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**ACE Paper 3/2007**  
*For advice*

## **Report (Part 1) on the 96<sup>th</sup> Environmental Impact Assessment Subcommittee Meeting**

### **INTRODUCTION**

On 19 January 2007, the Environmental Impact Assessment (EIA) Subcommittee considered the EIA report on A Commercial Scale Wind Turbine Pilot Demonstration at Hei Ling Chau (ACE-EIA Paper 1/2007 refers).

### **ADVICE SOUGHT**

2. Members are requested to advise whether the EIA report should be endorsed without condition.

### **VIEWS OF THE SUBCOMMITTEE**

#### Need for the project

3. The project is a pilot project launched by the Castle Peak Power Company Limited (CAPCO) to explore the alternative power source using renewable wind energy and to promote public awareness of this alternative power source in Hong Kong.

#### Description of the project

4. The proposed project is to construct and operate a 3-bladed wind turbine, with a rated capacity between 800 kW and 1300 kW, on Hei Ling Chau. The wind turbine will produce electricity in the range of wind speed of 3 to 25 m/s and will be operated automatically. It will be unmanned and can be controlled remotely. The overall height of the wind turbine will be of about 90 m and the site area of the project will be of about 54 m x 100 m. Main construction activities for the project include –

- (a) site formation works, foundation works with reinforced concrete and pre-bored H-piles, and assembly, erection and installation works at the project site;

- (b) installation of a temporary steel platform without any marine works at an existing jetty within Hei Ling Chau Typhoon Shelter for unloading the heavy wind turbine components; and
- (c) some enabling works such as slope works, local road widening and rock-cut at the access routes to the project site.

5. The project is classified as a designated project under Item D.1, Part I, Schedule 2 of the EIA Ordinance (“*public utility electricity power plant*”).

#### Members’ views

6. Members noted that three sets of public comments had been received by the Environmental Protection Department (EPD). The public inspection period ended on 12 January 2007. Separately, some Members had raised some questions to the project proponent and the response from the project proponent had been circulated to Members before the meeting. Some Members had some follow up questions and concerns on the project.

7. Members agreed that the discussion should focus on the objective of the project, site selection, optimization of footprint and environmental monitoring.

#### *Objective of the project*

8. On some Members’ concern about whether the objective of environmental education could be achieved given the remote location of the site. The project proponent explained that the objective of the project was to study the practicality of commercial use of wind turbine as well as to let the community gain more knowledge and experience about wind energy application in Hong Kong. In terms of accessibility, there was public access by regular ferry service from Peng Chau to the island. Guided tours could be arranged to the wind turbine site. The existing “Green Haven Tour” education programme organized by the Correctional Services Department (CSD) on the island for schools and community groups could also be expanded to include education on renewable energy and visits to the wind turbine. A management infrastructure for environmental education was already in place.

9. On the enhancement of the education programme by CAPCO, the project proponent explained that they were working closely with CSD. CSD had indicated that they supported the wind turbine demonstration and considered it a good opportunity to include visits to the wind turbine site in its regular outreach public education programme to make the tour more prominent and attractive. The project proponent would build on the experience of running the existing educational centres in different parts of Hong Kong, such as those in the Castle Peak Power Station and Sham Shui Po. They were keen to enhance CSD’s existing eco-tour to cover the education elements of renewable energy and applicability of wind energy in Hong Kong. The education programme would include displaying and providing relevant information and leaflets at the site. Training would be

provided to the tour guides. Some Members considered that the project proponent should not only rely on CSD's existing eco-tours but should also be more proactive in providing resources in enhancing the educational aspect of the project.

10. On some Members' doubt about the value of constructing a wind turbine similar to that of the Hongkong Electric Company (HEC) on Lamma Island, the project proponent explained that the project involved not only the construction of a wind turbine but also the experience and knowledge gained throughout the process. In the site selection and EIA process, they had gathered much information about the potential of a land-based wind turbine in Hong Kong, including wind resource, constraints in site selection, engineering and environmental costs. More information had to be collected after the operation of the wind turbine. CLP Power Hong Kong Limited was also working with a developer in the UK to assess the feasibility of offshore wind generation in Hong Kong.

#### *Site selection*

11. On the site selection process, the project proponent indicated that they had engaged stakeholders and concerned groups throughout the site selection process which was very transparent. The key considerations in selecting the site included wind resource, availability of access routes to deliver the components and construction materials, and practical constraints such as height restriction, aviation safety and existing infrastructure to promote public awareness. Sites at Black Point, Castle Peak and Penny's Bay were ruled out in view of limited wind resource and height restriction by the Civil Aviation Department. They had worked with the Hong Kong University of Science and Technology to develop a wind resource map to analyze the suitability of various sites in Hong Kong. The site at Hei Ling Chau represented a good balance of the relevant criteria. The HEC's wind turbine on the Lamma Island and the proposed wind turbine at Hei Ling Chau were complementary.

12. On Members' question about the term "commercial scale" and optimum size of the wind turbine, the project proponent explained that the term "commercial scale" was indicative of the size of a wind turbine typically found in a wind farm in the world. The optimum size of a wind turbine would depend on a number of factors, including technologies available, wind resource, height restriction and transportation means. Regarding the possibility of increasing the size of the wind turbine beyond the range of 800kW to 1300kW, the project proponent indicated that the proposed size would be an optimum one taking into account various factors. They intended to put the largest wind turbine that would fit the constraints on the site. The decision process was that the most suitable site would be identified first before considering the size of the wind turbine.

#### *Optimization of footprint*

13. On the possibility of reducing the footprint, the project proponent explained that the site area of 100 m X 54 m during the construction phase would be required to allow the installation of the turbine of 60 m blade diameter and 90 m tower height including the blade. Landscape enhancement works would be undertaken to reinstate and

improve the site area to its natural state. Space in the tower base would be required for storage of tower components and other ancillary facilities such as a visitor centre. There would be some natural vegetation and landscape to demarcate the permanent site area without security fencing. The site area was similar to that of HEC's wind turbine.

### *Environmental monitoring*

14. On some Members' concern about the conduct of construction workers on the restricted site, the project proponent highlighted that they had a strict code of practice and set very high environmental standards on their contractors. They would not tolerate misconduct on the works site. Under the Environmental Monitoring and Audit Programme, an environmental team with a monthly audit programme would be set up to monitor the construction waste management issues and there were clear guidelines on waste disposal.

15. Some Members suggested the setting up of on-site webcams at major works areas for monitoring purpose. The project proponent explained that the discussion with CSD suggested that there would be security concerns if the webcams were to oversee a larger area. They undertook to liaise with CSD and EPD to explore the possibility of setting webcams at major works areas during construction.

16. On the bird monitoring programme, the project proponent indicated that they were planning to install a webcam to monitor the operation of the wind turbine. The frequency of site inspection would be increased from monthly to weekly intervals for the first 12 months. In addition, weekly vantage point surveys would be undertaken to observe the birds' behaviour and flight patterns, in particular the White-Bellied Sea Eagles. Suitable training would be provided to the eco-tour guides.

### Conclusion

17. Having regard to the findings and recommendations of the EIA report and information provided by the project proponent, Members agreed that the EIA report could be endorsed without condition. The Subcommittee also made the following suggestions –

- (a) the project proponent should take a more proactive role and provide resources to enhance the educational aspect of the project rather than purely rely on CSD's existing eco-tours; and
- (b) the project proponent should explore the possibility of setting up on-site monitoring webcams at major works areas during the construction phase subject to the outcome of the negotiation with CSD and EPD on security considerations.