

**Confirmed Minutes of the 161<sup>st</sup> Meeting of  
the Advisory Council on the Environment  
held on 8 June 2009 at 2:30 pm**

**Present:**

Prof LAM Kin-che, SBS, JP (Chairman)  
Prof Paul LAM, JP (Deputy Chairman)  
Ms Teresa AU  
Prof CHAU Kwai-cheong  
Mr Oscar CHOW  
Mr Edwin LAU  
Prof Joseph LEE  
Dr MAN Chi-sum, JP  
Dr Alfred TAM  
Mr TSANG Kam-lam  
Prof WONG Ming-hung  
Prof Ignatius YU  
Mr Carlson K S CHAN (Secretary)

**Absent with Apologies:**

Dr Dorothy CHAN, BBS  
Ms Betty HO  
Mr Michael JEBSEN, BBS  
Mr Michael LEE  
Mr Simon WONG, JP  
Dr YAU Wing-kwong

**In Attendance:**

Ms Anissa WONG, JP	Permanent Secretary for the Environment
Mr P Y TAM	Assistant Director/Technical Services, Planning Department
Mr J K CHAN	Acting Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department
Ms Monica KO	Principal Information Officer, Environmental Protection Department (EPD)
Ms Josephine CHEUNG	Chief Executive Officer (CBD), EPD
Ms Loletta LAU	Executive Officer (CBD), EPD

### **In Attendance for Agenda Item 3**

Miss Katharine CHOI	Principal Assistant Secretary for the Environment (Energy)1, Environment Bureau
Mr Alfred SIT	Assistant Director/Energy Efficiency, Electrical and Mechanical Services Department (EMSD)
Mr K K LI	Chief Engineer/Energy Efficiency B, EMSD
Mr Ken YEUNG	Senior Engineer/Energy Efficiency B5, EMSD

### **In Attendance for Agenda Item 4**

Mr W C MOK	Acting Assistant Director (Air Policy), EPD
Mr Edmond HO	Principal Environmental Protection Officer (Mobile Source Control), EPD

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### Action

#### **Agenda Item 1 : Confirmation of the draft minutes of the 160<sup>th</sup> meeting held on 11 May 2009**

The draft minutes were confirmed without amendment.

#### **Agenda Item 2 : Matters arising from the minutes of the 160<sup>th</sup> meeting held on 11 May 2009**

2. There were no matters arising from the minutes of the last meeting.

#### **Agenda Item 3 : Legislative framework of mandatory implementation of the Building Energy Codes** *(ACE Paper 8/2009)*

3. Miss Katharine Choi briefed Members on the proposed legislative framework of mandatory implementation of the Building Energy Codes (BEC). The Council had been consulted on the proposed mandatory implementation of the BEC in February 2008 and the Council supported the proposal. Majority of the views received in the public consultation exercise agreed that the Government's proposal was in the right direction for promoting energy

efficiency and conservation in buildings. The plan was to introduce the proposed legislation to the Legislative Council in 2009.

4. Upon the enquiry of the Chairman, Miss Katharine Choi said that four key types of fixed building services installations, namely lighting, air-conditioning, electrical, and lift and escalator installations, would be included in the BEC. Codes on minimum energy efficiency standards of these installations would be prescribed. Since 1998, the Electrical and Mechanical Services Department (EMSD) had operated the voluntary Hong Kong Energy Efficiency Registration Scheme for Buildings and issued prescriptive codes on these four key types of installations. On examples of standards, Mr Alfred Sit said that one of the energy efficiency standards of lighting installations would be in terms of their power density per floor area and that of air-conditioning installations would be in terms of “coefficient of performance” of chiller plants.

5. In reply to the Chairman’s enquiry about the anticipated environmental benefits brought about by the proposal, Miss Katharine Choi said that the anticipated electricity savings for new buildings in the first ten years would be about 2.8 billion kWh, which was equivalent to about 196 million tonnes of carbon emission reduction. Mr Alfred Sit added that the annual electricity consumption in Hong Kong was about 40 billion kWh. The electricity savings of 2.8 billion kWh in the first decade would be equivalent to about 7% of annual electricity consumption. In terms of electricity savings, the adoption of the BEC would result in estimated annual electricity savings of about 10% to 15% for a typical office building depending on the actual design of its building services installations.

