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**Subcommittee on Second Technical Memorandum for
Allocation of Emission Allowances in respect of Specified Licence**

Meeting on 2 November 2010

Background brief

Purpose

This paper sets out the development of the Technical Memorandum for Allocation of Emission Allowances in respect of Specified Licences (TM), and gives a brief account of the views expressed by the Panel on Environmental Affairs (the Panel) and the subcommittee formed to study the First TM.

Background

2. To improve air quality, the Hong Kong Special Administrative Region Government reached a consensus with the Guangdong Provincial Government (GPG) in April 2002 to reduce the emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), respirable suspended particulates (RSP), and volatile organic compounds by 40%, 20%, 55%, and 55% respectively by 2010 as compared to 1997.

3. Power generation is the largest emission source in Hong Kong, accounting for 88% of SO₂, 44% of NO_x, and 28% of RSP emitted locally in 2008. For Hong Kong to achieve the 2010 emission reduction targets, it is essential for the power companies to substantially reduce their emissions of SO₂, NO_x, and RSP by 2010. Since 2003, the Administration has been engaging the two local power companies regarding the imposition of emission caps in 2010. Emission caps on the power stations have been imposed since 2005 upon renewal of their respective specified process licences. These emission caps are being progressively tightened to ensure that Hong Kong can meet the 2010 emission reduction target.

First Technical Memorandum for Allocation of Emission Allowances in respect of Specified Licence

4. In accordance with section 26G of the Air Pollution Control Ordinance (Cap. 311) (APCO), the Secretary for the Environment (SEN) shall by technical memorandum allocate a quantity of emission allowances for each type of specified pollutant, i.e. SO₂, NO_x and RSP, in respect of each specified licence for the operation of power plant in relation to each emission year commencing on or after 1 January 2010. Where a TM has been laid on the table of the Legislative Council (LegCo), section 37B(2) of APCO provides that LegCo may, by resolution passed at a sitting of LegCo within the 28-day period or during the next 21-day period if so extended pursuant to section 37(B)(4)(a) , amend the TM in any manner consistent with the power to issue the TM.

5. The First TM issued by SEN pursuant to APCO was published in the Gazette on 7 November 2008. It sets out the total quantity of emission allowances for all of the specified licences from 1 January 2010, allocation principles and determination methods of the quantity of emission allowances to be allocated in respect of each specified licence for each emission year, arrangements for adjusting the allocation of emission allowances, and arrangements for new comers. A subcommittee was formed to study the First TM.

Emission allowances for 2010

6. Based on the need to achieve the 2010 emission reduction targets under the 2002 consensus with Guangdong, the best practicable emission reduction technologies and means available, as well as emissions from other sources and sectors, the 2010 emission allowances for the power sector under the First TM are as follows -

| | 1997 baseline emissions (tonnes per year) | 2010 emission allowances included in the First TM (tonnes per year) | Reduction compared to 1997 (%) |
|-----------------|--|--|--------------------------------------|
| SO ₂ | 54 400 | 25 120 | 54% |
| NO _x | 56 100 | 42 600 | 24% |
| RSP | 2 610 | 1 260 | 52% |

Allocation of emission allowances to individual power plants

7. Emission allowances will be allocated to individual power plants on a pro-rata basis in accordance with their respective share of the total amount of electricity generated for local consumption. For the 2010 emission allowances, the allocation to

individual power plants is determined with reference to their total amount of electricity generated for local consumption for the five-year period from 1999 to 2003. To cater for the change of the market share in electricity generation, the allocation to individual power plants will be updated regularly on the first of January of the year starting from 2010, and in any event not less than once every three years, in accordance with their respective share of total amount of electricity generated for local consumption for the past 60 months.

Arrangements for adjusting the allocation of emission allowances

8. To provide sufficient lead time for power companies to adjust their operation (e.g. installation of additional emission abatement facilities, adjustment of fuel strategy and securing emissions trading opportunities), an advance notice of no less than four years will be given to the power companies before any changes to the allocation of emission allowances arising from the regular updating to take effect.

