

25 June 2015

Electricity Reviews Division  
Environment Bureau  
15/F, East Wing, Central Government Offices  
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Email: emr@enb.gov.hk

Dear Sir/Madam,

**Response to the Public Consultation  
on the Future Development of the Electricity Market**

**Views from Business Environment Council Limited  
商界環保協會有限公司**

Over the last two decades, Business Environment Council Limited 商界環保協會有限公司 (“BEC”) has taken a leading role in advocating the business case for environmental excellence in Hong Kong. Our members are committed to actively engaging with the HKSAR Government on a range of issues relating to the environment and sustainability.

BEC is an independent charitable membership organisation comprised of approximately 180 member companies ranging from major holding companies to small and medium-sized enterprises in Hong Kong. Views expressed in this submission are those of BEC, and are based on consultation with our members, but may not necessarily correlate with the positions of individual members.

**I. Introduction**

BEC welcomes the ‘Public Consultation on the Future Development of the Electricity Market’ (the “Consultation Document”) issued by HKSAR Environment Bureau (“Government”) in March 2015 and appreciates the opportunity to comment on the future development and regulatory framework of the electricity market in Hong Kong.

On 16 June 2014, BEC submitted its response to the Government’s Public Consultation on “Future Fuel Mix for Electricity Generation.” As set forth in that response, BEC supports a cleaner fuel mix comprised of a higher percentage of natural gas (as compared with the current fuel mix), with some nuclear and less reliance on coal. BEC also continues to support proactively promoting renewable resources and focusing efforts on strong demand side management measures.

BEC is keenly aware of the challenges and opportunities presented by climate change and the growing need to transition to a low carbon economy.<sup>1</sup> Renewable energy and demand side management measures have an important role to play in reducing Hong Kong’s carbon emissions. BEC continues to support efforts to develop renewable energy resources and robust demand side management initiatives. In view of these challenges, BEC strongly believes that a clear, cohesive and flexible energy policy is needed to guide the development of the electricity market.

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<sup>1</sup> On 30 January 2014, the United Nations Intergovernmental Panel on Climate Change (“IPCC”) released a report entitled “Climate Change 2013: the Physical Science Basis,” which concludes that “warming of the climate system is unequivocal, human influence on the climate system is clear and limited climate change will require substantial and sustained reductions of greenhouse gas emissions.” This Report was prepared by the IPCC Working Group 1 and forms a part of the IPCC’s Fifth Assessment Report.



The Government has reiterated the four energy policy objectives: safety, reliability, affordability and environmental performance. In order to continue to meet these objectives, a multi-pronged energy strategy with a stronger focus on measures that can facilitate demand side management and the development of renewable energy will be needed.

## II. Executive Summary

BEC believes that the Scheme of Control Agreement (“SCA”) framework has worked very effectively to allow Hong Kong to meet its stated energy policy objectives, and accordingly, is in favour of continuing to use the SCA as a regulatory framework. However, the SCA can be refined, in particular with respect to the environmental performance objective, and made more flexible to enable parties to respond quickly and effectively to a changing energy environment, while continuing to provide investors with certainty and a reasonable rate of return.

Specifically, BEC supports facilitating grid access to allow clean distributed generation in Hong Kong on a more widespread basis on fair and reasonable terms. More generally, BEC supports the development of renewable energy as part of a multi-pronged strategy to reduce carbon emissions and envisions renewable energy, as it becomes increasingly commercially viable, playing a larger role in Hong Kong’s energy mix. To this end, considering the expertise of the existing local power companies in the development and operations of energy facilities and the economies of scale, BEC encourages establishing strong incentive structures for the two local power companies to speed the development of large commercial scale renewables, but recognises that this may lead to an increase in costs which will need to be considered.

