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11 December 2015

By E-mail

Ms Debbie Yau
Clerk to Panel on Economic Development
Legislative Council Complex,
1 Legislative Council Road,
Central, Hong Kong

Dear Ms Yau,

Panel on Economic Development
Follow-up to meeting on 23 November 2015

Public Consultation on the
Future Development of the Electricity Market

At the meeting of the Legislative Council (LegCo) Panel on Economic Development on 23 November 2015, Members requested the Administration to provide information on a number of issues relating to the Public Consultation on the Future Development of the Electricity Market (the public consultation) as set out in your letter of 25 November 2015. The information is provided below for Members' reference.

(a) Analysis of views received during the public consultation

An analysis of the views received during the public consultation on various issues is set out at **Annex**.

(b) Interconnection between the power companies

The transmission networks of the two power companies have been interconnected since the early 1980s. The existing interconnection between the two power companies is of the scale that is required to serve the functions of providing mutual support between the two power grids, reducing the reserve capacity each power companies requires, and allowing economy power transfer between the two power companies, such as when the marginal generation cost of one company is substantially lower than the other. There were occasions of such economy transfer when one of the power companies had to resort to the use of more expensive fuel due to disruption of fuel supply.

As set out in the public consultation document, while we are open to the idea of enhancing the existing interconnection to the scale of facilitating competition between the two power companies, we have pointed out that the costs to consumers will outweigh the benefits until there are major changes in the local market conditions. On the cost side, enhancing interconnection to the scale for competition between the two power companies would incur additional substantial upfront investment amounting to over $10 billion based on a rough estimate, equivalent to the installation cost of several gas generation units. Besides, suitable sites for construction of necessary infrastructure would need to be identified.

The perceived benefits to consumers, however, are unlikely to materialise for the following reasons: –

(a) One of the perceived benefits is that enhancing interconnection would allow consumers to use electricity from the power company with lower generation costs. In fact, the tariff differential between the two companies is expected to narrow in future as the two power companies will mainly use natural gas to meet the emission cap; and

(b) Another perceived benefit is that enhancing the interconnection would reduce the reserve capacity level of power companies. However, for reliability in power supply, power companies cannot solely rely on the support from the reserve capacity of the other interconnected power companies without keeping any reserve capacity of their own. This is particularly the case as the public considers reliability of power supply is of utmost importance. Enhancing the interconnection in the near future cannot help to further reduce each of their reserve margins, which will be at around 20% - 30% at the end of this SCA period. Nor can it obviate the need to replace the retiring coal-fired generating units with gas-fired units in order to improve the fuel mix for electricity generation.

Having regard to the potential costs and benefits, our current assessment is that enhancing interconnection of two local grids in isolation will only increase tariff without bringing concrete benefits to the consumers at least in the near term.

The above notwithstanding, the situation may be different in the longer term. If it is decided that electricity from the Mainland would be imported in future, consumers may have more choices in terms of fuel types and tariffs given the different fuel mix and cost structures of local and Mainland power suppliers. The two existing local power grids may then have to be better connected in parallel to connection with the Mainland grid. The cost and benefit analysis on how to strengthen the interconnection between the two existing transmission networks will be performed in that context.

(c) Issues raised in Hon SIN Chung-kai's letter of 21 November 2015

The outcome of the public consultation shows that the public held different views on the subject of introducing competition. The majority of the respondents considered that the power supply in Hong Kong was reliable and safe at affordable price, and they did not see a need for introducing competition for the sake of bringing in choices. Some respondents considered that while choice had its merits, the requisite conditions for introducing competition were not present at this stage.

Despite the divergent views, considering the long-term development of the electricity market, we consider that we should undertake the necessary preparatory work to pave the way for introducing potential new suppliers in future when the requisite market conditions are present. Specifically, we plan to discuss and conduct studies with the power companies in the next regulatory period on arrangements for access to the existing power grids by new players and enhancing the interconnection with the Mainland grid and between the local grids.

As regards grid connection of distributed renewable energy (RE) systems, the current Scheme of Control Agreements provide that power companies shall offer standardised arrangements for back-up supply for customers with such systems. However, as echoed by many respondents during the public consultation, the existing arrangement should be improved to better facilitate grid connection for distributed RE generators to encourage their development, and we would pursue this important issue with the power companies in negotiating with them the future contractual arrangement.