6. A Member enquired about the achievements in other countries which had implemented the mandatory schemes. Miss Katharine Choi said that some overseas countries, such as Australia, Singapore, the United Kingdom and the United States, as well as the Mainland had implemented mandatory minimum energy efficiency requirements for buildings. The feedbacks received were positive in reducing energy consumption and improving energy performance of the installations.

7. A Member noted that the mandatory scheme mainly targeted at commercial and relatively larger scale premises. He enquired about measures

and incentives to enhance best practices of individual households as behavioural changes should start at the household level. Moreover, the frequency of retrofitting of flats in Hong Kong was relatively high in view of the active property market. Miss Katharine Choi explained that electricity consumption of commercial buildings accounted for about 64% of the total electricity consumption of buildings while that of residential buildings accounted for about 24%. In the public consultation exercise, majority of the views collected agreed that only common area of the residential buildings should be included in the BEC.

8. A Member supported the legislative proposal. She enquired about the rationale for not covering premises inside industrial buildings under the scheme. Miss Katharine Choi explained that the level of electrical requirements for different industrial operations would vary a lot and thus there would be difficulties in setting energy efficiency standards for premises for industrial purposes.

9. A Member noted that the proposed scheme mainly focused on post-enactment buildings. She considered that more proactive measures should be taken for pre-enactment buildings, such as by setting targets for a certain period of time in order to strive for better results. Miss Katharine Choi explained that practices of overseas countries showed that the mandatory schemes did not have retrospective effect for existing buildings unless those buildings underwent alterations, additions or change of use. Moreover, the major electrical installations in the buildings would have a limited service life and the buildings would be covered by the BEC after a certain period of time when major retrofitting works had to be carried out.

10. A Member enquired about the means for pre-enactment buildings to improve energy performance in case the building would not undergo major retrofitting works covering a floor area of 500 m<sup>2</sup> or above for a very long time. Miss Katharine Choi explained that the major consideration on the control regime of pre-enactment buildings was to minimize the dumping of non-complying electrical installations prematurely. To encourage owners of existing buildings to carry out improvement works to upgrade energy performance of the buildings on a voluntary basis, funding schemes under the Environment and Conservation Fund were set up in April 2009 for energy

efficiency projects and energy-cum-carbon audit projects.

11. A Member enquired about mechanisms to monitor major retrofitting works in pre-enactment buildings to avoid the escape of responsibilities, such as down-sizing of retrofitting projects. Miss Katharine Choi said that all retrofitting works performed within a period of 12 months in a certain premises would be counted as a major retrofitting project under the proposed legislation to avoid downsizing of the works.

12. A Member enquired about the legal rights and obligations of owners and tenants of pre-enactment buildings in case a penalty had to be imposed. For example, the tenant in a shopping mall would undergo major retrofitting works. Miss Katharine Choi explained that the EMSD would identify the “responsible person” who would perform the major retrofitting works and this party would be held liable for the penalty. In the case of a tenant in a shopping mall, the tenant would be the “responsible person” for compliance of the BEC as he was the party carrying out the retrofitting works.

13. A Member enquired about the qualifications for “competent persons” for certifying declarations to confirm compliance of requirements under the proposed legislation. Mr Alfred Sit said that on top of the requirement of being a Registered Professional Engineer under the Engineers Registration Ordinance (Cap. 409) or a corporate member of the Hong Kong Institution of Engineers in relevant discipline, the “competent person” had to possess relevant post-qualification working experience and knowledge. Applications had to be made to EMSD with relevant proof.

14. A Member enquired about the role of EMSD, which also provided services on commercial basis, in approving the qualifications of the “competent persons”. Mr Alfred Sit explained that EMSD provided services to other Government departments similar to commercial practices but did not provide services to the private sector. Thus, there should not be potential conflict of interest in being the approving authority of “competent persons”.

15. A Member enquired about the persons qualified to perform the energy audits. Miss Katharine Choi said that the “competent persons” under the proposed legislation, who were qualified to certify the declarations, could

also perform energy audits.

