

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

Held on 27 February 2013 at 2:30pm on 11/F, Hongkong Electric Centre, 44 Kennedy Road, Hong Kong

Present (in alphabetical order):

Mr. Norman CHAN (HK Electric)
Dr. Luk-ki CHENG (Green Power)
Mr. Terence FONG (Environmental Resources Management – Hong Kong Limited)
Mr. Prentice KOO (Green Peace China)
Mr. Ying-leung KWAN (HK Electric)
Mr. Chi-kwong LAU (HK Electric) – Chairman
Mr. Kwok-wo LAU (The Lamma Island Fishermen’s Recreation and Sport Association)
Ms. Kwai-chun LEE (Islands District Council)
Dr. Alan LEUNG (WWF-Hong Kong)
Mr. Chun-leung LO (Cheung Chau Rural Committee)
Dr. Cho-nam NG (Hong Kong Bird Watching Society)
Mr. Jovy TAM (Environmental Resources Management – Hong Kong Limited)
Dr. Chi-tong TSE (Department of Electrical Engineering, The Hong Kong Polytechnic University)
Mr. Rico WONG (The Conservancy Association)
Ms. Frances YEUNG (Friends of the Earth (HK))

Absent with apologies:

Mr. Lin-wai CHAN (Lamma Island (North) Rural Committee)
Mr. Yuk-tong CHOW (Lamma Island (South) Rural Committee)
Prof. Dennis Y. C. LEUNG (Department of Mechanical Engineering, University of Hong Kong)
Ms. Lai-fan YU (Islands District Council)
Mr. Yung-kan WONG (Hong Kong Fishermen Consortium)

Ref. No.	Issue/Discussion	Follow-up Actions & Responsibilities
1.	<p>Chairman Mr. C.K. LAU (HK Electric) welcomed all Stakeholder Liaison Group (hereafter referred to as “SLG”) members to attend the 5th SLG meeting, which represented the first meeting of the second service tenure for the period from 2013 to 2014.</p> <p>As a few of the previous SLG members had stepped down after serving the first tenure from 2011 to 2012, alternative representatives from their affiliations had been invited to join this SLG as replacements. The Chairman introduced the updated SLG membership list at the meeting.</p> <p>The Chairman briefly went through the agenda which included the terms of reference, background and progress of the offshore wind farm project, initial results of wind monitoring as well as the Environmental Monitoring & Auditing (EM&A) measures associated with the offshore wind farm project. After the presentation would be a question and answer session. The Chairman advised that minutes of this SLG meeting would be available one month after the meeting.</p>	<p>Meeting minutes to be circulated among all SLG members for agreement and posted onto HK Electric’s website within one month of SLG meeting.</p>
2.	<p>Chairman invited Mr. Y.L. Kwan (HK Electric) to present the SLG terms of reference as well as the background and progress of the offshore wind farm project, followed by a brief report on the wind monitoring campaign.</p>	<p>--</p>
3.	<p>Mr. Kwan stated that the terms of reference had already been sent to all SLG members. He briefly recapped the terms of reference for SLG and advised that the SLG meetings were expected to be convened half-yearly or other appropriate time intervals depending on the project progress.</p> <p>Mr. Kwan reported that land application for carrying out Ground Investigation (GI) work for the offshore wind farm was underway. Members of the Island District Council (IDC) had indicated no objection to the proposed GI work at the IDC meeting on 17/12/2012 and the relevant gazettal work was being arranged by the District Lands Office (DLO). Upon completion of the 12-month wind monitoring campaign, a Project Feasibility Study Report would be submitted to Environment Bureau (EnB) seeking for government approval of this project.</p>	<p>--</p>
4.	<p>Mr. Kwan proceeded to present the data so far collected by the wind monitoring station and reported that promising results had been collected since commissioning of the wind monitoring station in March 2012.</p>	<p>--</p>
5.	<p>Mr. Jovy Tam (ERM) took over the presentation and provided a brief introduction on the EM&A measures associated with the wind farm project including details of the bird collision monitoring and the marine mammal monitoring plans. For the bird collision monitoring plan, various types of remote monitoring techniques had been reviewed and assessed for their respective pros and cons against the requirements of this project. Mr. Tam explained the technical difficulties in adopting radars and thermal cameras for the purpose of carrying out bird collision monitoring and recommended to adopt traditional vessel-based bird collision visual monitoring for this project.</p>	<p>--</p>
6.	<p>Mr. Tam proceeded to introduce the proposed marine mammal monitoring plans which included Passive Acoustic Monitoring and Land-based Theodolite Tracking. Details with regard to the survey extent, frequency, period as well as the proposed survey methodologies had been discussed.</p>	<p>--</p>

