

立法會
Legislative Council

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Panel on Economic Services

**Minutes of special meeting
held on Monday, 25 September 2006 at 10:45 am
in the Chamber of the Legislative Council Building**

- Members present** : Hon James TIEN Pei-chun, GBS, JP (Chairman)
Hon Jeffrey LAM Kin-fung, SBS, JP (Deputy Chairman)
Ir Dr Hon Raymond HO Chung-tai, SBS, S.B.St.J., JP
Dr Hon David LI Kwok-po, GBS, JP
Hon Fred LI Wah-ming, JP
Dr Hon LUI Ming-wah, SBS, JP
Hon CHAN Kam-lam, SBS, JP
Hon SIN Chung-kai, JP
Hon Howard YOUNG, SBS, JP
Hon LAU Chin-shek, JP
Hon Miriam LAU Kin-yee, GBS, JP
Hon Andrew LEUNG Kwan-yuen, SBS, JP
Hon WONG Ting-kwong, BBS
Hon CHIM Pui-chung
Hon Albert Jinghan CHENG
Hon KWONG Chi-kin
Hon TAM Heung-man
- Members attending** : Hon Mrs Selina CHOW LIANG Shuk-yee, GBS, JP
Hon Emily LAU Wai-hing, JP
Hon Audrey EU Yuet-mee, SC, JP
Hon WONG Kwok-hing, MH

- Members absent** : Hon Abraham SHEK Lai-him, JP
Hon Vincent FANG Kang, JP
Hon Ronny TONG Ka-wah, SC
- Public officers attending** : Mr Roy TANG
Deputy Director of Environmental Protection (3)
Environmental Protection Department
- Mr Esmond LEE
Deputy Director of Environmental Protection (4)
Environmental Protection Department
- Mr TSE Chin-wan
Assistant Director of Environmental Protection (Air Policy)
Environmental Protection Department
- Mr David WONG
Principal Environmental Protection Officer (Cross Boundary
and International), Environmental Protection Department
- Miss Emmy WONG
Acting Deputy Secretary for
Economic Development and Labour (Economic Development)
- Mr Harry LAI
Chief Electrical and Mechanical Engineer (Electricity Team),
Economic Development and Labour Bureau
- Attendance by invitation** : The Hongkong Electric Co., Limited
- Mr C T WAN
Director & General Manager (Corporate Development)
- Mr C W TSO
Chief Engineer (Projects)
- Mr Steve NG
Deputy Chief Accountant
- CLP Power Hong Kong Limited
- Mr S H CHAN
Planning Director

Mr Richard LANCASTER
Commercial Director

ExxonMobil Energy Limited

Mr Richard CHU
Business Strategy Manager

Clear the Air

Ms Annelise CONNELL
Chairperson

Mr Mark HUNTER
Chairperson of Electricity Committee

Association of Engineering Professionals in Society

Ir YIM Kin-ping
Senior Vice Chairman

British Chamber of Commerce

Ms Jo WILSON
Chair of Business Policy Unit

Mr Tim PEIRSON-SMITH
Chair of Environment Committee

Renewable Energy Research Group
Hong Kong Polytechnic University

Dr YANG Hong-xing
Associate Professor

Mr LI Yu-tong
Research Student

Civic Exchange

Mr Bill BARRON
Business Associate

The Hong Kong Institution of Engineers

Ir Peter Y WONG
Vice President

Greenpeace China

Miss Frances YEUNG Hoi-shan
Campaigner

Miss CHAN Hiu-wan
Campaign Assistant

Consumer Council

Ms Connie LAU Yin-hing
Deputy Chief Executive

Mr Victor HUNG
Chief Research & Trade Practices Officer

WWF Hong Kong

Mr Liam SALTER
Head of Climate Change

Democratic Party

Mr FAN Kwok-wai
Deputy Spokesperson of Environment Policy

Hong Kong Energy Studies Centre
Hong Kong Baptist University

Professor Larry CHOW Chuen-ho
Director

Clerk in attendance : Ms Connie SZETO
Chief Council Secretary (1)6

Staff in attendance : Ms Debbie YAU
Senior Council Secretary (1)1

Ms Michelle NIEN
Legislative Assistant (1)9

Action

**I. Future Development of the Electricity Market in Hong Kong
Environmental regulation in the future electricity market**

Submissions from organizations attending the meeting

LC Paper No. CB(1)2239/05-06(01) — Clear the Air

LC Paper No. CB(1)2218/05-06(01) — Association of Engineering
Professionals in Society

LC Paper No. CB(1)2239/05-06(02) — British Chamber of Commerce

LC Paper No. CB(1)2239/05-06(03) — Renewable Energy Research
Group, Hong Kong Polytechnic
University

LC Paper No. CB(1)2218/05-06(02) — Hong Kong Institution of
Engineers

LC Paper No. CB(1)2218/05-06(03) — Greenpeace China

LC Paper No. CB(1)2239/05-06(04) — Consumer Council

Submissions from organizations not attending the meeting

LC Paper No. CB(1)2218/05-06(04) — The Real Estate Developers
Association of Hong Kong

LC Paper No. CB(1)2218/05-06(05) — Green Council

LC Paper No. CB(1)2218/05-06(06) — Advisory Council on the
Environment

Other relevant papers for the meeting

LC Paper No. CB(1)2229/05-06(01) — Information paper on "Future Development of the Electricity Market in Hong Kong – Environmental Regulation in the Future Electricity Market" provided by the Administration

