation, and supportive policy frameworks. We convene leaders, share hard evidence of successful low carbon growth, and pilot practical solutions which can be replicated worldwide.

Our offices are in Greater China, North America, India and Europe. 2014 was The Climate Group's 10th Anniversary.



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<sup>1</sup>Instead of setting a minimum efficiency today, Japan's Top Runner Program searches for the most efficient model on the market for each product category, and uses it to set the standard to be attained within 4 to 8 years. By the target year, each manufacturer (or importer in Hong Kong's case) must ensure that the weighted average of the efficiency of all its products in that particular category is at least equal to that of the top runner model. This approach eliminates the need to ban specific inefficient models from the market, while manufacturers are made accountable and stimulated to develop products with an even higher efficiency than the top runner model.