16. A Member supported the legislative proposal. He noted that the energy audit requirement was applied to commercial buildings only. Miss Katharine Choi explained that energy audit requirement was yet to be a common practice in overseas countries. Given that commercial buildings accounted for about 64% of electricity consumption of buildings in Hong Kong, it was considered useful to focus efforts on commercial buildings at this stage. Out of the 41,000 buildings in Hong Kong, there were about 2,100 commercial buildings and about 11,000 composite buildings with commercial portions. With more experience on energy audits and supply of qualified persons, consideration would be given to extending the energy audit requirement to other types of buildings.

17. A Member enquired about the purpose of energy audits for pre-enactment buildings when the buildings had not carried out major retrofitting works. Miss Katharine Choi explained that the main purpose of the energy audits was to help building owners review the energy consumption pattern of the buildings with a view to identifying energy management improvement opportunities by housekeeping measures and minor fittings.

18. The Chairman enquired about the requirement of energy audits in government and institutional buildings. Miss Katharine Choi said that the Government had issued an internal circular on “Green Government Buildings” in April 2009 to introduce a target-based green performance framework. Government departments were required to achieve energy efficiency and conduct carbon audits for major buildings on a regular basis.

19. Ms Anissa Wong said that the circular was jointly issued by the Secretary for the Environment and Secretary for Development to promote green buildings in Hong Kong as the Government had to be a model for the community by taking the lead in driving green buildings. A set of green measures, including energy efficiency standards, was set for both new and existing government buildings. Municipal services facilities provided by the Government, such as libraries, cultural centres and schools, were included. The framework for new government buildings also applied to public works projects of a certain scale. Targets were set for existing buildings through

vigorous housekeeping measures and retrofitting. The performance would be regularly monitored through carbon audits. While the BEC would cover government buildings, proactive measures had been taken by the Government to introduce green measures to strive for performance above the BEC.

20. A Member considered that a regular review mechanism was necessary for the energy efficiency standards in view of the fast pace of technological advancement. Another Member shared his views. Mr Alfred Sit said that the proposal included a review mechanism of the BEC at a five-year interval for continuous updating and improvement of the standards by taking into account the development of energy efficiency technologies, design practices and prevailing international standards. A similar review mechanism had been put in place under the voluntary scheme implemented in 1998 to ensure that the standards were up-to-date. For example, the maximum allowable lighting power density for offices had been uplifted from 25 W/m<sup>2</sup> in the 1998 version of standards to 17 W/m<sup>2</sup> in the 2007 version.

21. A Member considered that while exemptions should be applied to certain types of low energy consuming buildings, he was doubtful whether exemptions should be granted to village houses in the New Territories. There were a large number of standalone houses in the New Territories which were not village houses. Miss Katharine Choi explained that standalone houses with total ratings of main electrical switch not exceeding 100A would also be exempted from the mandatory scheme.

22. A Member supported the proposed legislative framework. He considered that there was no need to grant exemptions to a certain categories of buildings. Building owners with practical difficulties to comply with the BEC requirements could apply for exemptions with justifications. Instead, awards should be granted to owners of these types of buildings for taking proactive steps to achieve energy savings. Miss Katharine Choi said that voluntary compliance of the BEC by these exempted buildings would be welcomed.

23. A Member suggested that a recognition scheme, such as a “star scheme”, should be put in place to give incentives to good performers. Another Member supported the rolling out of a recognition scheme as early as possible to give recognition to building owners who could strive to achieve

better environmental performance. Developers would probably build on the recognition scheme to create value in enhancing the marketability of their buildings.

24. Ms Anissa Wong said that the legislative proposal aimed to impose minimum energy efficiency standards for major building services installations of a building. There were currently various types of recognition schemes operated by professional bodies, such as the Hong Kong Building Environmental Assessment Method (HK-BEAM) operated by the HK-BEAM Society, giving recognition to buildings which achieve remarkable environmental performance in a range of relevant areas, including energy efficiency, efficient use of resources, indoor environmental quality, emission reduction and innovations.