LC Paper No. CB(1)1567/05-06(01) — Information paper on “Future Development of the Electricity Market in Hong Kong: Views received during the Stage II Public Consultation” provided by the Administration

LC Paper No. CB(1)829/04-05(01) — Information paper on “Future development of the electricity market in Hong Kong : Stage I consultation” provided by the Administration (with public consultation paper annexed)

LC Paper No. CB(1)626/05-06(01) — Information paper together with the Consultation Paper on Future Development of the Electricity Market in Hong Kong – Stage II Consultation provided by the Administration

Meeting with the two power companies and deputations

The Chairman advised that the special meeting was convened to receive views from the two power companies and interested parties on the environmental regulation in the future electricity market. The Chairman sought members’ view on the request of Mr FAN Kwok-wai of Democratic Party and Professor Larry CHOW of Hong Kong Energy Studies Centre of Hong Kong Baptist University, who had shown up and put forward their request to present their views to the Panel just before the commencement of the meeting. Members agreed that the two deputations’ request be allowed.

The Hongkong Electric Co., Ltd. (HEC)

2. Mr C T WAN, Director & General Director (Corporate Development) of HEC highlighted the salient points on HEC’s submission as follows:

- (a) HEC supported the Government's energy policy objectives and had been cooperating and working closely with the Government and other stakeholders to improve the Hong Kong environment. For example, the company had started using Liquefied Natural Gas (LNG) in power generation and were in progress to retrofit flue gas desulphurization (FGD) plants to units L4 and L5 with plant supply contract to be awarded shortly for paving the way for commissioning in 2009 and 2010 respectively. To meet the 2010 emission reduction target, HEC would need to commission an additional gas-fired unit and would start discussion with the Government soon;
- (b) HEC considered emission reduction facilities the most effective means to reduce pollution and hence, there was no reason to give such facilities the lowest rate of return (ROR). On the other hand, renewable energy (RE) was the least cost-effective means to reduce pollution but was to be given the highest ROR under the Government proposals. The proposed arrangements did not provide even and fair return to the power companies' investment and were inconsistent with the fundamental principle of economic regulation. This tiered ROR mechanism would undermine economic benefits in the long run. The proposal to subject emission reduction facilities to the lowest ROR served as an additional penalty further to those under the Air Pollution Control Ordinance (APCO) (Cap 311). The proposed reduction in permitted ROR if the power companies did not achieve the emission caps would unnecessarily link return determination with environmental performance;
- (c) HEC commissioned the first commercial-scale wind turbine in Hong Kong this year. The operation so far had confirmed HEC's concerns about the lower capacity factor and higher cost of wind power due to its intermittent, unpredictable and uncontrollable nature. Further adoption of RE in Hong Kong would face with many barriers including geographical constraints and higher cost when compared with other energy sources. Higher costs for RE would be passed onto the consumers in the form of higher tariffs. As a result, RE could only be a partial solution for Hong Kong regardless of the level of incentives given;
- (d) HEC had joined the Government's task force on emission trading but there were serious concerns on its effectiveness in resolving the regional air quality problem; and
- (e) HEC had committed efforts in promoting conservation and energy efficiency. Initiatives in this regards included a three-year Demand-side Management (DSM) Programme covering a wide range of promotional and educational activities.

(Post-meeting note: The submission of HEC tabled at the meeting was circulated to members on 27 September 2006 vide CB(1)2265/05-06(01)).

CLP Power Hong Kong Ltd.

3. Mr Richard LANCASTER, Commercial Director of CLP gave a power-point presentation on CLP's views as follows:

- (a) CLP had achieved emission reduction in sulphur dioxide (SO₂), nitrogen dioxide (NO_x) and particulates by 44%, 77% and 70% respectively over 1991-2005 through the use of emission abatement measures and the introduction of cleaner energy sources, such as nuclear power and natural gas, notwithstanding that local sales had grown by 70% over the same period;
- (b) To further reduce emissions and improve Hong Kong's air quality, CLP planned to import LNG and install emission control equipment for coal-fired units. Retrofitting works for units at Castle Peak power station would be completed in phases starting from 2009 whereby emissions in respect of NO_x and SO₂ would be reduced up to 80% and 90%. CLP would also increase the use of ultra-low sulphur coal (with sulphur content as low as 0.1%) in power generation;
- (c) CLP considered that environmental policy must be consistent with Hong Kong's future electricity market framework and objectives, viz, ensuring an adequate and reliable electricity supply at reasonable tariff level, and supporting long-term investments to improve and/or sustain environmental performance. It was also important to set clear, long-term emission targets based on practicable, available technology and achievable implementation schedule to enable effective environmental improvements;
- (d) CLP Group had set a target of having 5% of total generating capacity from RE sources by 2010. To date, RE accounted for about 1.8% of CLP Groups' generating capacity from projects in the Mainland and Australia. CLP would conduct a feasibility study on an offshore wind farm and a wind turbine pilot demonstration in Hong Kong; and
- (e) CLP had implemented energy conservation programmes, including conducting energy audits for its customers and supporting community wide initiatives in energy efficiency.

(Post-meeting note: The power-point presentation material tabled by CLP was circulated to members on 27 September 2006 vide CB(1)2265/05-06(02)).

