For discussion on
30 June 2006

Legislative Council Panel on Economic Services

Future Development of the Electricity Market in Hong Kong Arrangements to Cater for New Supply Sources

Introduction

This paper sets out Government's plan and proposals regarding the arrangements to cater for new supply sources for the future development of the electricity market in Hong Kong.

Background

2. Hong Kong's electricity market is an open one. Interested investors who meet the relevant reliability, safety and environmental requirements can enter the market. Owing to the topographical constraints of Hong Kong, large-scale new supply sources would likely come from the Mainland. Government's latest assessment shows that though the supply and demand situation in Guangdong would improve in the next few years, electricity supply would remain tight in the near term, especially in certain regions and during certain times of the year. Therefore, it would be prudent at this stage not to predicate the future development of the electricity market in Hong Kong on supply from the Mainland.

3. Taking into account the result of the above assessment and the need for a relatively stable and certain environment for long-term investment by the power companies, Government has proposed in the Stage II Consultation Paper on Future Development of the Electricity Market in Hong Kong to continue the existing economic regulation by means of a new bilateral agreement signed between Government and the two power companies. To provide greater flexibility in responding to future market development, the term of the new agreement is proposed to be shortened from the existing 15 years to 10 years with an option to extend for another 5 years. Moreover, to cater for new supply sources, Government has further proposed a number of measures to facilitate

connection of renewable energy (RE) sources to the power grid of the incumbent power companies and to pave way for importing electricity from the Mainland over the longer term. Related issues include grid access, increased interconnection and the future regulatory framework.

Grid Access

4. The power grid (transmission and distribution networks) plays a critical role in the electricity supply business. It is a carrier via which electricity is delivered from the supply sources to the end-users. Third party connection/access to the power grids of the existing two power companies can facilitate development of alternative supply sources including RE and those from the Mainland.

5. The existing power grids are private properties of the two power companies which have been planned, developed and operated by the companies to match their own supply sources, mode of operation, and the demand of their consumers. The power grids may therefore not be immediately compatible with the operating condition of a third party, and may have to be reinforced or reconfigured. To ensure the integrity of the power grids, and therefore reliability and safety of supply to consumers, it will be necessary to develop codes of practice and standards relating to supply reliability and safety, and liability (in case of fault). Costs will be entailed in reinforcing or reconfiguring power grids, providing back-up electricity supply and maintenance of the system. Arrangements will have to be in place to ensure that consumers will not be made to bear such costs unduly.

6. Having due regard to the rights and ownership of the power companies in their power grids and to prepare the ground for future market development, we propose to seek the agreement of the two power companies to provide connection/access to their grids. Relevant details are as follows –

Grid Connection for RE Users

(a) Currently, consumers with electricity generating systems using RE for meeting part of their in-house electricity demand can request the power companies to provide, with the payment of a nominal administrative fee, back-up electricity supply by connecting their generating equipment to the power companies' power grids. A set of technical

guidelines on connection of small-scale RE power systems (200 kW or below) to the power grids has been developed by the Electrical and Mechanical Services Department (EMSD) in consultation with the power companies, professional institutions, consultants and contractors, property developers and RE interest groups.

To facilitate grid connection by RE users, we propose to –

(i) institute a standard arrangement for RE users to connect to the grid for backup supply and to extend the arrangement to cover RE systems with capacities above 200 kW, provided that –

- the RE systems in question are not designed to feed electricity into the power grids of the power companies; and
- reliability and safety of electricity supply to other consumers will not be compromised.

In this connection, we will work with the power companies to modify the technical guidelines to cater for RE systems with capacities above 200 kW; and

(ii) seek the agreement of the power companies to waive the nominal administrative fees for grid connection by RE users.

<u>Grid Access for All Generating Facilities using RE</u>

(b) In addition to para. 6(a), we propose to further promote the use of RE in Hong Kong by facilitating generating facilities employing RE to connect and feed electricity to the power companies' power grids.