Expanding the development of clean distributed generation and renewables is not without its challenges. Development of clean distributed generation and renewables will require practical considerations, including among others, addressing issues of the reliability of systems and provision of back up power supply, which will entail additional costs. The higher cost implications of renewables may also raise issues of equity and fairness if those costs are passed on to all consumers, including those least able to pay. BEC urges that careful consideration be given to how higher costs are paid for and by whom.

Mindful of cost considerations, BEC believes that analysis of the future development of the electricity market requires thorough consideration of the role of energy efficiency. Improving energy efficiency programmes is a critical part of transforming the electricity market to a clean, low carbon market. Given its highly dense, urban environment, Hong Kong is uniquely positioned to realise energy savings through implementation of demand side management and energy efficiency measures. BEC strongly encourages the Government to accelerate efforts in this area including, for example, supporting efforts by power companies to develop a smarter grid to facilitate energy efficiency programmes.

Ultimately, meaningful reforms necessary to transition Hong Kong to a low carbon economy will require decisive action by Government and a strong partnership amongst Government, the power companies and the people of Hong Kong. BEC urges Government to take a strong and active leadership position on these issues.

## III. Public Consultation Questions

With input from our members, BEC submits the following response to the Consultation Document.<sup>2</sup>

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<sup>2</sup> The views presented in this response represent the views of BEC as a whole and may not necessarily reflect the views of individual BEC members.



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

Promoting choice is a good policy concept. However, the objectives of adopting such a policy should be clearly defined from the outset and the value of providing choice to consumers should be carefully weighed against the cost of providing choice. Although the idea of choosing electricity supplier is intuitively appealing, BEC recognises that additional choice may not necessarily lead to efficiency gains and lower electricity costs.<sup>3</sup> Moreover, the provision of choice should not be at the expense of Hong Kong's ability to meet its energy policy objectives of safety, reliability, affordability and environmental performance. Government should therefore clearly identify its objectives in introducing choice to the electricity market and carefully weigh the costs and benefits of providing choice.

As noted in the Consultation Document, there are some practical constraints to providing consumers with choice of electricity suppliers in Hong Kong. Creating duplicate transmission and distribution networks would be impractical and costly, as well as inefficient, in a city with a small geographic area like Hong Kong. Similarly, it is questionable whether the electricity market in Hong Kong is large enough to support an additional major power company within Hong Kong.

That said, there may be other ways of providing consumers with additional flexibility and control over their electricity consumption under the existing SCA framework, including, for example, introducing clean distributed generation and new smart grid technologies. The use of smarter grids and meters enables power companies to provide consumers with more flexibility and opportunities to increase efficiencies and reduce costs by offering products such as (i) time of use tariffs, (ii) green tariffs (based on alternate fuel mixes), (iii) flexible billing, and (iv) off peak demand tariffs. BEC believes that these mechanisms for providing choice and their related technical, regulatory and cost implications should be thoroughly explored and considered.

**Question 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?*

As noted in the Consultation Document, the existing SCA framework has worked very effectively in delivering the four policy objectives of safety, reliability, affordability and environmental performance. BEC is therefore in favour of continuing to use the SCA as a regulatory framework. However, it is important to recognise that Hong Kong faces new challenges related to climate change, as reflected in heightened awareness of climate risks and continuing economic uncertainty, and the global energy sector, in response to these challenges, is evolving rapidly. Efforts to address climate change are also leading to rising regulatory pressure, such as Hong Kong's recent commitment to reducing energy intensity by 40% by 2025.<sup>4</sup>

Mindful of these challenges and the rapidly changing energy environment, BEC believes that the existing SCA framework can be refined and improved to take a more flexible approach that will ensure that Hong Kong can continue to meet its energy policy goals while transitioning to a cleaner, low carbon economy. Specifically, BEC suggests that the existing SCA framework be enhanced to encourage clean distributed generation (including grid access), and more effective incentive schemes for renewable energy and energy efficiency.

