

**Development of an Offshore Wind Farm in Hong Kong
Minutes of First Stakeholder Liaison Group Meeting**

Held on 20 January 2011 at 2:30pm on 11/F, Hongkong Electric Centre, 44 Kennedy Road, Hong Kong

Present (in alphabetical order):

Mr. Lin-wai CHAN (Lamma Island (North) Rural Committee)
Mr. Shup-ng CHAN (Cheung Chau Office of Hong Kong Fishermen’s Association)
Dr. Luk-ki CHENG (Green Power)
Ms. Kit-yan CHEUNG (Green Peace China)
Mr. Yuk-tong CHOW (Lamma Island (South) Rural Committee)
Ms. Charlotte FAN (Meeting Facilitator)
Mr. Terence FONG (Environmental Resources Management – Hong Kong Limited)
Mr. Ying-leung KWAN (Hongkong Electric)
Ms. Esme LAU (Hongkong Electric)
Mr. Frank LAU (Hongkong Electric) – Chairman
Mr. Edwin LAU (Friends of the Earth (HK))
Mr. Kwok-wo LAU (Lamma Fishermen’s Association)
Mr. Daniel LEE (Hongkong Electric)
Dr. Alan LEUNG (WWF-Hong Kong)
Ms. Karen LUI (Environmental Resources Management – Hong Kong Limited)
Dr. Cho-nam NG (Hong Kong Bird Watching Society)
Ms. Audrey TAM (Environmental Resources Management – Hong Kong Limited)
Prof. Kit-po WONG (Department of Electrical Engineering, The Hong Kong Polytechnic University)
Mr. Rico WONG (The Conservancy Association)
Hon. Yung-kan WONG (Legislative Council Member (Functional Constituency – Agriculture and Fisheries))
Ms. Lai-fun YU (Islands DC Member)
Mr. Chi-ming YUNG (Islands DC Member)

Absent with apologies:

Mr. Prentice KOO (Green Peace China)

Mr. Kam-wah LAW (Lamma Fishermen’s Association)

Prof. Dennis Y. C. LEUNG (Department of Mechanical Engineering, University of Hong Kong)