Association of Engineering Professionals in Society (AES)

4. Ir YIM Kin-ping, Senior Vice Chairman, AES pointed out that the Association was supportive of imposing reasonable and workable emission caps on major pollutants for individual power plants when renewing their licences, which would enable Hong Kong to achieve the emission reduction targets agreed with the Guangdong Provincial Government with a view to improving the regional air quality. Sufficient incentives should be provided to ensure the power companies to retrofit their existing coal-fired units with emission reduction facilities and increase the use of LNG in power generation. The Association was of the view that the proposed lowest ROR for emission reduction facilities contradicted the “user-pays” principle and failed to provide the necessary incentives. Investing in environmental mitigation facilities and employing cleaner fuels in power generation were far more effective in resolving the emission problem. CLP’s proposed sites for LNG receiving terminals at Lung Kwu Tan and Tai A Chau were technically feasible, and the project should be expedited. With the proper infrastructure, Hong Kong could become a centre of LNG supply for the region.

5. AES also considered that there should be clear, long term and integrated energy and environmental policies in Hong Kong with respect to the fuel mix, security of fuel supply, and role of coal and natural gas in power generation. According to the relevant consultancy studies, solar energy and wind energy could meet up to 17% and 7% of the local electricity consumption respectively in 1999. The Government should take the lead in solving obstacles in the use of RE and providing incentives to promote its use by individual consumer/user. Consideration might be given to installing solar panels on slope areas. With proper support and determination, Hong Kong could become a regional RE technology centre. While supporting the implementation of a Emission Trading Scheme (ETS) between Hong Kong and Guangdong to tackle the emission problem, a lot of factors needed to be considered for its successful implementation. At present, details on ETS were lacking.

Clear the Air

6. Ms Annelise CONNELL, Chairperson, Clear the Air urged that the electricity market in Hong Kong should be opened immediately. The cost for emission reduction facilities in Hong Kong was much more expensive than those in the Mainland. Clear the Air was against giving any ROR for emission reduction facilities. The environmental audit and the DSM programme promoted by power companies was not successful as only 1% of its customers had conducted such audit.

7. Mr Mark HUNTER, Chairperson of Electricity Committee, Clear the Air supplemented Clear the Air’s view with the aid of power-point as follows:

- (a) Domestic users had been subsidizing commercial users as preferential tariff was available to the latter. The commercial users were the biggest users of electricity and hence, the biggest polluters;
- (b) The electricity market should be de-regulated and the Scheme of Control (SOC) should be abandoned. The Government should act as a referee in an open energy market. Suitable penalties (e.g. pollution tax, fines) and incentives (e.g. sales of surplus energy to the Mainland, allow charge of market price) should be put in place to ensure that the power companies would reduce emissions; and
- (c) A higher tariff could be set for peak demand hours. The additional income thus raised could be used to subsidize the employment of RE, such as solar energy, for power generation.

British Chamber of Commerce

8. Mr Tim PEIRSON-SMITH, Chair of Environment Committee, British Chamber of Commerce pointed out that it was essential for the Government to ensure the power companies' proposed measures to improve air quality were not delayed by the SOC review process. The Chamber supported greater use of LNG in power generation to reduce emissions. Hong Kong needed to devise a systematic programme to encourage energy conservation and efficient use of energy through active DSM. Possible measures could include updating building regulations on energy efficiency, implementing sustainable building certification scheme and incentives to encourage wider acceptance of green buildings. Power companies, developers and major users, should be incentivised to support DSM and energy conservation as both would yield economic and environmental benefits. Steps should also be taken to encourage deployment of new technologies to ensure existing and new systems complied with energy efficiency standards. The Government should make an early decision on SOC so that upgrading pollution control measures and retrofitting existing plants could become an immediate focus of the power companies. Clear and tangible incentives ought to be granted to power companies to control pollution, where the focus should be on emission reduction rather than fuel type. Future investment should be guided through longer-term targets for reduced emission per unit of energy. Incentives should be granted for innovations on cleaner energy and the use of clean energy by developers. The small-scale clean energy generators should be able to gain access to the power grids and feedback electricity, particularly from RE sources, through a simple and friendly procedure.

*Renewable Energy Research Group
Hong Kong Polytechnic University (HKPU)*

9. Dr YANG Hong-xing, Associate Professor, Renewable Energy Research Group, HKPU highlighted the rapid development of RE in overseas economies, including the United States (US), Germany, Spain and Japan. He said that different

products on solar energy were available on the market, and in 2005 some economies had set future targets of having 50% of the electricity generated from RE. In formulating a policy on RE, Hong Kong should make reference to overseas experience. Compulsory purchase policy was the most effective means in promoting the development of RE. The Mainland had passed the RE law and decided to encourage wider adoption of RE by providing incentives to users to install solar panels on their rooftops. He considered the Government's target of having 1% to 2% of Hong Kong's total electricity supply met by RE by 2012 too low. It was necessary for the Government to take the lead in formulating an RE policy with clear targets of development as the private sector might be reluctant to invest in the technologies. Dr YANG also suggested that Hong Kong should consider enacting an RE law and providing financial incentives for the public to install solar energy panels, such as setting up a fund to initiate a programme in this area.

Civic Exchange

10. Mr Bill BARRON, Business Associate, Civic Exchange said that it was imperative for the Government to formulate an energy policy. Suitable provisions on energy efficiency should be incorporated in the new SOC so that it would be in the interest of power companies to promote energy efficiency to customers. Whilst emission trading was a valid concept, there was no transparency on the nature and details of the scheme to be implemented in the Pearl River Delta (PRD). Moreover, the scheme should be driven by the market. The verification of emission reduction would be essential which required careful consideration in working out the concerned details. Civic Exchange supported the increased use of LNG in power generation. The LNG receiving terminal should be located in Hong Kong as the local public would ultimately benefit from its use.