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<sup>3</sup> In fact, the Consultation Document observes that market liberalisation in other jurisdictions has had mixed outcomes and that although the introduction of competition has led to increased choices, it has in many cases also led to higher tariffs for consumers and no discernable improvement in service. See Consultation Document, Sections 3.7 & 3.8.

<sup>4</sup> On 14 May 2015, the Government issued its first Energy Savings Plan for Hong Kong 2015-2025+, which sets a new target of reducing Hong Kong's energy intensity by 40% by 2025 (over 2005).



(i) *Mechanisms to Facilitate Clean Distributed Generation and Grid Access*

BEC is in favour of establishing workable mechanisms to facilitate clean distributed generation. Distributed generation has been growing rapidly around the globe, receiving roughly one quarter of global investment in clean energy over the past five years.<sup>5</sup> Although comparable investment levels may be difficult to achieve in Hong Kong due to its small size and geographic constraints, distributed renewable energy, including energy storage technologies, can not only help power companies to meet load demand, but also to reduce emissions and diversify fuel supply.

Enabling access to the grid is an important part of facilitating clean distributed energy generation. Allowing local generators of renewables to have fair and reasonable access to the grid at non-discriminatory prices with well-defined terms and conditions may facilitate more interest and investment in renewable energy.

The current SCA requires power companies to offer “*standardised arrangements*” to providers of renewable energy for back-up power supply and provide grid access on “*reasonable terms . . . subject to applicable technical and safety standards.*”<sup>6 7</sup> As a practical matter, under the SCA, power companies have identified applicable technical and safety standards for grid access for smaller renewable systems.<sup>8</sup> These are instructive and may provide a useful baseline for Government that can be expanded upon when considering what grid access provisions for such systems might look like in future consultations with the power companies and relevant stakeholders.

In connection with facilitating clean distributed energy, it is also necessary to consider the role of smart grids and smart meters. Smart grids, which are capable of collecting data, analysing load and capacity, and making automated decisions, are an important part of optimising efficiencies of distributed generation (and non-distributed generation) and maintaining a reliable energy supply.

It is important to recognise that installing clean distributed generation, smart meters and advanced grid systems is not without high cost implications. Power companies would have to play a vital role in providing increased grid management and back-up power to independent power producers and addressing other practical considerations, incurring additional costs that would need to be defrayed.<sup>9</sup> As such, the transition to clean distributed generation and smarter grids will require careful study in order to

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<sup>5</sup> See Bloomberg New Energy Finance, Global Trends in Clean Energy Investment, 9 January 2015 (see <http://about.bnef.com/presentations/clean-energy-investment-q4-2014-fact-pack/content/uploads/sites/4/2015/01/Q4-investment-fact-pack.pdf>)

<sup>6</sup> See Schedule 6, Section 8 of “The Scheme of Control Agreement entered into by the Government of the Hong Kong Special Administrative Region and the following companies: CLP Power Hong Kong Limited, ExxonMobil Energy Limited and Castle Peak Power Company Limited,” (7 January 2008) (the “CLP SCA”) and “The Scheme of Control Agreement entered into by the Government of the Hong Kong Special Administrative Region and the following companies: The Hongkong Electric Company, Limited and Hongkong Electric Holdings Limited” (7 January 2008) (the “HK Electric SCA”).

<sup>7</sup> Currently, there are approximately 250 renewable energy systems that have been connected to the CLP and HongKong Electric grids. Source: CLP & Hongkong Electric.

<sup>8</sup> See, for example, Hongkong Electric requirements at [http://www.hkelectric.com/web/CommercialAndIndustrialServices/OpenAccountAndServiceRequest/ConnectingRenewableEnergyPowerSystemtoGrid/Index\\_en.htm](http://www.hkelectric.com/web/CommercialAndIndustrialServices/OpenAccountAndServiceRequest/ConnectingRenewableEnergyPowerSystemtoGrid/Index_en.htm).