The Administration has been maintaining close liaison with the LegCo on matters in relation to the future development of the electricity market. While we have to keep the discussion with power companies in confidence in order to avoid jeopardising the Government's negotiation position and safeguard consumers' interests, we would keep the LegCo informed of developments as and when appropriate.

Yours sincerely,

(Noel PUN)
for Secretary for the Environment

Annex

Analysis of Views Received during the Public Consultation on the Future Development of the Electricity Market

Competition **[About 10 000 written submissions provided views on this subject]**[1]
General views: - The majority[2] of the respondents considered that currently the power supply in Hong Kong was reliable and safe at affordable price, and they did not see a need for introducing competition for the sake of bringing in choices. - Some respondents considered that while choice had its merits, the requisite conditions for introducing competition were not present at this stage. - Noting that overseas experience had shown that introducing competition delivered mixed results and might not necessarily reduce the tariff level, some reckoned that the Government should study the issue carefully before introducing competition. - While recognising the importance of choice, some respondents considered that reliability and safety of electricity supply were of utmost importance and competition should be introduced only if it brings benefits to consumers without compromising these two important objectives. - Some respondents considered that choice was important to enable users to select the supplier who could best suit their needs. - Political parties, statutory bodies and green groups were generally more supportive of the introduction of competition. Some criticised the lack of progress on this front, and advocated segregation of generation and transmission & distribution (T&D) and other preparatory work be pursued in order to introduce competition. - The business sector was in general less positive about the introduction of competition. Many private corporations considered that the performance of the power companies had been satisfactory and did not see the need to introduce competition to bring in choices. Quoting overseas experiences, some were skeptical about the benefits of introducing competition and cautioned that it should not be pursued at the expenses of other energy policy

1 Apart from the written submissions, over 25 engagement and consultation sessions, as well as a public forum were held to solicit views. The analysis takes into account the comments and opinions received thereat in addition to those in the written submissions received.

2 Unless otherwise stated, the quantifier refers to those respondents who gave views on the issue.

objectives.

- The CLP Power Hong Kong Limited and Castle Peak Power Company Limited (CLP) considered that the benefits of competition had yet to be proven and more detailed analysis was needed. The Hongkong Electric Company, Limited (HKE) considered that the prerequisites for introducing effective competition were not present due to insufficient market size and scarce land supply.

- Over half of the respondents were of the view that reliability and affordability were the key objectives for introduction of competition. Around one-fourth of the respondents considered that safety should be achieved through introducing competition.

- Other objectives suggested to be achieved included improving environmental performance, enhancing customer satisfaction, achieving fairness, allowing consumer choices and promoting the adoption of RE.

Specific views/suggestions:

- While some supported a gradual change in the current system, there was a suggestion that competition should be introduced in 2023 and an independent advisory body established to oversee the process.

- A number of respondents considered that competition should be introduced at the generation level. A view suggested that competition could be introduced at generation level through (a) excluding all future generating assets of the two power companies from the average net fixed asset; (b) publishing access terms for the use of T&D networks by third parties so that investors could have a clear understanding of the commercial environment before entering into the market; (c) establishing an independent system operator to ensure all generation and interconnected plants could maximise their efficiency; and (d) paying the new generators either Feed-in Tariff (FIT) or on terms agreed in Power Purchase Agreement.

- Some green groups reckoned that the lack of competition had discouraged the use of cleaner energy.

- Some members from the business and academic sectors as well as CLP considered that choices could be introduced within the existing regulatory regime through providing consumers with different tariff and payment plans.

- There was a view suggesting that competition should be introduced among the existing power companies as the first step to allow consumers to choose their own energy suppliers.