Ref. No.	Issue/Discussion	Follow-up Actions & Responsibilities
1.	<p>Chairman Mr. Frank LAU welcomed the SLG members and explained the primary reason for setting up the Stakeholder Liaison Group (hereafter referred to as ‘SLG’) and stated that the SLG would be a platform of communication where Hongkong Electric (hereafter referred to as ‘HK Electric’) aims to collect all SLG members’ input in an objective manner, with the assistance of an independent Meeting Facilitator.</p> <p>SLG members present at the meeting included Prof. Kit-po WONG (Department of Electrical Engineering, The Hong Kong Polytechnic University), Hon. Yung-kan WONG (Legislative Council Member (Functional Constituency – Agriculture and Fisheries), Ms. Kit-yan CHEUNG (Green Peace China), Dr. Cho-nam NG (Hong Kong Bird Watching Society), Dr. Luk-ki CHENG (Green Power), Mr. Edwin LAU (Friends of the Earth (HK)), Dr. Alan LEUNG (WWF-Hong Kong), Mr. Rico WONG (The Conservancy Association), Mr. Lin-wai CHAN (Lamma Island (North) Rural Committee), Mr. Yuk-tong CHOW (Lamma Island (South) Rural Committee), Ms. Lai-fun YU (Islands DC Member), Mr. Chi-ming YUNG (Islands DC Member), Mr. S. N. CHAN (Cheung Chau Office of Hong Kong Fishermen’s Association) and Mr. Kwok-wo LAU (Lamma Fishermen’s Association).</p> <p>Other attendees included HK Electric representatives Mr. Ying-leung KWAN, Mr. Daniel LEE, and Ms. Esme LAU, Facilitator Ms. Charlotte FAN (GolinHarris) and consultant representatives Mr. Terence FONG, Ms. Karen LUI and Ms. Audrey TAM (Environmental Resources Management – Hong Kong Limited, hereafter referred to as ‘ERM’).</p>	<p>Meeting minutes to be circulated by Facilitator among all SLG members and agreed and posted on HK Electric’s website within one month of SLG meeting.</p>
2.	<p>Facilitator briefly summarized the agenda and other relevant information of the meeting (please refer to the power point for details). She clarified that the meeting was being taped only to assist in minute taking and the SLG members agreed to the recording. She further explained to SLG members about her responsibilities and the agenda of the meeting, and that the Chinese and English versions of the meeting minutes will be uploaded to the website of HK Electric within a month.</p>	<p>--</p>
3.	<p>A SLG member enquired whether a copy of the meeting minutes will be submitted to the Advisory Council on the Environment (ACE). Chairman replied that they would notify ACE about the meeting after the finalization of the meeting minutes.</p>	<p>--</p>
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	<p>A SLG member enquired whether the SLG meeting would take place at least once every six months. Chairman replied that SLG meeting would take place at least once every six months. If necessary, it might take place once every three months. For the time being, he considered it unnecessary to convene the meeting too frequently.</p>	
5.	<p>A SLG member enquired whether the meeting minutes would be anonymous. Chairman replied that the meeting minutes would be anonymous. The taped contents of the meeting will be destroyed after finalization of the meeting minutes.</p>	--
6.	<p>HK Electric briefly presented the background information, conclusions and milestones of the project (please refer to the power point for details), and invited members for questions concerning the project afterwards.</p>	--
7.	<p>A SLG member asked several questions regarding the fisheries industry: whether it would be safe to install thirty-odd wind turbines on the sea surface; whether the wind turbines would induce threat to the fish vessels on the sea; whether wind turbines would create marine pollution; and whether site selection of the wind farm at southwestern Lamma waters is appropriate. He queried the perspectives of fisheries industry and HK Electric on the project would be different, and worried that the project would adversely affect the fisheries industry by imposing long term loss to the nearby fishing ground. Thus, he expressed his concern over the project whilst he has in principle no objection to the project.</p> <p>ERM replied that HK Electric would comply with the requirements of the Marine Department to handle all marine safety-related issues, and keep on liaising with the fisheries industry to ensure the marine safety. Regarding the marine pollution, ERM explained that the installation technology of wind turbine is highly developed, and based on the recommendations in the EIA report, sufficient precautionary measures and environmental monitoring programmes would be implemented during the construction and operation stage to prevent marine pollution.</p>	--
8.	<p>A SLG member questioned if there was any confirmed restricted zone for the project.</p> <p>Chairman replied that the restricted zone for the project was not confirmed yet. In order to closely liaise with the fisheries industry, HK Electric would initiate a Fisheries Review and Consultation Programme as soon as possible. This Programme would hopefully involve representative(s) from the HK Government. HK Electric was open-minded concerning the restricted zone.</p> <p>ERM supplemented that the recommendations made in the EIA report were worst-case scenarios. Restricted zone did not have a confirmed area yet. Since there was still time before confirming the restricted zone, HK Electric would listen to views from different parties regarding restricted zone.</p>	--

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9.	<p>A SLG member asked whether the relevant requirements of pollution prevention could be clearly reflected in the future tender documents.</p> <p>Chairman replied that the relevant measures had not yet started officially. Not only the most fundamental requirements set by the current legislation would be implemented, issues such as the conceptual design of the project and how to minimize pollution during the construction stage could also be discussed further. Relevant requirements could be added in the tender documents if necessary.</p>	--
10.	<p>A SLG member enquired that it was reported in the EIA report that no fishing vessels would be allowed access to the wind farm area. However, if fishing activity was to be allowed in future, whether there would be any difference on the fisheries impacts from those assessed in the EIA report.</p> <p>ERM stated that the potential fisheries impacts from the project had been assessed in the EIA report in detail. The reason for restricting fishing vessels to enter the wind farm area was mainly based on safety concern. HK Electric would keep on liaising with the Marine Department regarding marine safety and pay close attention to all the marine safety matters. Since trawling within the wind farm area may cause impact on the navigational safety and the wind turbines, concern over this type of fishing method would be bigger. If non-trawling fishing method was to be adopted, enhancement of the fisheries resources would be further explored and studied. Therefore, in terms of impact assessments, it was expected that differences in EIA findings would not be anticipated.</p>	--
11.	<p>A SLG member enquired if there were any overseas examples for reference to show that wind farm could increase or decrease the fisheries resources.</p> <p>HK Electric explained that based on the experience of some European countries, the sea area where wind farm was located had the potential to become an artificial reef, which had positive impact on fisheries resources. Chairman supplemented that according to the examples in Denmark and the UK, wind farm could increase fisheries resources and fish biodiversity. Restricted zone would also be established to prohibit all kinds of fishing activities. For the project, HK Electric would set up the Fisheries Review Committee as soon as possible. He did not rule out the possibility of making the restricted area of the wind farm accessible to small amount of vessels.</p>	--
12.	<p>A SLG member regarded that safety issue had not been sufficiently considered by the project. He considered that Po Toi Island was more feasible than Lamma Island in terms of site selection. Agreement from the fisheries industry must be obtained before the project could be implemented. Besides, HK waters were foggy in March every year. The routing issue for vessels had to be thoroughly discussed. Likewise, the compensation issue also needed to be discussed and addressed further. The member thought</p>	--