<sup>9</sup> The relatively high reserve margins of Hong Kong’s power companies (26% for CLP and 50% for Hongkong Electric) could enable them to address reliability issues that may be caused by variability in energy supply from distributed sources, although this would come at a cost which would need to be allocated equitably.





determine how best to move to a distributed network and incorporate advanced technologies in a managed and phased way to apportion costs.

(ii) *Effective Incentives for Renewable Energy and Energy Efficiency*

The pace of renewable energy development in Hong Kong has been relatively slow and the incentives provided in the SCA in 2008 for the power companies to build renewables and increase energy efficiency have not yielded appreciable results.<sup>10</sup> The reasons for Hong Kong's relatively slow progress may involve a host of different factors, including for example, limited land opportunities. However, given Hong Kong's carbon and energy commitments, the incentive structures under the existing SCA could be improved. It would be useful to provide the SCA with additional flexibility to allow for stronger incentives to motivate the power companies to invest in renewables and energy efficiency programmes. As renewable energy technologies become more cost-effective and reach commercial viability in Hong Kong, strong incentive structures should be put in place to speed development.<sup>11</sup>

**Question 3:** *What is your view on the following areas in the future contractual arrangement (if any) between Government and the power companies:*

(a) *Duration*

BEC finds the current term of the SCA of ten years with a mid-term review reasonable. It allows the power companies to effectively plan over a long-term investment horizon and appears short enough to permit the parties to remain flexible and responsive to a changing energy policy environment.

(b) *Permitted rate of return*

The permitted rate of return should be viewed through the lens of community. It should reflect the balance of stakeholders, including, but not limited to, the power companies and their investors, commercial and residential consumers and Government, in the context of a rapidly changing energy environment. The Government is in the best position to ensure its policy objectives can continue to be met while balancing stakeholder interests and it should determine a fair and reasonable rate of return for the power companies.

(c) *Tariff approval mechanism*

Under the current SCA, the two power companies have to submit Development Plans, which set out the projected Basic Tariff Rate for each of the years covered in the Development Plan for the Executive Council's approval. In October each year, the Government and each of the two power companies jointly conduct a Tariff Review. If a proposed adjustment of the Basic Tariff Rate for a year covered by an approved Development Plan exceeds 5%, approval of the Executive Council is required. BEC welcomes additional mechanisms to enhance transparency throughout this process, provided that the costs of such

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<sup>10</sup> Approximately 0.1% of Hong Kong's electricity supply came from renewable sources in 2012. See Hong Kong Electric & Mechanical Services Department Report "2014 Hong Kong Energy End-Use Energy Data, p 66 ([http://www.emsd.gov.hk/emsd/e\\_download/pee/HKEEUD2014.pdf](http://www.emsd.gov.hk/emsd/e_download/pee/HKEEUD2014.pdf)). Over the past five years, the power companies have completed approximately 1000 energy audits, which have resulted in savings of approximately 85 GWh of electricity.

<sup>11</sup> For example, given the high-density urban environment in Hong Kong, utility scale renewable systems such as offshore wind farms may be an effective means of increasing the proportion of renewable energy in the fuel mix. As these and other renewable technologies become more commercially viable in Hong Kong, incentives should be put in place to encourage development.



mechanisms are reasonable and do not unfairly prejudice the commercial operations of power companies.

(d) *Fuel cost arrangement*

Under the current SCA, the cost of fuel is borne by the consumer. Whilst the current SCA provides stringent processes for the Government to closely scrutinize the power companies' fuel cost arrangements, the incentive for the power companies to seek out the lowest cost fuels may not be obvious. There may be opportunities for the government to explore practical measures to further incentivise the power companies to source fuel competitively.

(e) *Incentive and penalty scheme related to performance of power companies*

BEC believes that the incentive schemes in the existing SCA could be enhanced to (i) reward greater operational efficiency, (ii) more effectively promote renewable energy on a distributed basis, and (iii) more effectively promote energy efficiency and reduce peak demand (for example, via more powerful incentives or mandates).