Hong Kong Institution of Engineers (HKIE)

11. Ir Peter Y WONG, Vice President, Hong Kong Institution of Engineers, said that while HKIE was pleased to note that the public had gained more awareness of the importance of protecting the environment, Hong Kong lacked a clear policy on environmental protection. The 2010 emission reduction targets only constituted part of the environmental protection measures whereas the SOC was just a commercial contract which might not fulfill public policy objectives. It would be unnecessary to de-commission existing coal-fired plants in order to achieve the 2010 targets and power plants should be encouraged to make optimal use of these plants by upgrading their environmental performance. Hong Kong had difficulty in implementing large-scale RE generation due to physical constraints. The public should be informed of the impact of RE development on the cost of power generation. There should be public discussion on the matter before decision was made. Subsidies should be provided to users for using solar panels. Incentives should also be given to power companies to encourage them to provide more choices for the public. In this connection, the Government should have a balanced fuel mix strategy for the power companies to follow, including the target of electricity to be generated from RE

sources. On ETS, its success would hinge on large-scale regional and thorough coverage. ETS would only be a stop-gap option for meeting shortfalls of emission reduction by local power companies. Power companies should continue to invest in emission reduction facilities and employ cleaner fuels, instead of heavily relying on trading emission quota.

Greenpeace China

12. Miss Frances YEUNG Hoi-shan, Campaigner, Greenpeace China pointed out that air pollution was a regional issue. Under the 2010 emission reduction targets agreed between Hong Kong and Guangdong, it was the responsibility of both Governments to reduce emissions. According to the targets, SO₂ level should be reduced by 40% with reference to the 1997 level. However, the current level of SO₂ had increased by more than 50% over the 1997 level mainly due to increase in power generation, which indicated unsatisfactory progress in measures undertaken by the power companies. Instead of providing a higher ROR for RE facilities, the new SOC should require the power companies to meet specified target in power generation by RE sources. By way of illustration, UK had required power companies to generate 2% to 3% of electricity by RE and the target would increase to 15% in ten years. Apart from ensuring stable and reliable supply of electricity, the UK Government had set targets to reduce emission of carbon dioxide, a major greenhouse gas, by 60% by 2050. The Government should start studying the post 2010 emission reduction targets in order to allow sufficient time for the power companies to plan their future facilities to comply with the requirements. In addition, Hong Kong should be more forthcoming in formulating an integrated energy policy albeit that the First Sustainable Development Strategy for Hong Kong had recommended drawing up a sustainable energy policy by 2007.

Consumer Council (CC)

13. Ms Connie LAU, the Deputy Chief Executive of CC presented CC's views as follows:

- (a) Any proposal in promoting the use of RE should ensure that reliable, safe and efficient electricity supply would continue to be delivered to consumers at reasonable prices; address major criticisms and perceived shortcomings of the current regulatory regime; and give due regard to environmental concerns;
- (b) The target of having 1% to 2% of Hong Kong energy consumption supply to be met by RE by 2012 might be too low in achieving better environmental standards and should thus be regarded as the minimum standard for power suppliers to achieve;
- (c) The overall environmental performance in Hong Kong could be improved by installing RE facilities in buildings to meet part of their

in-house power demand. The Government could consider providing incentives to encourage or making regulations to mandate the installation of rooftop solar panels or other building design features that could contribute to promoting the use of RE;

- (d) The Government should implement measures to facilitate grid access by RE users and generating facilities employing RE in order to foster competition in the energy sector and to give consumers more choices. The incumbent power companies should be required to provide grid connection/access for RE power suppliers to reach their customers. The Government should ensure that there was strict scrutiny on the type of RE technology employed by the power suppliers to prevent power companies from unnecessarily increasing their asset base;
- (e) The Government should consider devising a mechanism to ensure that low cost fuel options were adopted; and
- (f) Energy efficiency labeling schemes to help reduce energy consumption should be made mandatory. More stringent grading thresholds should be adopted under the labeling schemes to help consumers make informed choices by differentiating between products of different energy efficiency.

WWF Hong Kong

14. Mr Liam SALTER, Head of Climate Change, WWF Hong Kong gave a power-point presentation on the views of WWF Hong Kong as follows:

- (a) High-level government engagement was required with a view to realizing an improved regional air quality. An integrated energy policy was essential for air quality improvements; and
- (b) The power generation process was highly inefficient with 80% of the power generated wasted through inefficient production and heat wastage, transmission and distribution and inefficient end use. Experience in Thailand and California had revealed that energy efficiency was the cheapest way to meet increase in energy demand. Increase in energy efficiency through the use of DSM would not cause pollution and was 50% to 80% cheaper than any new supply. Given that China had adopted a target of 20% increase in energy efficiency by 2010, Hong Kong should also consider setting a target for energy efficiency to reduce wastage. In this connection, the new SOC should focus on DSM-related measures. The Government should prepare a package of energy efficiency measures for Hong Kong, provide incentives for public utility companies and power companies to adopt such measures, formulate regulations and standards for energy

efficiency and enhance consumer engagement and education in the process.

(Post-meeting note: The power-point presentation material was circulated to members on 27 September 2006 vide CB(1)2265/05-06(04)).