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	<p>that wind farm had the potential to be developed into a brand new tourist spot. HK Electric should further study how to improve the surrounding ecosystem. The member also enquired about the construction method of the wind turbines. Issue of restricted areas must be discussed in detail with all relevant rural committees in due course for better mutual understanding.</p> <p>Chairman replied that safety related precautionary measures including those for ensuring vessel channel safety would be explained in details later at the meeting. For those fisheries industry concerned issues, Chairman further pointed out that the industry would be thoroughly consulted through the Fisheries Review and Consultation Programme starting from the first quarter of 2011. Besides, Chairman stressed that HK Electric would further study how to improve the surrounding ecosystem and enrich fisheries resources.</p>	
13.	<p>A SLG member expressed his support to the project. He believed that HK Electric had a set of appropriate system to deal with all the relevant issues. Provided there was sufficient communication between all stakeholders, the project should be no problem.</p>	--
14.	<p>A SLG member stated that, on behalf of the representative of Lamma (North) Rural Committee, the Committee supported the project. The member considered that environmental awareness was very important to HK, which was an international city. Wind farm development could make HK people realize the importance of renewable energy. It also represented that HK was concerned about environmental conservation.</p>	--
15.	<p>A SLG member agreed that communication was important. Since there were plenty of fishermen in Cheung Chau, the member enquired how far the wind farm was located from Cheung Chau, and whether the wind farm would raise any safety issue to the sailing activities near Cheung Chau.</p> <p>HK Electric replied that the wind farm was located about 8km from Cheung Chau windsurfing site. Chairman confirmed that the windsurfing activities near Cheung Chau were situated outside the project area.</p>	--
16.	<p>A SLG member considered that HK Electric had been actively responding to and studying the feasibility of the project. The ultimate purpose of developing renewable energy was good, but she also understood the worries from the fisheries industry over the impact on their income. Therefore, the member regarded it essential to maintain communication between stakeholders so as to achieve mutual understanding and agreement on the project.</p>	--
17.	<p>A SLG member enquired about the data on electricity tariff, such as whether electricity prices would increase due to the project, when the project could recover the cost, who were the 50,000 households targeted for the electricity generated by the wind farm,</p>	--

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	<p>whether the wind farm would operate 24 hours a day, and whether the electricity generation was stable.</p> <p>HK Electric replied that the electricity generated by wind only occupied a small percentage of the total electricity. Furthermore, it was not necessary to purchase fuel to generate this type of electricity. Therefore, it was anticipated that the impact on electricity tariff would be minimum. Since the electricity generated by the wind farm would be used by the whole HK, all HK citizens could be served.</p>	
18.	<p>A SLG member was also concerned that future maintenance cost might impose impact on the electricity tariff. He would like HK Electric to provide in due course some overseas projects' maintenance cost references.</p>	--
19.	<p>A SLG member said that the project had currently set 100MW as the targeted power generating capacity, but it was expected that relevant technology would improve in near future. He enquired whether HK Electric would consider increasing the targeted power generating capacity at that time, and what would be the determining factor. Besides, the member inquired whether the wind turbines would be purchased once and for all, or in phases. The member also enquired whether more detailed bird monitoring and impact assessment on bird collision would be conducted during the detailed study stage.</p> <p>ERM replied that up to now site selection had been confirmed, but details such as the orientation of wind turbines and their exact numbers had not been confirmed yet. It was expected that the numbers would not deviate much, and the survey findings and recommendations presented in the EIA report were still valid. Prior to the commencement of construction works, baseline surveys would also be carried out to collect reference data for future detailed design.</p>	--
20.	<p>A SLG member asked further since the estimation made in the EIA report was based on worst-case scenario, he wondered how much the difference between the EIA study area and the actual construction area would be.</p> <p>Chairman replied that the current proposed area was the largest available. HK Electric would require the contractor, based on the current area, to find the optimized wind farm configuration during the design and tendering stage, so as to determine how many wind turbines should be installed to achieve highest efficiency and make suggestions on the design details such as orientation and quantities of wind turbines,. According to the desk-top review section in the EIA report, HK's average wind velocity was 7m/s. In view of the relatively smaller wind velocity in HK compared with other European countries, higher MW class wind turbine did not necessarily mean better efficiency. The appropriate power generating capacity of a wind turbine should depend on the local average wind velocity. Moreover, the wind power generating technology had indeed become more advanced. For instance, rotor diameter of 3.6MW class wind turbine these days could reach as far as 120 meters, which are 10 meters longer than the one presented in the EIA report. Wind turbines with these bigger rotors can generate more electricity as a result. HK Electric is tracking these relevant and</p>	--