Arrangements for new comers

9. To cater for the requirements of potential new comers, each new comer will be temporarily allocated a small amount of emission allowances up to around 1% of the total emission allowances for the power sector. The new comer will be included in the subsequent updates and will be allocated with the updated quantity of emission allowances according to the prevailing allocation methodology.

Members' views on the First Technical Memorandum

10. When TM was first discussed by the Panel on Environmental Affairs on 27 October 2008, some members questioned the bases upon which the reduction percentages of SO₂ and NO_x were arrived at. They also urged the Administration to tighten control of RSP, which was the cause for many respiratory diseases in Hong Kong. Other members were concerned that the two power companies would pass the costs to achieve the emission reduction targets (using cleaner fuels and installation of pollution abatement equipment) to consumers through increased electricity tariffs. Questions were also raised on the low emission allowances for new comers and efficacy of emission trading among power plants in Hong Kong and Guangdong.

11. Following the gazettal of the First TM, a subcommittee was formed to study the TM. While supporting the policy intent of capping the emissions of power plants, members considered that the quantities of emission allowances should be further tightened to achieve better air quality. To ensure that SEN would regularly review the total quantity of emission allowances of the power sector taking into account factors such as latest technological development, outcome of review of Air Quality Objectives, members had examined the feasibility and legality of including an expiry date in the TM.

12. According to the Administration, SEN had a duty to make sure that emission allowances were allocated by TM for each type of specified pollutant in respect of

each specified licence in relation to each emission year commencing on or after 1 January 2010 continuously without any interruption. Therefore, if the First TM was subject to an expiry date, SEN must ensure that a valid TM was in place immediately upon the expiry date of the First TM. It was legally unacceptable for there to be any broken period where there was no valid TM in place to govern the allocation of emission allowances, particularly when there was no express or implied deeming provision in the law whereby the expired TM could continue to be regarded as valid. To allay members' concern, SEN had acceded to the subcommittee's request to provide an undertaking in writing that he would conduct a review of TM within two years after the coming into operation of the First TM.

Second Technical Memorandum for Allocation of Emission Allowances in Respect of Specified Licences

13. After reviewing the First TM, the Administration found scope to reduce the emission allowances for each of the electricity works of the two power companies for the emission years starting from 1 January 2015 through –

- (a) maximizing the use of existing gas-fired generation units as a result of the additional natural gas supply from the Mainland over the next few years¹; and
- (b) prioritizing the use of coal-fired generation units that have been retrofitted with emission abatement equipment.

14. Under the Second TM, the specific emission allowances for each of the electricity works of the two power companies in relation to the emission years from 1 January 2015 are –

¹ By 2015, the CLP Power Hong Kong Limited (including the Castle Peak Power Company Limited which is jointly owned with ExxonMobil Energy Limited) will increase the local electricity generation by natural gas from the current level of about 10,900 GWh to about 16,430 GWh and the Hongkong Electric Co. Ltd. from about 3,680 GWh to about 4,060 GWh, thereby increasing the overall share of natural gas from the current 39% to about 52%.

| | Emission Allowances for Existing Electricity Works (Tonnes Per Year) | | |
|--|---|--|--|
| | Sulphur dioxide | Nitrogen oxides ^{Note 1} | Respirable suspended particulates |
| Hongkong Electric Co. Ltd. | | | |
| Lamma Power Station (mixed fuel) | 6 780 | 10 020 | 300 |
| Subtotal ^{Note 2} | 6 780 (72%) | 10 020 (63%) | 300 (64%) |
| CLP Power Hong Kong Limited | | | |
| Black Point Power Station (gas-fired) | 1 440 | 4 140 | 110 |
| Castle Peak Power Station (coal-fired) | 4 260 | 13 390 | 420 |
| Penny's Bay Gas Turbine Power Station (oil -fired) ^{Note 3} | 2 | 2 | 1 |
| Subtotal ^{Note 2} | 5 702 (36%) | 17 532 (66%) | 531 (67%) |
| Total ^{Note 2} | 12 482 (50%) | 27 552 (65%) | 831 (66%) |

Note 1 Expressed as nitrogen dioxide.