**Question 4:** *Should Hong Kong further promote RE despite its higher tariff implications, and, if so, about how much (in terms of percentage of your electricity bill) are you prepared to pay?*

BEC supports the development of renewable energy<sup>12</sup> as part of a multi-pronged strategy to reduce carbon emissions. Faced with economic uncertainty stemming from climate risks,<sup>13</sup> governments and businesses are increasingly focused on addressing climate change and taking steps to reduce their energy use and carbon footprint. Energy from renewable sources, including, but not limited to solar, wind and biomass, has significant potential to reduce carbon emissions. Further development of renewable energy in Hong Kong will help us meet our carbon reduction targets and transition to a cleaner, low carbon economy and should therefore be one component of a multi-pronged energy strategy.

The question is: How can Hong Kong most effectively allocate its resources in the renewable energy sector, especially in light of higher cost implications?

There are at least three different scenarios for integrating renewable energy into Hong Kong's fuel mix.

- (i) Encourage or mandate large-scale renewable energy generation (e.g. wind farms, large scale waste to energy, solar) where practical. This is likely to be undertaken by power companies.
- (ii) Encourage small-scale renewable energy generation on a distributed basis (e.g. solar, wind, biomass, co-generation, tri-generation). Under this scenario, power is likely to be produced by businesses, NGOs, Government, universities and private individuals.
- (iii) Import clean, low carbon energy<sup>14</sup> from Mainland China in the longer term.<sup>15</sup>

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<sup>12</sup> In paragraph 6.38 of the Consultation Document, renewable energy is grouped together with coal and shares a combined fuel mix target of 25%. It is recommended that renewable energy and coal be shown separately with respective percentages, as they have vastly different attributes.

<sup>13</sup> See footnote 1.

<sup>14</sup> Clean, low carbon energy includes renewables and nuclear.

<sup>15</sup> Renewable energy imported from China should meet the concept of "additionality" in order to avoid simply externalising Hong Kong emissions. The concept of "additionality" refers to the idea that renewable energy imported by Hong Kong would be "additional" in that it would not come from renewable sources that China would have otherwise developed in the normal case.



BEC believes that the focus of current efforts should be on smaller scale local distributed generation of renewables and studying the potential for importing low carbon energy from Mainland China as soon as this can be reliably delivered.<sup>16</sup>

Development of small-scale distributed renewables has the potential to reduce peak demand loads and can help diversify the fuel supply and enhance fuel security.<sup>17</sup> Currently, the cost of renewable energy technologies is falling, particularly with respect to solar. In addition, new renewable technologies are rapidly emerging. With this backdrop and a receptive regulatory environment, small-scale renewable energy generation could be encouraged and may lead to innovation and experimentation within the renewable sector, which will benefit the electricity sector as a whole.

BEC recognises that presently, development of renewable fuel sources may cost more than conventional fuel generation and, as a result, may raise issues of equity and fairness if higher costs are passed through to all consumers (including those least able to pay).<sup>18</sup> Given current limitations on renewable potential in Hong Kong, these costs may be relatively low, nevertheless, how these costs are paid for and by whom, will need to be carefully considered in connection with development of renewables.

It is clear that Mainland China is better situated than Hong Kong to generate renewable energy and that considerable efforts are being made by Mainland China in the renewable sector. It is therefore also incumbent upon Hong Kong to consider importing additional renewable energy from Mainland China in the longer term. As the Mainland's fuel mix and reliability improves, there may be opportunities to further reduce our air and CO<sub>2</sub> emissions by importing clean, low carbon energy from the Mainland.<sup>19</sup> BEC encourages Government to further study issues related to enhanced interconnection in the longer term.