25. A Member enquired about the use of building materials, such as insulating and reflective materials, which would help reduce energy consumption of a building but transfer the heat to the surrounding environment. Mr Alfred Sit explained that there had been provisions in the Building (Energy Efficiency) Regulation under the Buildings Ordinance (Cap. 123) to control the overall transfer thermal value of buildings.

26. The Chairman enquired about energy consumption by external advertisement lightings. Miss Katharine Choi said that the Government had pledged in the 2008-09 Policy Address to assess the problem of energy wastage of external lighting and study the feasibility of tackling the problem through legislation. Upon completion of the study targeted in 2009, actions would be taken to consider appropriate regulatory framework.

27. The Chairman summarized Members' views as follows –

- (a) the Council supported the proposed legislative framework of mandatory implementation of the BEC, which was an important environmental initiative to help fulfill Hong Kong's international commitment to reducing its energy intensity, alleviating global warming and combating air pollution;
- (b) the Council was pleased to note that a target-based green

performance framework had already been implemented for government buildings which would have a demonstrative effect to enhance environmental awareness of the community;

- (c) the Council noted that regular reviews would be conducted to update the energy efficiency standards in light of technological advancement and considered that it would be an important mechanism to ensure that the set of BEC would be up-to-date;
- (d) the Council suggested extending the energy audit requirement to buildings other than commercial buildings under the scheme in the longer term;
- (e) the Council suggested devising new or enhancing current recognition schemes to give incentives to building owners who could achieve higher level of performance in energy conservation; and
- (f) the Council suggested that education programmes be rolled out for the scheme to increase public awareness by focusing the environmental benefits in terms of reduction in air pollutants as well as financial benefits in terms of savings in electricity bills.

**Agenda Item 4 : Introducing regulatory control on motor vehicle biodiesel**  
***(ACE Paper 9/2009)***

28. Mr W C Mok briefed Members on the proposal to introduce regulatory control on motor vehicle biodiesel (“biodiesel” hereafter). He highlighted that biodiesel, which was a form of renewal energy, could be used to power motor vehicles in pure form or in blends with motor vehicle diesel. Replacing fossil diesel with biodiesel could help reduce greenhouse gas (GHG) emissions. The proposal involved amendments to the Air Pollution Control (Motor Vehicle Fuel) Regulation (Cap. 311 sub. Leg. L) by making provisions for biodiesel specifications, labeling requirements and penalty for non-compliance, which could help safeguard the quality of biodiesel and promote its use.

29. A Member pointed out that earlier studies showed that nitrogen oxides (NO<sub>x</sub>) emissions from biodiesel were more than that from diesel. He enquired about the latest development. Mr W C Mok said that NO<sub>x</sub> emissions from biodiesel were a bit more than that from diesel but emissions of particulates were lower. In terms of impacts on roadside air quality, the use of biodiesel was on a par with Euro V diesel. It was anticipated that the use of biodiesel would not aggravate roadside air quality in terms of NO<sub>x</sub> as most vehicles would usually use diesel containing up to 5% biodiesel (B5) to power their vehicles.

30. A Member enquired about the benefits on emission reduction brought about by different biodiesel blends. Mr W C Mok said that the University of Hong Kong had conducted a study in 2001 on the comparison of emission reduction by motor vehicles using biodiesel and ultra low sulphur diesel. The study on B20 biodiesel revealed that there were about 16% reduction in smoke, 14% reduction in carbon monoxide and hydrocarbon, and some slight increase in NO<sub>x</sub> emissions. The Member suggested that studies be conducted to examine the emission reduction level of different biodiesel blends in comparison with Euro V diesel.

31. A Member noted that motor vehicle diesel containing higher biodiesel contents, such as 10% (B10) or 15% (B15), was allowed in some countries for some newly designed vehicle models. He asked whether there was strong opposition from the motor vehicle trades for the use of diesel with higher biodiesel content. Mr W C Mok explained that the Government did not impose any restriction on the level of biodiesel content for motor vehicles. The use of biodiesel blends up to 100% pure biodiesel was allowed. The purpose of the legislative amendment was to safeguard the quality of biodiesel in the local market and provide information to facilitate drivers' choice on the use of biodiesel-containing diesel. Biodiesel suppliers or vendors were required to post labels at the selling points if the biodiesel content in their diesel exceeded 5%. The 5% biodiesel content was used as a cutoff point as vehicle manufacturers generally accepted the use of diesel containing up to 5% biodiesel to power their vehicles.