Regulatory Arrangement **[More than 14 000 written submissions provided views on this subject]**
General views: - Almost all respondents considered that the current contractual arrangement by Scheme of Control Agreements (SCAs) had generally worked well and allowed us to achieve the energy policy objectives. The same view was echoed by various stakeholders, including the academia, business sector and professional bodies, as well as the two existing power companies. - About half of the respondents considered that improvements should be made in respect of such areas as the level of permitted rate of return (RoR), mechanism to promote energy saving, promotion of distributed RE, monitoring of power companies' investments and carbon reduction etc.. Similar comments were made by various groups of stakeholders, including political parties, green groups and academics. - HKE did not see a need to make any unnecessary changes to the current SCA regime, while CLP in principle supported that the current contractual arrangement should be maintained but accepted that changes needed to be considered to facilitate more RE, energy efficiency and demand side management (DSM).
Specific views/suggestions: - There was a view that legislation should be introduced to set up a licensing regime to facilitate separation of generation and transmission businesses in future. - Some respondents noted that the current SCAs allowed the two power companies only to earn a return from their RE investment but provided no incentive to small-scale distributed RE generators. Some respondents commented that the SCAs did not set out the terms of grid access arrangements for distributed RE producers. - Some respondents considered that improvements should be made to monitor the investment of the two power companies to avoid over-investment in generating units, resulting in excessive reserve capacity and high tariff. - Some noted that the current mechanism to encourage promotion of energy saving by power companies was not effective. - Some respondents remarked that the current regime did not help facilitate the introduction of competition and lacked transparency.

- Some suggested that an independent advisory body should be established to regulate the electricity market, while some suggested that consumers should be represented in the regulation and development of electricity market.

Future Contractual Arrangement

(a) Duration
[About 9 000 written submissions provided views on this subject]

General views:

- The majority of the respondents agreed that the duration of the future contractual arrangement should be maintained at ten years, with an option exercisable by the Government to extend for five more years. They reckoned that this duration had struck a right balance between the need to allow long-term planning by the power companies and the need to maintain flexibility for introducing possible changes to the electricity market in future.

- Some respondents considered that the duration of the SCAs should be lengthened, in order to provide more certainty to attract investment in upkeeping supply security.

- CLP considered that the duration of the new SCA should be similar to the current one and should be in the order of 15 years. HKE considered that 15 years was the most appropriate duration, and that a ten-year term was insufficient to allow effective planning.

- Only a small number of respondents considered that the duration of the SCAs should be shortened, so as to allow flexibility for making timely adjustment to the contractual terms having regard to market conditions and for introducing competition.

- There was a view that the SCA should be renewed for five years with appropriate adjustments to the existing terms and conditions, with a view to introducing competition by 2023.

(b) RoR
[About 10 000 written submissions provided views on this subject]

General views:

- While more than half of the submissions supported maintaining the RoR at the current level of 9.99% to provide the necessary incentive to the power companies to make investment, many stakeholders, including some political parties, academics, statutory bodies, advisory bodies, suggested that the RoR should be lowered in view of the low-interest rate environment and the low business risks of the power companies' investment.

- The business sector generally considered it important to provide a reasonable return to the power companies to attract capital investment, with some suggesting that the level of RoR should be considered together with other terms of the new contract. They considered that the RoR should be sufficiently high to attract investment but not excessive, and urged the Government to balance the interest of investors and the wider community. A few business chambers, however, suggested that there was room for reducing the RoR.

- CLP was of the view that the appropriate level of RoR could only be set when there were clearer ideas about other elements in the new regulatory arrangement. HKE considered that the 9.99% RoR should be maintained, noting that setting the RoR too low would discourage capital investment and affect supply reliability.

- Among those who considered that the RoR should be lowered, some considered the range of 6% to 8% mentioned in the consultation paper about right, while some suggested a level between 8% and 9.99%. A relatively small number of respondents suggested a rate below 6%.

Specific views/suggestions:

- Some respondents commented on the need to have an objective basis to set the RoR, and asked for more information on the methodology for determining the rate.

- There were a few suggestions on how the RoR should be set, e.g. pegging the RoR with inflation or Hong Kong Inter-bank Offered Rate, reviewing the RoR periodically and pegging the RoR with the power companies' performance in promoting DSM. Some views suggested that the RoR and the fixed asset should be de-linked.

- Some views suggested that the RoR should be reviewed regularly, and that a revision mechanism should be in place under the new SCAs.

- Some views suggested that different assets shall carry different RoR percentage. For instance, asset relating to transmission/distribution could have a higher RoR but it should be tied with a faster depreciation rate of its asset value.