Democratic Party

15. Mr FAN Kwok-wai, Deputy Spokesperson of Environment Policy, Democratic Party highlighted the salient points in his submission as follows:

- (a) The Government should set more stringent emission standards and required two power companies to implement measures to reduce the emission of respirable suspended particulates (RSP), which had contributed to the low visibility and deteriorating air quality in Hong Kong. In reviewing the licence for power plants, the Government should set more stringent emission reduction targets of SO₂, NO_x and RSP. The post-2008 SOC should include penalty clauses to ensure that the two power companies could meet the emission reduction targets of 2010. The emission reduction facilities should only be included as general investment but not as fixed assets that could bring additional returns;
- (b) Hong Kong had lagged behind a lot of developing countries in the development of RE partly due to power companies' reluctance to open their power grids for access by RE suppliers. To sustain the development of RE, the Government should encourage the power companies to increase interconnection, stipulate a higher ROR for power companies' RE facilities, and waive RE power suppliers' licence fees and interconnection charges. Extra capacity from these RE generators should be allowed to feed into the grid for other users, as in the case of Japan.
- (c) The Government should study the feasibility of subjecting the power companies to an environment tax and providing tax concessions for consumers who used RE. The tax thus collected could be ploughed back into a designated fund set up for the purpose of conducting research on RE technologies. The Government should formulate a sustainable energy policy and expedite the establishment of an energy authority, which would be responsible for formulating RE energy policy and opening up the energy market. The Government should also conduct studies on the use of LNG as a fuel for power generation.

(Post-meeting note: The submission tabled was subsequently circulated to members on 27 September 2006 vide CB(1)2265/05-06(03)).

*Hong Kong Energy Studies Centre
Hong Kong Baptist University (HKBU)*

16. Professor Larry CHOW, Director of Hong Kong Energy Studies Centre, Hong Kong Baptist University pointed out that air pollution generated in Hong Kong could be mainly divided into two sources, namely mobile and stationary. The former mainly covered emissions from vehicles, whereas the latter was predominantly from power plants. It was relatively easy to monitor and control emissions from power plants since they were stationary. However, vehicles, especially those engaged in cross-boundary travel, might have aggravated the air pollution problem in Hong Kong by using low quality diesel acquired in the Mainland. On emission trading, Professor CHOW said that the vast number of factories in the PRD should be covered in the ETS and Hong Kong and Guangdong authorities should study the matter in detail. Professor CHOW further supported the increasing use of LNG in electricity generation and retrofitting coal-fired units with FGD system as they were more cost-effective measures than deploying RE resources in reducing emissions. Given that Hong Kong had difficulties in developing RE in a large scale due to topographic constraints, high costs, and negative visual impact of the RE facilities; there should be more public discussion on the role of RE in the future electricity market.

Brief response by the Administration

17. On some deputations' concern that the Administration might require power plants to de-commission and replace their coal-fired generating units in order to achieve the Government's emission reduction targets, the Deputy Director of Environmental Protection (3) (DDEP(3)) clarified that the Administration had no such intention and re-iterated that it remained the Administration's policy to encourage power companies to use the best practicable means in meeting the required emission reduction targets stipulated in the Specified Process Licences (SPLs) under the APCO (Cap. 311). The Administration would not prescribe the fuel mix or techniques for achieving the targets in order to provide the power companies with flexibility in operation. In this connection, DDEP(3) advised that the US, Australia and Japan were exploring technologies to achieve zero-emission in coal-fired units. For instance, the US had invested about HK\$8 billion on relevant research with a view to completing the project by 2012. With the advancement in technology, it could be possible to use coal for power generation while minimizing the negative impact on the environment. As regards the call for the Government to expedite the negotiation process with the power companies to facilitate early implementation of their emission reduction measures, DDEP(3) explained that the Environmental Protection Department (EPD) had stated clearly to the two power companies the emission reduction targets as early as 2003, and that the total emission caps would be gradually tightened upon the issue/renewal of SPLs. In this regard, EPD had also tightened the emission caps of individual power plants upon the renewal of SPLs since 2005. The Administration would continue to discuss with the power companies on measures to achieve the intended emission caps for 2010 in order to improve the air quality in Hong Kong and the PRD.

18. The Chairman, Ir Dr Raymond HO and Ms Emily LAU expressed concern about the absence of the Secretary for the Environment, Transport and Works (SETW) and the Secretary for Economic Development and Labour (SEDL) and the permanent secretaries for the relevant policy areas from the meeting and opined that it was important for directors of bureaux and senior officials to attend Panel meetings to hear deputations' views on the subject. DDEP(3) said that the Administration attached great importance in meeting deputations, adding that he had represented the Administration to attend previous meetings of the Panel on Environmental Affairs on related subjects in early 2006. He assured members that deputations' views would be reflected to SETW, SEDL and senior officials for consideration.

Discussion

Development of renewable energy in Hong Kong

19. While appreciating that the use of RE for generating electricity would help tackle the deteriorating air quality in Hong Kong, Mr CHAN Kam-lam was concerned about the higher cost involved and the impact on tariffs. He sought the deputations' views on the role of the Government in promoting the development of RE, formulating an energy policy and providing incentives to encourage the use of RE.

20. Dr YANG Hong-xing of HKPU advised that tariffs for electricity generating from RE sources would be higher. For instance, the tariffs for solar energy was about 1 to 1.5 times higher than that of conventional power and investments in necessary infrastructure facilities would spread over a period of 20 to 30 years. He agreed that to encourage the use of power generated from RE, the Government should consider offering subsidy to users or allowing power companies to charge differential prices for conventional and RE power for consumers to choose from. Dr YANG pointed out that the development of wind energy would be viable if Government waived the land premium for constructing wind farms. Subject to the investment in infrastructure and running cost of the wind farms, the tariff for wind energy could be comparable to, or even lower than, fossil fuel energy in the long run. He re-iterated that it was essential for the Government to put in place an energy policy encouraging the use of RE.

