



香港工程師學會

THE HONG KONG INSTITUTION OF ENGINEERS

香港銅鑼灣記利佐治街1號金百利9字樓  
9/F Island Beverley, No 1 Great George St, Causeway Bay, Hong Kong  
電話 Tel +852 2895 4446 傳真 Fax +852 2577 7791  
hkie-sec@hkie.org.hk www.hkie.org.hk

會長 黃國禮 工程師 太平紳士  
President Ir WONG Kwok Lai JP  
ISO BSc FHKIE R.P.E.  
CEng FICE FCIWEM  
president@hkie.org.hk

By Post and By Fax at 2869 6794

27 June 2006

Clerk to Panel (Electricity)  
Panel on Economic Services  
Legislative Council Secretariat  
3<sup>rd</sup> Floor Citibank Tower  
3 Garden Road Central  
Hong Kong  
(Attn: Ms Debbie YAU)

Dear Ms Yau

**LegCo Panel on Economic Services -  
“Arrangements to cater for new supply sources for the future electricity market  
in Hong Kong”**

Thank you for your letter of 6 June 2006 inviting us to put forth our views on the captioned subject matter.

Together with expert views received from our members, we are pleased to provide herewith for consideration our views and observations on the issue of tentative arrangements to cater for new supply sources for the future presumably within the next term of Scheme of Control Agreement for future electricity market.

Yours sincerely

Ir WONG Kwok Lai  
President

Encl.

**Enclosure****LegCo Panel on Economic Services****Summary of views of the Hong Kong Institution of Engineers  
on arrangements to cater for new supply sources for the future electricity market  
in Hong Kong****General**

1. The Hong Kong Institution of Engineers (HKIE) notes *the Government's energy policy of maintaining reliable, safe and efficient electricity supply at reasonable prices while minimizing the environmental impact* was supported by the public after two rounds of consultation.
2. HKIE agrees reliable electricity supply is a pre-requisite for the success and essential to the continuous development of a metropolitan city like Hong Kong as a world class city.
3. HKIE notes the new Scheme of Control Agreement (SCA) remains to govern the market under the regime of a regulated one, however modified and different from the previous.
4. HKIE also notes this submission is to comment on tentative arrangements that could be considered in the near term, presumably within the next term of SCA for future electricity market.
5. It is under the context of above that HKIE explores the possibilities as below:

**New Supply Sources**

6. Save there were aspirations for improved environmental performance, HKIE opines the current codes and practice suffice for a reliable, safe and efficient quality power supply. The same standards are to be applicable for new plants in future.
7. HKIE believes, new supply sources, whether in Hong Kong or from the Mainland, must have supply reliability and environmental performance equal to or higher than those from existing supply sources.
8. Where a new operator is involved, an assessment should be carried out on the competence, both financially and technically, in order not to jeopardise the existing supply systems structure and to maintain the overall system reliability, taking account of the potential supply sharing of power generation amongst all suppliers.

9. HKIE notes there were concerns of reliability and doubts of a real prospect of importing power from Guangdong, itself with supply scarcity, and therefore believes power supply to be imported from the Mainland is not on the immediate agenda. Hence this is no need to repeat, *inter alia*, the technicality requirement, cost benefit and risk assessment in this respect.

10. HKIE also wishes to point out the existing network does not provide for the arrangement of importing power, hence there would be a cost element to invest in transmission facilities on interconnection for such purposes.

11. HKIE further wishes to caution most generation plants in the Pearl River Delta region are mainly coal-fired generation with many more small thermal and highly polluting self-owned plants in operation to combat frequent power shortage and outage. Isolated supply, however green, if diverted to Hong Kong, would worsen the supply situation in Guangdong and increase pressure on continual operation of these less environmental efficient plants.

12. Hence emission trading with limited entities for the overall improvement of the environment in the region may be optimistically illusive. HKIE proposes viability of adopting new supply must also be assessed regionally in this aspect.

### **Renewable Energy (RE)**

13. HKIE notes from both rounds of consultation there was generally an expectation to promote greater use of RE. The practicality, viability, vulnerability and limitation of which had already been covered in HKIE's previous submission.

14. There is no clear policy on the issue of RE at present. Given the high development and generation cost and the associated technological and geographical barriers, HKIE views only small to medium scale RE application is feasible within Hong Kong.

15. HKIE notes there had been a proposal to import RE from the Mainland, up to a few percent of existing generating capacity.

16. HKIE wishes to point out importing power supplies of such scale, although appearing not entirely substantial, could not displace the need of having the traditional fossil-fuel generation plants in standby because of the unstable characteristic of RE in generation.

17. Were the standby generation capacity is also to be provided by the Mainland RE operators, effectively the proposition suggests a shift of a local industry away from its Hong Kong base jeopardising local job security.

18. Further substantial power transfer would require necessary interconnection with other factors to be considered as covered elsewhere in this submission.

19. HKIE proposes to keep RE generation under a vigorous view by exhausting all possibilities in the territories and at the same time encourage a wider application of user based solar panels as a contribution to environment preservation. The consumers must be informed the unit cost of RE is higher.

## **Arrangements**

### *Grid Access*

20. Grid Access comes in two scales: an integration to allow market entry for a revenue generating supplier or as a supplementary for individual user connection.

21. As HKIE understands it, both rounds of consultation did not suggest a new electricity supplier is to be commissioned within the territories and the notion of obtaining substantial supplies from the Mainland was not envisaged in the near to mid term.