(c) and (d) Fuel cost arrangement and tariff approval mechanism [About 9 000 written submissions provided views on these subjects]

General views:

- The majority of the respondents considered that the current fuel cost arrangement appropriate and should be maintained.

- The business sector generally supported the current arrangement on the ground that the high volatility of fuel cost was beyond the control of the power companies. Some political parties and professional bodies considered that the current pass-through arrangement might not be effective in encouraging the two power companies to exercise prudence in fuel sourcing and fuel price forecasting, and that the Government should enhance its monitoring role on fuel cost estimation and fuel procurement by the power companies.

- CLP supported the current arrangement, while HKE noted that the pass-through arrangement was the industry norm, that the current Fuel Clause Recovery Account was an effective cushion to buffer fuel cost impacts on consumers, and that the fuel component of the electricity tariff was already subject to rigorous scrutiny.

- Many respondents considered that the current tariff approval mechanism had worked well and should be maintained.

- Some business chambers were of the view that the present tariff approval mechanism was rigorous enough to ensure the power companies could not raise tariff without proper approval.

- CLP and HKE considered the current tariff approval mechanism effective in safeguarding consumers' interest. They had reservation on the Government's tariff approval proposal as this might undermine their ability to raise capital for their future investment, and hence consumers' interest.

Specific views/ suggestions

- There were calls for the power companies to diversify their fuel sources to enable more stable fuel price, and enhance transparency on fuel cost data.

- Some political parties supported the Government's proposal of extending the Executive Council (ExCo)'s tariff approval to fuel cost.

- Some views suggested that the fuel costs should be shared among the power companies and the consumers, while some suggested that it should be solely borne by the power companies.

- Some political parties, professional bodies and think tanks suggested that the tariff approval mechanism should be tightened, such as by setting up an independent authority to regulate the tariff level or extending the tariff approval by the ExCo to cover not only basic tariff and but also the net tariff.
(e) Incentive and penalty scheme relating to the performance of the power companies **[More than 8 000 written submissions provided views on this subject]**
General views - The majority of the respondents supported the current incentive and penalty scheme, which they reckoned had enabled a reliable and safe electricity supply. - CLP noted that arrangements should be in place to encourage better performance by the power companies, and was prepared to explore refinements to the existing regime. HKE considered that the current incentive and penalty scheme was well designed, and that any proposed improvements had to be considered on the premises that the targets were reasonable and achievable.
Specific views/ suggestions: - Some respondents suggested that the thresholds for the incentives and penalties should be raised. - Some commented that as the need to achieve reliability, operational efficiency and customer services was ingrained in the power companies' culture, it was not necessary to provide incentives to this end while the penalties for failing to achieve the required standards should be retained. - There was a view that the incentive arrangement for achieving emission target for HKE should be removed as the one for CLP. - Some suggested that more incentives should be provided to the power companies to encourage better environmental performance. - Some views suggested that a penalty should be imposed on exceedance of a permitted maximum reserve margin to ensure vigilance in forecasting maximum demand.

Promotion of RE
[About 13 000 written submissions provided views on this subject]

General views

- Around half of the respondents supported further development of RE despite its higher tariff implications.

- Most of the stakeholder groups, including some political parties, advisory bodies, green groups, professional bodies, and academics etc. supported further development of RE. Some academics and professional groups recognised that the potential of developing RE in Hong Kong might be limited and considered that waste-to-energy should be pursued.

- Many considered that RE should be developed by the power companies to achieve economy of scale but did not indicate whether they were willing to accept the higher tariff implications.

- Some did not support further development of RE, on the ground that there was limited potential to develop RE in Hong Kong due to geographical limitations. Given the high capital costs, they considered it not cost effective to promote RE.

- CLP considered that there were constraints to develop large-scale RE projects, and supported further development of smaller distributed RE systems. HKE was of the view that there was very limited potential for developing distributed RE generation, which would unlikely be economically justified without subsidies or incentives. It considered that commercial scale RE system was the only pragmatic way to promote RE.

- Among those who were prepared to pay more to use more RE and had indicated a specific amount, most indicated that they were prepared to pay up to 5% more or 5% to 10% more.