21. DDEP(3) highlighted the topographical constraints and limitations in developing RE in Hong Kong. Nevertheless, to promote the use of RE, the Government had proposed in the "Stage II Consultation Paper on Future Development of the Electricity Market in Hong Kong" (the Stage II Consultation) a number of measures, inter alia, giving a higher ROR for RE infrastructure than all other assets so as to provide financial incentives to the power companies. He added that the two power companies were conducting Environmental Impact Assessment (EIA) studies on new wind farm projects. Such investment projects would be examined by the Administration in the context of scrutinizing power companies' Financial Plans. It was envisaged that if there was no overlap on the proposed sites of wind farms, upon

commissioning of the projects, wind energy generated could meet 3% of the local power needs.

22. To set good examples, Mr CHAN Kam-lam considered that the Administration and the Legislative Council should take the lead in promoting the use of RE in their premises. DDEP(3) highlighted the Government's efforts in conserving energy including installing and retrofitting energy saving devices and setting the temperature level of air-conditioning systems in government offices to 25.5°C. Such efforts had successfully reduced power consumption in government offices by 2.3% in the summer months of 2005-06. It would be no small achievement if Hong Kong as a whole could cut down its power consumption by a similar magnitude as the annual power consumption of the two railway systems in Hong Kong amounted to 3% of the total local consumption.

23. Mr KWONG Chi-kin welcomed initiatives proposed by deputations for promoting RE in Hong Kong, such as installing solar panels on slopes, setting targets on RE development for compliance by power companies, and raising the Government's target of meeting local power needs by RE. He enquired about the response of the Administration and the power companies to the initiatives. Mr KWONG further stressed the need for the Administration to formulate a higher target and devise a long-term action plan for implementation.

24. DDEP(3) advised that the target of having 1%-2% of the local power needs to be met by RE by 2010 was set in the First Sustainable Development Strategy for Hong Kong promulgated in May 2005 having regard to public views and the topographical condition of Hong Kong. He added that there would be "bonus" return for the power companies if they achieved the target for using RE. But no penalty would be imposed on the power companies for failure to meet the target. Given Hong Kong's constraints in developing RE, if a higher target was to be set, it would be necessary to introduce RE supply from the Mainland. This might affect RE supply in the Mainland and as a result Mainland had to resort to fossil fuels in power generation, which ran counter to the objective of reducing emissions for the PRD region. On the potentials of the two power companies in developing RE, DDEP(3) clarified that according to estimation, the total generating capacity from RE under proposed wind farm projects would meet more than 1% of local power needs.

25. Mr S H CHAN of CLP said that the company supported the application and development of RE. While at present, RE sources accounted for about 1.8% of the CLP Group's total generating capacity world wide, the Group had set a target of 5% by 2010. CLP was conducting a feasibility study on constructing an offshore wind farm and also working out the details on an onshore wind turbine pilot demonstration project in Hong Kong. Findings from these projects would provide useful references for future development in RE in Hong Kong. Moreover, to facilitate access of RE sources to its power grid, CLP published in October 2005 a leaflet entitled "Renewable energy systems and CLP's electricity grid" providing information on the

application procedure for grid connection by small renewable energy systems. So far, 22 applications had been approved.

26. In response to further enquiry by Mr WONG Kwok-hing on CLP's RE development target by 2010, Mr Richard LANCASTER of CLP clarified that the 5% target had been voluntarily set by CLP Group for its global operations, mainly taking into account the greater potentials of deploying RE for power generation in Australia and the Mainland. In respect of the target for Hong Kong, Mr LANCASTER advised that this would need to be worked out at a later stage after examining the feasibility of developing RE projects in Hong Kong and the relevant costs. In this connection, the Chairman invited CLP to provide the details on the target for Hong Kong for members' reference once it was available.

(Post-meeting note: The Clerk has written to CLP on 29 September 2006 requesting the latter to provide the required information and the reply letter from CLP has been circulated to members on 16 November 2006 vide LC Paper No. CB(1)304/06-07(01).)

27. Miss Frances YEUNG Hoi-shan of Greenpeace China concurred that the Government's target on developing RE for power generation was too conservative. She highlighted the potential of developing wind power in Guangdong and urged the Administration to actively look into co-operation opportunities with relevant authorities with a view to addressing the air pollution problem in a regional scale.

28. Mr KWONG Chi-kin sought the power companies' view on AES's suggestion of developing RE by installing solar panels on the slopes in Hong Kong. While welcoming the initiative, the Chairman expressed concern about possible negative visual impact of the panels and distraction to road users.

29. Mr C T WAN of HEC said that while HEC supported the development of RE in Hong Kong, it had concern about the economic benefit. This was evidenced by the RE projects initiated by Electrical and Mechanical Services Department (EMDS) to install solar panels in Government buildings in Kowloon Bay and Wan Chai. While the former project involved a huge cost of \$16 million, it had generated limited RE power. Due to low cost-efficiency, it would take about 40 years and 100 years to recover the investment cost for a rooftop solar panel infrastructure and a sidewall solar panel infrastructure respectively. On wind energy, the utilization of the first local commercial-scale wind turbine on Lamma Island since its commissioning in February 2006 had fallen short of the original estimation of 13%. When compared with similar facilities overseas which usually attained utilization of over 30%, the average generation cost of local wind power could therefore be three times of those overseas.