**Question 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 DSM and RE by the power companies?*

As a general position, BEC believes that the SCA could be made more flexible so that the parties can respond quickly to step changes in the electricity market for the benefit of the community as a whole. New and innovative technologies are rapidly emerging in many areas, including renewables, energy storage and smart grid systems. These technologies have the potential to change the landscape of the electricity market and drive policy change. The SCA should allow the parties to respond quickly and effectively to any such changes.<sup>20</sup>

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<sup>16</sup> As stated in BEC's Response to the Public Consultation on "Future Fuel Mix for Electricity Generation" submitted to the Government on 16 June 2014, BEC supports carefully studying the feasibility of importing clean, low carbon energy from Mainland China as soon as this can be reliably delivered.

<sup>17</sup> Increasing renewable capacity is also consistent with IPCC recommendations on fuel mix which state that a move to natural gas should only be a stop-gap measure and that countries should be moving towards renewables within the next 25 years. See Intergovernmental Panel on Climate Change Fifth Assessment Report, Summary for Policy Makers (2014), Section 4.2.2.

<sup>18</sup> This type of arrangement may be seen as a cross-subsidy to renewable providers by electricity consumers.

<sup>19</sup> Provided such clean, low carbon energy meets the "additionality" test. See footnote 14.

<sup>20</sup> The UK's RIIO regulation is instructive in this respect. RIIO provides incentives for power companies to test new emerging technologies, enabling them to respond to a changing energy environment.



At a more specific level, BEC believes the SCA could be refined to include clear and workable mechanisms to stimulate investment in and promote renewable energy. Areas for reform should include: grid access, payment for surplus power, grid technology and incentive structures.

### Renewable Energy Provisions

#### *(i) Grid Access on Fair and Certain Terms*

As discussed in Question 2, the SCA could be refined to provide independent clean energy power producers with grid access on fair and reasonable terms and establish minimum parameters for grid access while maintaining sufficient flexibility to deal with practical issues, such as different requirements for different types and sizes of renewable systems. As noted previously, the technical and safety standards for grid access for smaller renewable systems identified by power companies may provide a useful baseline for Government, when considering what grid access provisions might look like, in future consultations with the power companies and relevant stakeholders. To the extent possible, specific terms and conditions regarding technical, safety, reliability and standard commercial arrangements could be considered for inclusion in the SCA in order to provide certainty for investors and facilitate investment decisions.<sup>21</sup> The price of grid access should fairly reflect the cost of network access (using only those assets that are required, including those for back-up supply).

#### *(ii) Payment for Surplus Power*

In the future, producers of renewable energy should be paid for surplus power produced and returned to the grid. The terms of supply and an agreed upon pricing mechanism (or mechanisms) for surplus energy should be determined by the Government, representing the wider community and electricity customers, in partnership with relevant stakeholders (including power companies and independent producers), bearing in mind the costs involved.<sup>22</sup>

There are a variety of methods used globally to determine the price producers of renewable energy are paid for providing surplus power to the grid.<sup>23</sup> BEC urges the Government to evaluate different pricing

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<sup>21</sup> Per the Consultation Document, specific terms and conditions could be developed during the next regulatory period by the Government and the power companies, in consultation with relevant stakeholders, including prospective independent power producers and investors. See Consultation Document, Section 4.22.

<sup>22</sup> The existing SCA does not provide a pricing mechanism for surplus power generated by independent power providers, except as may be determined by the power companies on a case-by-case basis. Currently, no surplus energy is generated by independent power producers.

<sup>23</sup> Two commonly used approaches are feed-in-tariffs (“FITs”) and net metering, each of which has different implications for price and fairness. FITs are policy mechanisms used to encourage deployment of renewable energy, where the producer of renewable energy is paid a set price for energy exported to the grid. Net metering is a similar scheme, where the meter, in effect, runs backward and the power producer is credited the retail price of electricity for power exported to the grid.

The decision whether to adopt FITs or net metering requires consideration of appropriate pricing of renewable energy. This can be a challenging process and raises issues of equity and fairness on multiple levels, including, for example, how to account for externalities, such as environmental pollution, which result from conventional fuel generation.