Specific views/suggestions:

- A substantial number of submissions considered that clear terms on grid access should be set out in the future contractual arrangement to encourage development of RE by small-scale distributed generators.

- Some respondents considered that the existing voluntary grid access arrangements had proved to be ineffective, and suggested that mandatory clauses in relation to grid access and power back-up arrangements should be set out in the future contractual arrangement. There were also respondents suggesting FIT or net-metering.

- Some considered that FIT was not fair as the cost incurred by RE generation had to be shared by all electricity users. Some green groups, however, considered that rewarding RE through net-metering instead of FIT was not fair, as it did not recognise the higher capital cost and longer payback period of developing RE. - Some academics considered that the current 11% of RoR for RE assets was too generous and suggested that the same RoR should be adopted for both RE and non-RE assets. - Some held the view that the cost for developing RE should not be wholly borne by consumers, and suggested that incentives or subsidies should be provided by the Government. - CLP was prepared to explore FIT and net-metering and facilitate grid connection of distributed RE facilities. HKE considered FIT would entail cross-subsidisation while net-metering was not cost-effective. - Some views suggested that the cooperation between Hong Kong and the Mainland on RE development should be strengthened.
Promotion of DSM **[More than 11 000 written submissions provided views on this subject]**
General views: - There was a clear consensus that the future contractual arrangement should be crafted to better help promote energy saving and conservation. - Many political parties, business organisations and professional groups advocated the promotion of energy saving.
Specific views/suggestions: - Many respondents suggested that a specific energy saving target should be set for the power companies in the incentive and penalty scheme. - Some suggested pegging part of the rate of return allowed for the power companies with their performance in promoting energy saving and reducing energy consumption. - The idea of setting up an Energy Efficiency Fund to subsidise the implementation of energy saving measures by consumers was floated by some respondents, though their suggested sources of funding varied.

- Some advocated the implementation of smart metering to enable consumers to better understand their consumption patterns. - Several green groups proposed in a joint submission setting for power companies energy saving targets in terms of total consumption and maximum demand, and implementing the targets through an incentive and penalty scheme. Some academics and advisory bodies made similar suggestions. - Some political parties, business organisations and professional groups suggested that emphasis should be put on promoting green features in buildings, and some proposed subsidising the installation of energy efficient equipment. - While some noted that it would be more effective for third parties rather than the power companies to drive DSM, some opined that the Government should play a facilitating role in the promotion of DSM in the private sector by providing financial incentives. - Some proposed that the tariff structure could be reviewed to help reduce energy consumption or peak demand, but there were dissenting views as to whether progressive rate should be adopted by the commercial users as with residential users. Those opposing the idea considered that commercial consumers already had a strong incentive to save energy in order to cut down their operating cost, and it would be unfair to those which had to use more electricity by the nature of their businesses. - Some opined that Time-of-Use tariff, coupled with the implementation of smart metering, could help achieve energy reduction. - There was a view suggesting that a "negawatt market" could be explored to encourage promotion of DSM. - There was a view suggesting that the power companies should set aside fund for (a) sponsoring researches on enhancing interconnection between the Mainland and Hong Kong, as well as that between the existing grids in Hong Kong, and (b) promoting the development of DSM and RE. - CLP was prepared to step up its efforts on promoting energy efficiency, including installing smart meters. HKE had reservation on the cost effectiveness of smart metering due to its tariff implications, and suggested that further study on the matter was warranted.
Other Comments
- Some respondents considered that the power companies, as public utilities, should bear more social responsibility. They suggested that power companies

should provide concessionary tariff to the underprivileged and install independent meters for sub-divided unit tenants to help avoid abusive charging by their landlords.

- Some suggested that an appropriate mechanism should be put in place for approving disposal of fixed assets by the power companies, while some considered that the stranded costs provision in the SCAs should be removed to facilitate introduction of competition in future.

- Some advocated that we should import more nuclear energy from the Mainland while some argued that Hong Kong should stop importing nuclear power from the Mainland altogether.

- Some submissions from political parties and professional bodies suggested that the reserve capacity of the two power companies were on the high side as compared with other overseas power utilities and should be reduced.

- Some views suggested that carbon emissions by power companies should be lowered to cope with climate change.

Environment Bureau
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