30. Ir YIM Kin-ping of AES remarked that as the sloping terrain covered over half of the land area of Hong Kong, there would be potential in developing photovoltaic projects in Hong Kong by installing solar panels on slopes facing South, Southeast or Southwest in areas such as Lantau Island and Tuen Mun, which had long hours of

exposure to direct sunlight. Pointing out that according to some studies, the development of solar energy could meet some 17% of the local power needs, Ir YIM urged the Administration to explore development opportunities in this area. He added that solar cells were manufactured in various colours and could be mixed with dummy panels, light panels and other purpose-made panels for graphic and aesthetic design to match the surrounding environment. Hence, there should be no concern about the visual impact of solar panels.

31. Ir Dr Raymond HO expressed concern about CC's suggestion of requiring developers to incorporate rooftop solar energy panels or other design features in their building plans to promote the use of RE. In his views, the suggestion might not be feasible as it hinged on the development of RE building systems and materials.

32. Professor Larry CHOW of HKBU recapped his views on the higher cost for generating electricity from RE sources. Taking into account the cost for the power companies to provide back-up supply for RE users, tariffs of electricity generated from wind power, the least expensive of all forms of RE, would still be 20% to 30% higher than tariffs of power generated from fossil fuels. In this regard, customers of the power companies were subsidizing RE users who were connected to the power grids.

33. Referring to some deputations' view on the need to introduce a legislation to promote the application of RE in Hong Kong, Mr SIN Chung-kai enquired about relevant experience in other jurisdictions and the possible scope of the legislation. He further enquired about technical difficulties for power companies to open their grids to RE suppliers/users.

34. Dr YANG Hong-xing of HKPU said that Germany and the Mainland had enacted RE laws, imposing statutory requirements on power companies to provide grid access to RE suppliers and setting the relevant access charges, as well as fixing prices for electricity generated from RE sources. Notwithstanding that RE suppliers in Hong Kong could apply to access the power grids, there was no mechanism for setting the access charges. Introducing a RE law in Hong Kong would facilitate the development and application of RE. Professor Larry CHOW of HKBU pointed out that wind energy was the most cost-effective form of RE in Hong Kong. Due to space constraint, it might not be cost-effective to install solar panels at rooftops of buildings in Hong Kong to generate power for consumption by users. It would be more advisable for the power companies to construct wind farms. Ir Peter WONG of HKIE advised that currently, consumers with generating facilities using RE, upon agreement of the power companies, could connect their systems to the power grids according to the technical guidelines on connection of small-scale RE power systems developed by EMSD. However, there was no statutory requirement for power companies to allow RE suppliers/users to access the power grids. While concurring that RE power involved higher cost and had lower efficiency, Ir WONG stressed that enhancement in the application of RE power would help improve the environment.

35. Noting the Administration's proposal in the Stage II Consultation that the power companies and RE users/suppliers should negotiate on their own for grid connection/access and the concerned access charges, Ms Emily LAU considered that the Government should take a more proactive role in facilitating grid connection/access for RE users/suppliers. She urged that consideration should be given to include provisions in the new bilateral agreements requiring the power companies to provide grid connection/access to RE users/suppliers. She also stressed the importance for formulating a comprehensive energy policy to promote RE with a view to improving air quality and reducing emissions from power generation, notwithstanding that the development of RE would incur higher costs.

36. DDEP(3) explained that the existing power grids were private properties of the two power companies which had been planned, developed and operated by the companies to match their own supply sources, mode of operation, and the demand of their consumers. In this regard, the Administration's proposal on grid access and connection for RE users/suppliers had struck a proper balance between the interests of relevant stakeholders. He assured members that, where necessary, the Administration would assist in such negotiations. He added that the power companies had been willing to accommodate the needs of RE users.

37. Miss Frances YEUNG Hoi-shan of Greenpeace China highlighted the "social cost" of air pollution caused by the burning of fossil fuels in power generation and stressed the cost of RE was well-justified by its merits in improving the air quality and enhancing the environment of Hong Kong. She recapped that according to consultancy studies, the "social cost" of air pollution in Hong Kong had reached as high as \$20 billion a year. Moreover, the air pollution problem had adversely affected Hong Kong's reputation as an international business centre and discouraged overseas expertise to come to work here. As regards concern about higher cost, Miss YEUNG said that research findings in the US revealed that the cost for electricity generation using wind energy had been reduced substantially by 80% in the last twenty years. With further advancement in technology and supporting government policies, RE power would be affordable to the general public. To address the concern about higher tariff in using RE, Miss YEUNG suggested that consideration might be given to provide subsidies to users in the initial stage of introducing RE.

38. Ms Audrey EU sought deputations' view on the need to set targets on the level of air quality objectives (AQO) or air pollution index (API) to be achieved for improving the air quality in Hong Kong, and the appropriateness to require the power companies to bear the financial responsibility for reducing emissions.

39. While stressing the importance of maintaining a reliable electricity supply at reasonable prices, Ir Peter WONG of HKIE considered it important to formulate a comprehensive energy policy covering the desirable fuel mix and the application of RE in power generation, as well as setting the emission reduction targets for compliance by power companies.

40. Professor Larry CHOW of HKBU pointed out that the objectives of the Government's energy policy, namely ensuring reliable, safe and efficient supply at reasonable prices and minimizing the environmental impact, were broadly in line with those in overseas jurisdictions. The public should be made aware that adoption of cleaner fuels and application of RE would lead to higher production cost. It was a trade-off between protecting the environment and higher electricity tariffs. To improve the air quality in Hong Kong, Professor CHOW opined that it would be more cost effective to implement emission trading with Guangdong as it faced less constraints in the development of RE and construction of emission reduction facilities than Hong Kong.