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	<p>most up-to-date data in the market at the moment. Chairman stated that HK Electric intended to purchase all wind turbines once and for all as wind turbine installation involved specialized ships which are very expensive and purchase once and for all incurred lower overhead cost.</p>	
21.	<p>A SLG member was concerned about the safety and risk management issues. He enquired how HK Electric would handle the risks imposed on the surrounding environment and humans if there were severe accidents during the foggy season in March in HK. Although the preliminary estimation of HK's average wind velocity was 7m/s, if the data obtained from the wind monitoring station was different, how HK Electric was going to handle. He also enquired whether the proposed wind farm would have any impact on the activity route of the green turtle in Lamma Island.</p> <p>ERM replied that the green turtle in HK usually laid eggs in Sham Wan, which was far away from the wind farm location. Besides, Agriculture, Fisheries and Conservation Department (AFCD) had conducted satellite tracking on the migratory route of green turtle. The result showed that green turtle is usually stayed close to the shore. Their active areas and the proposed wind farm were far away from each other. Review of previous sighting records of green turtle in Hong Kong also supported this statement.</p> <p>Chairman supplemented that HK Electric would not allow any serious accident like collapse of wind turbine to happen in the wind farm. Risks relevant to typhoon threat had been adequately taken into account. Overseas wind farms had never had any serious accident. HK Electric separately engaged three independent consultants to collect relevant wind data and information. The result showed that HK's average wind velocity was 7m/s. It was anticipated that the data collected from the wind monitoring station would not deviate much from this. Another purpose of the wind monitoring station was to analyse the difference of wind velocity between seasons. In case the average wind velocity revealed from the wind monitoring is far below forecasted, HK Electric will prudently review feasibility of the project.</p>	--
22.	<p>A SLG member enquired when HK Electric had started consultation with the fisheries industry and in what form. He was worried that the project would cause irreversible loss to the fisheries industry once the restricted areas were defined. Besides, it was said that the wind farm was 3.5 kilometers away from the shore. How about the area?</p> <p>Chairman replied that the total area of wind farm was approximately 600 hectare. With regard to consultation, HK Electric planned to initiate the Fisheries Review and Consultation Programme starting from the first quarter of this year (i.e. by March this year). It was hoped that understanding from the fisheries industry and compromises could be obtained through this Programme to achieve win-win solution for the project.</p>	--
23.	<p>A SLG member reinstated that since the project directly related to the income of the fisheries industry, he considered that it was necessary to convene a larger-scale meeting to discuss the project details. He thought that the HK Electric consultant had never</p>	--

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	<p>consulted with the fisheries industry regarding the project.</p> <p>Chairman clarified that HK Electric had been consulting the fishery industry representatives in the past with two large scale meetings and series of discussions already been held up to the date of this meeting. Besides, Chairman stressed that HK Electric had planned to initiate a systematic consultation for fisheries industry by first quarter of 2011 through the Fisheries Review and Consultation Programmes.</p>	
24.	<p>A SLG member enquired whether electricity generated by coal would be proportionally decreased by HK Electric as the wind farm was anticipated to generate 1.75 billion kWh.</p> <p>Chairman replied that once the wind turbines were under operation, the proportion of electricity generated by coal would relatively be decreased. One of the SLG members would study issues relevant to fuel generating electricity in the coming six months on behalf of HK Electric.</p>	--
25.	<p>A SLG member enquired whether wind farm would create noise during operation.</p> <p>HK Electric replied that according to the findings in the EIA report, noise impact was anticipated to be very low. Since wind turbine spun very slowly, it was expected that the wind turbines would not cause any noise impact on the residents on Lamma Island.</p>	--
26.	<p>A SLG member asked whether current technology could generate 100MW electricity by using fewer wind turbines.</p> <p>Chairman reinstated that they had studied in this aspect before. Feasibility of generating the same amount of electricity by using fewer wind turbines depended upon the wind velocity. Optimized configuration could only be found afterwards.</p>	--
27.	<p>A SLG member was worried about the problem of bird strike onto the wind turbines. Besides, he understood that the data presented in the EIA report was collected during daytime, he wondered if night time data could also be collected at a later stage of the project so as to supplement the inadequacy of data and provide more detailed information for assessment. Moreover, he worried that if percussive piling method was used for wind turbine construction, there might be adverse impact on the finless porpoises.</p> <p>ERM stated that even though there were limitations when collecting data at night time during the EIA study, representative data had been collected for the assessment. According to the desk-top review and survey data during the EIA study, it was found that the wind farm would not impose significant impact on birds. Besides, bird monitoring would be conducted during the construction and operation stage of the project.</p>	--