32. The Chairman enquired about the local consumption and cost of biodiesel for motor vehicles. Mr W C Mok said that the consumption data of

biodiesel for motor vehicles was not available. There was one biodiesel manufacturing plant in Hong Kong. He learnt that the daily production amount of the plant was about 10,000 litres of pure biodiesel for various purposes, such as for motor vehicles and industrial purposes. The cost of the biodiesel seemed to be competitive to motor vehicle diesel and industrial diesel.

33. The Chairman enquired about constraints which would discourage vehicle owners from using biodiesel. Mr W C Mok said that the major constraint was that past incidents of some drivers having their vehicle engines damaged after using biodiesel of poor quality had weakened the transport trades' confidence in biodiesel as a motor vehicle fuel. The purpose of the legislative amendment was to mandate the specification of the biodiesel based on international standards in controlling the quality of the biodiesel so as to build up consumers' confidence in the fuel.

34. A Member fully supported the legislative proposal as it would address the drivers' concern over the compatibility issue and help reduce GHG emissions. He enquired about plans to promote wider use of biodiesel among motor vehicle trades and public transport companies. Mr W C Mok said that they had been liaising with the transport trades on the use of biodiesel for some time. Feedback from the trade reflected that a legislative framework on the biodiesel specifications was a major step for promoting wider use of biodiesel. The proposed legislative amendment would provide information to vehicle owners about the requirement for the quality of biodiesel as a motor vehicle fuel and could thus promote the wider use of biodiesel in the trade.

35. A Member supported the control of quality of biodiesel by making reference to international standards. She considered that it was important to roll out public education programmes to enhance public understanding on the labeling requirement and implications of different biodiesel blends on different vehicle models to facilitate consumers to make choices. Mr W C Mok said that the Environmental Protection Department (EPD) planned to set up of an information website providing information on biodiesel as a motor vehicle fuel.

36. In response to a Member's enquiry on the location for fueling biodiesel, Mr W C Mok said that it would be a commercial decision for oil companies to provide biodiesel in their fuel stations. So far, one oil company

had expressed interest in providing biodiesel-containing diesel in its fuel stations.

37. A Member enquired about the source of biodiesel in Hong Kong. Mr W C Mok said that there were local and imported sources. There was one local plant producing biodiesel from used cooking oil. Biodiesel could also be manufactured from various products, such as vegetable oil, animal fat, waste cooking oil and corn stalks.

38. A Member agreed the need for the regulatory control on biodiesel but expressed concern over possible implications on wider use of biodiesel. He considered that given the duty-free policy for biodiesel, there would be economic incentives for importers to increase the supply of biodiesel in Hong Kong. Based on recent researches, a large amount of biodiesel was manufactured from oil palm plantations by clearing forests and even rainforests, such as in Malaysia and Indonesia, which was an environmentally unfriendly way of production. The Government should conduct life-cycle analysis of biodiesel and exercise control on the import of biodiesel. Another Member shared the Member's concern and agreed that life-cycle analysis of the product should be conducted, such as whether the product was produced from cooking oil, agricultural waste, river algae or by clearing forests. The Government should formulate policy to support environmentally friendly means of production.

39. Mr W C Mok said that unlike emission comparison studies, life-cycle studies involved complicated technical issues. EPD had no plan to conduct such studies but would take note of the findings of life-cycle biodiesel studies done overseas. Moreover, there was no prevailing policy on the control of import of biodiesel that was made from food crops. He was not aware of similar control in other advanced countries. The Government was aware of the increasing concern about the diversion of food for production of fuel leading to price increase of food products. The Government would monitor closely the international development on tightening the control of biodiesel made from food crops. If necessary, the Government would consider the need to impose similar control on the import of biodiesel that was made from food crops. He noted that the second generation of technology in manufacturing biodiesel mainly used waste materials, such as crop stalks.