41. Mr Bill BARRON of Civic Exchange concurred that there was an urgent need for the Government to formulate an integrated energy policy covering the power and transportation sectors. He pointed out that while promoting the use of rails, the Government had actually shifted the portion of energy used and thus pollution produced from the transportation sector to the power sector. The Government should consider devising measures to promote cost-efficiency in the utilization of energy across different sectors with a view to optimizing the use of energy while minimizing pollution. Mr Liam SALTER of WWF concurred that Hong Kong should formulate an integrated energy policy with clear objectives. This would facilitate the development of RE in Hong Kong and assessment on the costs and benefits to people in the long-run.

Measures to reduce emissions from power generation

42. The Deputy Chairman expressed grave concern about the deteriorating air quality in Hong Kong and urged the Administration to implement measures to reduce emissions from power plants as early as possible. In this connection, he enquired about the rationale of the Government's proposal to subject emission reduction facilities to the lowest ROR, which might discourage power companies' investment in such facilities.

43. The Acting Deputy Secretary for Economic Development and Labour (Economic Development) (Atg DS/ED) said that the Stage II Consultation had proposed a package of measures to reduce emissions of power plants, including providing lowest ROR to emission reduction facilities. The proposal aimed to avoid passing the costs of emission reduction facilities onto consumers hence increasing their tariff burden, and at the same time retained incentive for the power companies to continue investing in such facilities to help achieve the emission reduction targets. While the Administration noted that there had been diverse views on the proposal, it considered that the proposal had struck a proper balance between the interests of consumers and the power companies. She added that unlike the existing arrangements whereby one single rate was applied to the aggregate value of average net fixed assets in the entire supply chain, the Administration had proposed to apply different ROR to different types of assets in the new bilateral agreements. With the proposed approach,

current indications showed that the permitted ROR would be lowered from the current rate of 13.5% - 15.5% to 7% - 11%.

44. In reply to Ms Emily LAU's enquiry about whether similar arrangements were adopted in overseas regulatory regimes, Atg DS/ED said that while she did not have the required information at hand, she was aware that overseas regulators, catering their particular situations, had introduced different measures for reducing emissions from power plants. She undertook to provide the details on measures adopted by overseas regulators to reduce emissions from power plants for members' reference after the meeting.

(Post-meeting note: The information on the measures adopted by overseas regulators to reduce emissions from power plants provided by the Administration was circulated to members vide CB(1)138/06-07(01) on 21 October 2006.)

45. Noting that there was proposal to link ROR of the power companies to their achievement of the emission caps stipulated in the SPLs, the Deputy Chairman asked whether the power companies would be rewarded for better performance in emission reduction. DDEP(3) said that there was no provision under the existing APCO to provide financial incentives to the power companies for improving their emission levels. To encourage the power companies to reduce emissions, it was proposed to link the ROR on all fixed assets of the power companies to their achievement of the emission caps in the SPLs. Financial penalties would be imposed on power companies if they failed to meet the emission caps. In this connection, Mr C T WAN of HEC highlighted HEC's efforts in reducing emissions. HEC had already retro-fitted three coal-fired units with FGD plants and the retrofitting works for the other two coal-fired units would be commenced. Besides, HEC considered that a more reasonable arrangement to encourage emission reduction should be one balancing reward with penalty instead of one imposing only "triple penalties" on the power companies.

46. Mr WONG Kwok-hing expressed concern about how the Administration could monitor the power companies' investment in emission reduction facilities to prevent unnecessary inflation in the asset base which could lead to higher tariffs. In response, DDEP(3) assured members that all development plans and financial proposals of the two power companies relating to electricity supply, and tariff adjustments would continue to be approved by the Government. The Administration would scrutinize all proposals to ensure that they were practicable before giving the approval. Moreover, the power companies should use the best practical means to reduce emissions as required in the APCO. Emission reduction projects initiated by the power companies would be carefully vetted by EPD to ensure their cost-effectiveness and technical feasibility.

47. Ir Dr Raymond HO sought deputations' views on the Government's initiative on ETS. Ir Peter WONG of HKIE considered that ETS was a possible option to tackle

emissions from power plants. There had been a number of successful ETSs in overseas jurisdictions. He cautioned that successful implementation of ETS between Hong Kong and Guangdong would depend on the development of standardized regulatory requirements, monitoring and verification mechanisms for the two jurisdictions. It was also necessary to increase transparency of the regulatory regimes of both places to facilitate implementation of ETS.

48. Summing up the discussion, the Chairman urged the Administration to take note of deputations' views expressed at the meeting and in the submissions.

The way forward

49. The Chairman advised that the Panel had dealt with two of the four major topics suggested by Hon SIN Chung-kai, namely liberalization of the electricity market, and environmental regulations in the future electricity market. He said that members might consider deliberating the remaining two topics, viz., the new SCAs, and tariff setting mechanism by holding special meeting(s). The Chairman suggested members to discuss how the Panel should follow-up the subject on the future development of the electricity market in Hong Kong at the next meeting to be held on 12 October 2006 for election of the Panel Chairman and Deputy Chairman for the 2006-07 session. Members agreed. Ms Emily LAU re-iterated her view that issues relating to the development of the future electricity market should continue to be deliberated in a single forum by the Panel on Economic Services.

II. Any other business

50. There being no other business, the meeting ended at 12:45 pm.

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