Note 2 The figures in brackets compare the new emission allowances with the current emission allowances under the First TM in percentage terms.

Note 3 As the Penny's Bay Gas Turbine Power Station is for emergency and peak-opping purposes, the projected SO₂, NO_x and RSP emissions for the purposes are one to two tonnes.

15. As compared with the emission allowances allocated under the First TM, the Second TM will achieve a further tightening on emission caps as follows -

| | 2010 emission allowances in the First TM (tonnes per year) | 2015 emission allowances to be included in the Second TM (tonnes per year) | Reduction compared to 2010 (%) |
|-----------------|--|--|--------------------------------|
| SO ₂ | 25 120 | 12 482 (120) ^{Note} | 50% |
| NO _x | 42 600 | 27 552 (270) ^{Note} | 35% |
| RSP | 1 260 | 831 (8) ^{Note} | 34% |

Note The maximum emission allowances for new electricity works with a total installed capacity equal to or more than 300 MW, which is 1% of the total emission allowances for the entire power sector. For those less than 300 MW, the existing practice of allocating the emission allowances by multiplying the respective maximum emission allowances set out in the above table with the ratio of the total installed capacity to 300 MW will be continued.

16. The Second TM was published in the Gazette on 15 October 2010, tabled on 20 October 2010 and shall come into operation in accordance with section 37C of APCO². In accordance with section 26G(4) of APCO, the new set of emission allowances will take effect at least four years after the commencement of the Second TM, i.e. starting from the emission year of 2015. To enable timely revision of the emission allowances, the Second TM will be reviewed at a frequency of no less than once every three years.

17. According to the Administration, given the volatile fuel market conditions and that the tightened emission caps will take effect only in 2015, it would not be possible to provide a reliable estimation of the tariff implications of the Second TM until the cost of natural gas to be imported is available. For illustration purpose, the two power companies' current unit generation costs of coal-fired electricity are in the range of about 40 to 60 cents/kWh and gas-fired electricity in the range of about 70 to 90 cents/kWh.

Panel's discussion on the Second Technical Memorandum

18. At its meeting held on 22 September 2010, the Panel on Environmental Affairs was briefed by SEN on the proposal to issue a Second TM to reduce the emission allowances for power plants from 2015 onwards. While members generally supported the proposal, some members expressed concern that in order to meet the new emission allowances, the two local power companies would have to increase the use of natural gas for power generation and might tend to recoup the cost by increasing electricity tariff given the price difference between coal and natural gas.

Relevant Papers

Information paper provided by the Administration for the EA Panel meeting on 27 October 2008

<http://www.legco.gov.hk/yr08-09/english/panels/ea/papers/ea1027cb1-88-3-e.pdf>

Minutes of the EA Panel meeting on 27 October 2008

<http://www.legco.gov.hk/yr08-09/english/panels/ea/minutes/ea20081027.pdf>

² Pursuant to section 37C of the Ordinance, the technical memorandum shall commence to have effect upon the expiry of the above amendment period or the period as extended if LegCo does not pass a resolution to amend it. In the case where LegCo passes a resolution amending the technical memorandum, it shall come into effect on the day of the publication in the Gazette of such resolution.

Report of the Subcommittee on Technical Memorandum for Allocation of Emission Allowances in respect of Specified Licences to the House Committee meeting on 5 December 2008

<http://www.legco.gov.hk/yr08-09/english/hc/papers/hc1205cb1-323-e.pdf>

Information paper provided by the Administration for the EA Panel meeting on 22 September 2010

<http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea0922cb1-2841-1-e.pdf>

Minutes of the EA Panel meeting on 22 September 2010

Information paper provided by the Administration for the EA Panel meeting on 22 October 2010

<http://www.legco.gov.hk/yr10-11/english/panels/ea/papers/ea1022cb1-168-3-e.pdf>

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