FITs have been used in many jurisdictions, particularly in Europe and Australia, however, the results of FITs are mixed and concerns are frequently raised regarding “cross-subsidies” (in which the costs of RE development by some are passed through to all customers, including those least able to pay, as highlighted in recent report by the Grattan Institute [<http://grattan.edu.au/report/sundown-sunrise-how-australia-can-finally-get-solar-power-right/>]) and potential for market gaming.





models to determine a fair and workable approach for Hong Kong and to assess whether and how to best incorporate pricing of renewable energy into the SCA framework.

(iii) *Phased Transition to Smart Grid/Meters*

As part of facilitating renewable energy on a distributed basis (and in connection with demand side management programmes discussed below), BEC believes that smart grid technologies could be phased in over time. In addition to infrastructure investments, the transition to a smart grid will require considerable investment in education programmes and grid systems (such as smart meters, data analytics and grid automation) to enable consumers to exercise choice and improve efficiency and power companies to offer products such as (i) time of use tariffs, (ii) different tariffs based on fuel mix (“green tariffs”) (iii) flexible billing (iv) peak demand tariffs or rebates and (v) capacity based (versus energy based) tariffs.

Mindful of the cost of smart grid technology, BEC suggests that a detailed cost/benefit analysis be undertaken to determine how to speed the transition to a smart grid system (including whether mandates or incentives are appropriate in the SCA) in the most cost effective manner.

(iv) *Improve Existing Incentives for Power Companies to Invest in Renewables*

The existing SCA provides power companies with an incentive to build renewables by granting them a higher permitted rate of return (from 9.9% to 11%). However, as noted previously, this incentive has not yielded significant results in terms of new renewable capacity. BEC supports adding flexibility to the SCA to allow for stronger incentives for power companies to invest in renewables as they become more cost-effective and commercially viable in Hong Kong.

Demand Side Management Provisions

*“The cheapest energy is that which is not used.”<sup>24</sup>*

BEC believes that improving demand side management programmes is a critical part of transforming the electricity sector. Demand side management and energy efficiency programmes have a host of proven direct and indirect benefits, including, among others, reducing overall energy use, reducing peak demand loads, improving affordability, enhancing security of supply, and reducing emissions. As a dense, highly built-out, urban city, Hong Kong is particularly suited to take advantage of demand side management measures.

Moreover, because demand side management programmes have not yet been implemented in a widespread way in Hong Kong, significant opportunities to realise energy savings exist. In recognition of this, the Government recently published its Energy Saving Plan for Hong Kong 2015-2025+, which sets a new target of reducing Hong Kong’s energy intensity by 40% by 2025 (using 2005 as base) and lays out a robust and detailed energy efficiency strategy for achieving this target. Demand side management programmes may also be particularly important in the short term to cover potential gaps in supply as Hong Kong transitions to a fuel mix dominated by natural gas.

Net metering, which is more common in the United States, appears to solve some of the issues related to fairness, but it is unclear whether the value of energy returned to the grid, which is typically based on retail price of electricity, is sufficient to spur investment in renewables.

Both FITs and net metering raise complex issues, including, in particular, issues related to pricing and fairness. BEC believes that these mechanisms merit further study and an in-depth evaluation of the costs and benefits should be undertaken in order to determine whether they would be appropriate in Hong Kong. Ultimately, the pricing of renewable energy produced by providers remains a thorny issue and market testing may be required to determine correct prices.

<sup>24</sup> Consumer Council Report, Section 5.4.