22. Notwithstanding this, HKIE wishes to reiterate the implementation process and mechanism leading to open grid access shall be established before the introduction of new supplier. The required critical system parameters for all aspects must be made available and checked so that power system stability limits are sufficiently preserved.

23. The public should be aware of multiple access might invite more chances of degradation of supply reliability and service quality. The trade in benefit, for example load diversity and sharing, must be more than the increased risks for due justification.

24. A set of regulatory guidelines might be required to oversee and administrate the operation compliance and reliability of an established open grid access regime, taking on board the existing ones are owned by two separate and private entities. Prompt access by others must also be free from unreasonable entry barriers to achieve a fair competition among all parties.

25. Without a clear accountability and responsibility on the grid administration, the certainty of supply could be compromised.

26. For small scale users-based RE, the Electrical and Mechanical Services Department had already produced a set of technical codes for grid access.

### *Increased Connection*

27. HKIE takes the proposed *Increased Connection* was not aiming to overhaul the existing network with that of the Mainland. If otherwise, the complexity of the compatible technicality needed and the vulnerability of the exposure to a large grid with severe disturbance and power swings would preempt this proposition for the region being premature, details of which HKIE does not wish to repeat.

28. Rather HKIE assumes it concerns with the interconnection between the two local operators.

29. HKIE wishes to point out the load demand patterns encountered by the two operators are so similar as to almost identical, limiting the extent of the benefit of load diversity and sharing of existent capacity in reserve.

30. Further, in near term, savings to customers are not possible because the proposed permitted return offered by the SCA does not depend on power generated and sold but rather principally on investment, albeit there was a clause concerning spare capacity.

31. The paradox is, unless up front investment is committed for an interconnection capable to take on regular power transfer in full capacity, free choices for all customers to pursue benefits from competitive tariff could not be realised. But such interconnection would be substantial and immediately bring pressure to increase the tariff.

32. In the longer term, an increased connection could defer the need of new generation plant and enhance common reserve. But this may demand a different SCA from the present version to operate. At present, the existing SCA is actually two separate agreements, although similar.

33. The dilemma is, a new version is only appropriate when and capable to provide benefit until, the two local grids are fully integrated.

34. HKIE considers the current scale of interconnection has served its purpose well in providing a mutual support for the two operators.

35. Any changes, if deemed desirable, should aim to achieve a total integration as an investment for future but not a mean for short-term relief in tariff. Therefore, HKIE opines a meaningful interconnection must be by funded investment, whether independently raised from the capital market or through terms and conditions embedded in the SCA.

36. HKIE hence doubts such large-scale interconnection was in fact economical nor sees the sense of building yet another grid network, duplicating resources and land use.

#### *Regulated Framework*

37. Hong Kong cannot tolerate any lacking in electricity supply due to its overly dense population and hyper commercial activities. It is paramount to avoid occurrences of severe consequences similar to those blackouts in overseas.

38. HKIE considers the present regulating framework is adequate, although there

are room for adjustments to cater for the changing economical climate and community expectation.

39. In essence, regulations must be free from uncertainty and attractive enough for investments.

40. To briefly examine the proposal in Stage II Consultation Paper of providing third-party grid access and increase interconnection between and the two power companies and Guangdong in the long run to cater for possible new supply sources towards a more open market, HKIE sees the followings must be addressed:

- a. An authoritative control on technical compatibility for market entry and on network energy flow in operation.
- b. A clear accountability to avoid cases when a fault occurs with multiple participants blurring their respective accountability on supply reliability.
- c. A fair and level-playing ground for all parties.
- d. Supply must be total and connected to the grid and not dedicated specially to selected districts or accounts to avoid cross subsidy from other captive users.
- e. Terms and conditions of obligation to serve have to be revisited.

41. HKIE views a totally integrated network is fundamental to enforce the foregoing and a designated regulating body is needed to ensure an effective operation. There will be a cost element.

42. The challenge is not to justify the added administrative cost or for that matter those of the up front investment to totally integrate the grid network.

43. Instead it would be a task to enforce the technical compatibility of new supply source situated outside the jurisdiction of Hong Kong and the transmission lines in between.

44. A significant portion of the electricity consumed in Guangdong is in fact imported from hydro plants in Guangxi and from Three Gorges via extra-high tension transmission links. Long lines are more susceptible to damage and fault as witnessed by a recent (12 June 06) black out in Auckland, New Zealand where a portion of transmission circuit was damaged.

45. The fact that operators of electricity facilities in the Mainland are not under the jurisdiction of Hong Kong's regulatory authorities would in itself create regulatory risk and uncertainty.

46. Many disastrous incidents in other international cities in the past years were results of the failure in coordinating and communicating among all the parties involved because of the complexity of work required to make such effective.

47. HKIE does not see Hong Kong would have an easier task to accomplish the needed communication across the region.

## Conclusion

48. Experience in foreign countries had identified that proper operation of open competition requires much more than several parties. Too few would not achieve effective competition. Too many would make it difficult to optimise the transmission system.

49. The electricity market structure in Hong Kong is not adequately large enough to introduce sufficient players for a meaningful and thorough competition.

50. To ensure security in electricity supply, Hong Kong must have its own generation capacity and not to heavily rely on importing electricity from the Mainland. Hence interconnection could not replace the need for new generation units.

51. New power plants under planning to be built in Guangdong in the near future were to replace the large number of inefficient and polluting smaller generators. To divert RE to Hong Kong by offering a more favourable tariff would exclude residents there to enjoy the benefit of an improved environment.

52. The irony is the regional condition around the territories would remain equally polluted.