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	<p>A SLG member said that radar monitoring was feasible in certain overseas examples. Apart from the wind-related data, the member enquired if it was possible to collect other useful data on the wind monitoring station.</p> <p>ERM replied that currently the radar monitoring was still in the developing stage in the world. Besides, the wind monitoring station was not able to provide sufficient electricity for radar. Using radar at the wind monitoring station for bird monitoring was thus not feasible. Laying electricity cables would be necessary to supply the additional electricity. This is regarded as not suitable for the wind monitoring station. Furthermore, finless porpoises in HK mainly appeared from December to May every year, and there would not be piling works for the project during that time of the year.</p> <p>HK Electric supplemented that the concrete design of the project had not yet started. Large piles would be used for installation of the wind turbines. It would not be necessary to excavate the marine sediments in the middle of the large piles. Therefore, it was anticipated that no adverse impact would be caused to the sea bed. Although there might be small amount of noise during installation of wind turbines, it was expected that the noise would be acceptable. The installation method would be reviewed within two years and hopefully the best option could be selected by then.</p>	
28.	<p>A SLG member said academics were supportive of the project. He regarded the project as having positive influence on both the social and scientific development. In view of the current global trend of developing renewable energy, the project was undoubtedly valuable to the society as a whole. Although wind generating electricity only occupied 1.6% of the total electricity generation, it would more or less help in environmental conservation, and fulfill the requirement of carbon emission reduction requested by the HK Government in the meantime. This would also help in ensuring the stability and safety of electricity generation.</p>	--
29.	<p>A SLG member believed that the project could help to enhance renewable energy. But undeniably there were certain limitations in HK, such as site selection. He enquired whether HK Electric would consider investing in similar projects overseas if it was committed to build wind farm in future.</p> <p>Chairman replied that HK Electric had invested in the terrestrial wind farms in Hebei Province and Yunnan Province in mainland China, which had been operating for several years and preparation work for their expansion was underway.</p>	--
30.	<p>A SLG member enquired whether HK Electric would invite non-fisheries organizations or associations to join the Fisheries Review and Consultation Programme.</p> <p>Chairman replied that prior consultation with the fisheries industry and AFCD was necessary.</p>	<p>Chairman agreed to follow up the issue concerning invitation of non-fisheries organizations/associations to join the Fisheries Review and Consultation</p>

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		Programme
31.	<p>A SLG member inquired which part of the meeting was confidential.</p> <p>Chairman stated that the contents of this meeting were not confidential, but he did not rule out the possibility of the confidentiality of the coming meetings which might involve sensitive information such as contractor's detailed wind turbine designs.. HK Electric would remind each SLG member in case the contents of the coming meetings were regarded as confidential.</p>	--
32.	<p>HK Electric supplemented information regarding the marine safety which was raised by a member during the meeting earlier. During the project study, video recording had been conducted to see the numbers of vessels at the proposed wind farm site. He reinstated that they had avoided the existing routes of the vessels as far as possible regarding site selection. Besides, the boundary of the wind farm would be equipped with adequate alarm lighting and system. During foggy seasons, there would be alert signals for fog which could be heard within 2nm. Monitoring would be carried out by using the radar system already installed on site to avoid vessels approaching the wind farm. HK Electric would implement a set of marine safety measures and maintain continuous communication with the Marine Department to ensure the marine safety.</p>	--
33.	<p>Facilitator thanked Chairman and the active participation, recommendations and questions of the SLG members. This meeting ended at 4:35pm. Chairman agreed to distribute the draft meeting minutes to each SLG members for review, comment and agreement.</p>	--