(i) *Energy Efficiency Targets*

BEC believes that the SCA should include aggressive energy efficiency targets for power companies tied to compelling incentives (for example, an increase in the permitted rate of return).<sup>25</sup> Compelling incentives for power companies are needed to counteract the effects of reduced revenues or deferred development of new capacity (stemming from energy efficiency or peak demand reduction gains). As a matter of best practises and to maintain its competitiveness throughout the region, Hong Kong should consider establishing energy efficiency targets *at least* as ambitious as those implemented by China to meet the energy intensity reduction targets set forth in its 12<sup>th</sup> Five-Year Plan<sup>26</sup> where they are appropriate to a developed and highly urbanised service economy like Hong Kong.<sup>27</sup> Energy efficiency targets could also include specific targets for reducing peak demand loads.

(ii) *Energy Audits and Loan and Education Funds*

The SCA establishes an energy audit incentive programme, which encourages the power companies to provide energy audits to customers, and a loan fund for power companies to provide loans to customers to carry the recommendations identified in the audits.<sup>28</sup> However, the response to these programmes has not been enthusiastic and anecdotal evidence suggests that many customers may be reluctant to invest in energy efficiency measures due to the long payback periods of such investments. Given this, it may make sense to expand the energy audit programme in the SCA to include more powerful incentives for customers to carry out the energy efficiency recommendations identified by the audit. For example, a Government fund could be established (in lieu of or in addition to the power companies' existing loan funds) to provide rebates to the customer for a portion of the cost incurred to implement audit recommendations.

In 2013, as part of interim review of the existing SCA, the power companies agreed to establish funds to provide owners of residential buildings with direct subsidies on a matching basis to implement energy efficiency improvements in the common areas of buildings.<sup>29</sup> These programmes are still relatively new and results may be difficult to quantify, however, if they prove successful, it may be useful to consider expanding these types of matching subsidies to the commercial sector.

The SCA also requires power companies to finance education funds to educate customers on energy efficiency measures.<sup>30</sup> Government and the power companies should work closely together to expand the reach of existing energy efficiency education programmes and create additional programmes that yield measureable results. BEC encourages Government to assess how best to work with the power

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<sup>25</sup> In many jurisdictions, this role traditionally falls to the regulator, but under the existing framework in Hong Kong, it needs to be incentivised (or mandated) by the Government via the SCA.

<sup>26</sup> China's 12th Five-Year Plan includes regional energy intensity reduction targets that specific cities were expected to achieve in part through robust energy efficiency measures, including new green building construction practices, as well as retro-fitting of existing commercial buildings. See <http://www.institutebe.com/energy-policy/china-five-year-plan.aspx>.

<sup>27</sup> Likewise, there may be some circumstances in which Hong Kong's developed and highly urbanised service economy may permit it to establish higher energy efficiency targets than those adopted by China.

<sup>28</sup> CLP and Hongkong Electric are required to provide \$25 million and \$12.5 million per annum respectively to the loan funds established under their respective SCA.

<sup>29</sup> CLP's Eco-Building Fund provides approximately \$70 million of matching subsidies to successful applicants over five years. Similarly, Hongkong Electric's Smart Power Fund provides approximately \$25 million of matching subsidies over a five-year period.

<sup>30</sup> CLP and Hongkong Electric are required to provide \$5 million and \$2.5 million per annum respectively to the education funds established under their respective SCA.



companies on energy efficiency education initiatives that meet the priorities laid out in the Government's Energy Saving Plan.

**Question 6:** Do you have any other comments or suggestions?

As discussed above, BEC strongly believes that a clear, cohesive and flexible energy policy is needed to guide the development of the electricity market. It is incumbent upon Government to develop this policy and show strong and sensible leadership in its implementation. Ultimately, meaningful reforms necessary to transition Hong Kong to a low carbon economy will require decisive action by Government and a strong partnership amongst Government, the power companies and the people of Hong Kong.

BEC looks forward to working constructively with the Government in taking our policy recommendations forward. If there are any questions or concerns in regards to the content of this submission please contact our Chief Executive Officer, Ms. Agnes Li, at [agnesl@bec.org.hk](mailto:agnesl@bec.org.hk) or 2784 3950.

Yours sincerely,



Prof John Chai

Chairman

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