To prepare for this development, we will work with the power companies, relevant experts and stakeholders to improve the technical codes developed for grid connection for RE users under para. 6(a) to cater for the operation mode where electricity will be fed from the RE sources into the power grids to ensure the reliability and safety of electricity supply of the grids, and will work with the power companies

to develop a set of fair and transparent guidelines for accounting and settlement of power transactions, demarcation of responsibility, accountability and liability, etc.

Grid Access for Other New Supply Sources

(c) In the long run, grid access will be made available to other power suppliers, including possible new supply sources, say, from the Mainland. To ensure that the high standard of supply reliability enjoyed by consumers will not be compromised, this development would depend on many factors, including the availability of reliable and safe new supply sources.

Interfaces between the different parties will necessitate development of regulatory arrangements, one of the options being legislation, to ensure that –

(i) there will be a level playing field for the existing and the new market participants;

(ii) the new market participants will have in place viable development and supply plans which meet relevant safety, reliability and environmental requirements; and

(iii) the responsibility and accountability for supply planning is clearly defined.

7. We propose that the grid connection/access for RE users/generating facilities using RE mentioned in paragraphs 6(a) and (b) above should be negotiated between the prospective grid user and the respective power company. Government will assist where necessary and when requested by either party, including assisting in arriving at mutually agreed access charges. Moreover, Government will initiate and draw up the regulatory framework regarding the grid access for other new supply sources mentioned in paragraph 6(c) above in the long run. This includes the setting up of a new regulatory authority to develop the technical standards to ensure the integrity of the grid, and to regulate the access charge. Further details are set out in paragraphs 10 and 11 below.

Increased Interconnection

8. As mentioned in paragraph 2 above, large-scale new supply sources would likely come from the Mainland. The existing interconnection capability between Hong Kong and Guangdong is adequate for the current transfer of contracted power purchase from the Guangdong Nuclear Power Station at Daya Bay and the Guangzhou Pumped Storage Power Station at Conghua to Hong Kong. To prepare for substantive power transfer to Hong Kong when new supply sources are available from the Mainland, we propose to –

(a) keep close track of developments in the Mainland, and maintain close contact with the relevant Mainland authorities with regard to infrastructure and related issues; and

(b) make preparations for enhanced interconnection, covering both technical and regulatory aspects such as conducting power system planning and utilization studies, power flow assessments, and preparing for the relevant legislative framework.

9. At the same time, Government will pursue enhancing the interconnection between the two incumbent power companies, including requiring them to plan for increased interconnection, taking into account the results of the detailed engineering assessments of their existing interconnector.

Regulatory Framework

10. In addition to the issues mentioned in the above paragraphs, we will also need to address issues such as the transitional arrangements to a new regulatory regime and new the institutional setup. These include segregation of the generation, transmission and supply businesses, and the possible stranded assets of the incumbent power companies. With the longer term development where grid access is made available to other new suppliers and our electricity market will become more competitive, there would be interfaces between many different parties and increased regulatory functions. We envisage the need for a new regulatory authority to deal with such development. Based on the experience of overseas electricity markets, such as the British and Australian electricity markets, the main objective of a regulatory authority is to implement the

energy policy in protection of the interests of the public. The actual functions, however, depend on the relevant market conditions, and may include: regulating charges and performance of the non-competitive segments of the market (such as network business), approving network development plans, monitoring market operations, developing standards and codes and monitoring compliance therewith, issuing licences for market participants, enforcement of licensing conditions and overseeing the operating and energy efficiency of the relevant companies, etc.

11. Government will develop an appropriate regulatory framework in light of possible changes in market conditions and with reference to overseas experience, including to work out the details for the establishment of the new regulatory authority and proceed with all the necessary preparations for the implementation of the new framework.

Way forward

12. We welcome views on the above subjects and related issues for accommodating new supply sources. We shall carefully consider the views received as well as the comments of other sectors of the community made in response to our Stage II Public Consultation in taking forward the preparation to cater new supply sources.

Economic Development and Labour Bureau
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