40. A Member suggested incorporating the control of source and production method of biodiesel in the proposed legislative amendment so as to ensure that the biodiesel would be produced in an environmentally friendly way. The regulation could empower the Government to review the duty-free policy or impose a ban or levy on the imported biodiesel which was manufactured by environmentally unfriendly methods. A Member said that biodiesel was considered an environmentally friendly product which could help reduce GHG as well as reducing waste in its production process. Nonetheless, if the production of biodiesel affected the ecosystem, it would defeat the purpose of using this product. He suggested the Government to consider withholding the duty-free policy on imported biodiesel which was not produced in environmentally friendly ways by requesting the importers to produce certificates on the origin or source. A Member asked whether the Council would be consulted in future regarding the issue on import of biodiesel in view of the concern over its environmental impacts.

41. Mr W C Mok fully appreciated Members' concern about the source and production method of biodiesel, especially imported biodiesel. He explained that the purpose of the proposed legislative amendment was to introduce regulatory control on biodiesel by mandating its specifications which would be an important step in controlling the quality of biodiesel in the market. As regards the source or production method of biodiesel, it was noted that there was increasing concern around the world and the European Union and the United States were looking into these areas. The Government would keep track of the international development and researches closely and consider appropriate means of control by making reference to overseas practices. He also pointed out that in the absence of an international regulatory framework on the source and production method of biodiesel, particularly in countries where biodiesel was produced, Hong Kong could hardly set up an effective enforcement system regulating the source and production method of biodiesel. At present, there was no provision under the Air Pollution Control Ordinance to control the import of biodiesel. When a regulatory framework on the import of biodiesel had to be formulated, the Council would be consulted.

42. A Member suggested requiring the fuel suppliers or vendors to include in the labels information on the source and production method of the biodiesel in the fuel stations for customers' information. Mr W C Mok

explained that fuel suppliers or vendors could be encouraged to do this on a voluntary basis. Nonetheless, there would be enforcement difficulties if the requirement was made mandatory in view of the lack of established methods to judge the authenticity of information stated in the label. The Chairman considered that the regulatory framework would hinge on the availability of a signature on the source or production method of biodiesel for verification purpose. In response, Mr Mok said that such a signature was not available.

43. A Member pointed out that the main controversy on biodiesel in the world recently was the source materials used by manufacturers to produce biodiesel. Edible oil, which could be served as food, was being used for manufacturing biodiesel, especially in Europe and the United States. There was an ethical debate on competition of food for consumption or for fuel production. He considered that judgement had to be made. By using biodiesel manufactured from waste only, the supply would be very limited and it would be difficult to promote wider use of biodiesel and thus reduction in GHG emissions would not be significant.

44. A Member considered that the proposed legislative amendment under consideration mainly focused on the provision of statutory control on biodiesel specifications, labeling requirements and penalty for non-compliance. The concern of some Members about the source or production method of biodiesel and appropriate control mechanism might have to be addressed in a separate context after more information was gathered on the international development.

45. The Chairman summarized Members' views as follows –

- (a) the Council supported in principle the proposed amendments to the Regulation regarding the provision of statutory control on biodiesel specifications, labeling requirements and penalty for non-compliance in view of the environmental benefits for motor vehicles to use biodiesel;
- (b) the Council, however, was concerned about the source and production method of biodiesel, especially imported biodiesel, as some might be produced in an environmentally unfriendly way and

it would mean that the pollution problem in Hong Kong would be exported to other countries. A balance thus had to be struck between the environmental benefits of using biodiesel and environmental impacts of manufacturing biodiesel; and

- (c) the Council noted that the Administration would closely monitor the international development on the concern and welcomed the opportunity to discuss further about the overall situation on the supply and control mechanism of biodiesel, such as the need to review the duty-free policy, by making reference to overseas practices.

**Agenda Item 5 : Any other business**

**Tentative items for discussion at the next meeting**

- 46. The agenda was being compiled. Members would be informed in due course.

**Agenda Item 6 : Date of next meeting**

- 47. The next meeting was scheduled for 6 July 2009.

**ACE Secretariat  
June 2009**