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	Mr. Tam further introduced the requirements of the coral verification survey which would be required prior to the export cable laying work.	
7.	Mr. Tam continued to introduce details of the Artificial reef (AR) programme monitoring plan which covered the requirements on fisheries monitoring, ecological monitoring, AR structural monitoring and the socio-economic monitoring. Mr. Tam stated that all the above monitoring was designed to monitor the effectiveness on fishery resource enhancement due to deployment of the AR.	--
8.	The Chairman invited members for the questions concerning the project.	--
9.	<p>A SLG member asked about the latest project progress and the implementation schedule for the EM&A measures.</p> <p>HK Electric replied that the wind monitoring campaign would come to an end in end February 2013. The wind data collected was being consolidated for conduction of further analysis as part of the overall feasibility studies. The Project Feasibility Study Report would be submitted to EnB within 2013 for seeking government approval of this project. Baseline surveys associated with the proposed EM&A measures would be carried out at least 12 months prior to commencement of construction of the project.</p>	--
10.	<p>A SLG member enquired and ERM reiterated that the post AR deployment monitoring surveys would be conducted on quarterly basis for a period of not less than 1 year to determine any changes in fisheries resources with time. The SLG member further stated it might take more than 1 year to evaluate the effectiveness of AR in view of the lengthy nurture time for fishery resources. Another SLG member added that the length of post AR deployment surveys should cater for some unexpected incident such as occurrence of red-tide which would influence the fishery resource of the year, hence affecting the fishery resource survey results due to deployment of the AR.</p> <p>ERM advised that the 1-year monitoring period was proposed to evaluate the initial effectiveness of the AR deployment. Whether any extension of the monitoring programme would be reviewed during the monitoring stage. HK Electric concurred that the monitoring programme should aim to evaluate the genuine effectiveness of the AR deployment with regard to improvement of the fishery resource in the wind farm area. The post AR deployment survey period would be reviewed after the initial 1 year monitoring period with EPD/AFCD to assess whether the monitoring programme should be extended based on results of the initial 1-year AR performance.</p>	--
11.	<p>A SLG member expressed the low fishery resource in the vicinity of Cheung Chau despite of banning of fish trawling which might due to the dumping activities undertaken at the designated South Cheung Chau Dumping Ground.</p> <p>Chairman stated this might affect the future fishery resource survey and hence undermining results on the effectiveness of the AR during the post AR deployment survey.</p>	--

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12.	<p>A SLG member enquired whether the wind monitoring station would be removed after completion of the 12-month wind monitoring campaign. HK Electric replied that operation of the wind monitoring station would continue for some period for the purpose of capturing additional information that might be required in case further wind data be required during the ongoing data analysis stage. HK Electric reassured that all safety measures currently in place at the wind monitoring station in particular the marine navigation lights and civil aviation lights would remain in operation during this interim stage to ensure the safe continuous operation of the wind monitoring station. A SLG member supported to extend the wind monitoring campaign for collecting more meteorological and oceanographic data.</p>	--
13.	<p>A SLG member enquired and ERM replied the maximum detection range for the passive acoustic monitoring was approximately 400m measured from the center of the measuring devise. This would effectively allow the activity of finless porpoise to be monitored both day and night in all weather conditions within a 400m monitoring radius.</p>	--
14.	<p>A SLG member enquired whether the fishery enhancement measures in form of AR deployment were designed for improvement of fishery resource solely within the wind farm area or to cater for the entire water region.</p> <p>ERM replied that focus of the fishery enhancement measures would concentrate on improvement of the fishery resource within the offshore wind farm area where AR was to be deployed.</p> <p>The SLG member continued to enquire if offshore mariculture within the wind farm boundary would be considered. Another SLG member replied that mariculture rafts were usually deployed in sheltered bays and stated that development of mariculture rafts in an exposed sea area like the proposed offshore wind farm site would be impractical.</p>	--
15.	<p>A SLG member enquired whether the increase in fishery resource due to AR deployment would attract bird flocks flying into the offshore wind farm area leading to a higher likelihood of bird collision.</p> <p>ERM replied that AR would enhance the fishery resource by providing a hard surface habitat to encourage growth and development of marine organisms at seabed level which in turn providing foods, shelter and protection for the benthic fish species. ERM stated that AR would unlikely enhance the pelagic fishery resource with habitat area close to sea surface which were the major food source for sea birds. ERM further advised that majority of the birds identified in the wind farm area were low-flying terns found below the lower turbine tip height levels, hence the risk of increasing chance of bird collision due to AR deployment would be low.</p>	--
16.	<p>A SLG member enquired and HK Electric reconfirmed that bird collision monitoring would be based on a vessel based visual inspection while marine mammal monitoring would cover vessel based monitoring, passive acoustic monitoring and land-based theodolite tracking.</p>	--

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17.	<p>A SLG member enquired whether information on the anticipated wind farm capacity factor could be released to SLG members prior to submission of the Project Feasibility Study Report to EnB. The SLG member continued to enquire whether the Project Feasibility Study Report would consider any carbon credit scheme.</p> <p>HK Electric advised that the wind data collected was being consolidated for conduction of further analysis. The result including the wind farm capacity factor would be summarized and presented to the SLG members in future SLG meeting. Regarding the carbon credit scheme, HK Electric believed that EnB would consolidate and discuss with HK Electric opinions received from public including the proposed carbon credit scheme in the course of reviewing the Project Feasibility Study Report.</p>	--
18.	<p>A SLG member enquired the capacity and quantity of wind turbines to be installed for the offshore wind farm.</p> <p>HK Electric replied that the planned capacity of the offshore wind farm was around 100MW comprising 28-33 sets of 3-4 MW class wind turbines depending on the capacity of wind turbine adopted. In response to the SLG member's further enquiry, HK Electric advised that wind turbines of capacity 5MW or above was considered not suitable for application in areas like Southwest Lamma with medium wind speeds.</p>	--
19.	<p>A SLG member enquired whether scale of the proposed offshore wind farm would be altered in view of the anticipated higher annual energy production compared with that predicted in the EIA stage.</p> <p>HK Electric replied that the offshore wind farm capacity would be determined at a later stage based on the result of optimisation taking consideration of offshore wind farm layout, number of wind turbines and annual energy production, etc. ERM added that the EP has mentioned the capacity of offshore wind farm at 100MW and hence it was unlikely to further expand the project scale to above 100MW.</p>	--
20.	<p>A SLG member stated that the wind data presented at the meeting only represented the short term value in 2012 and enquired about the long term wind data.</p> <p>HK Electric replied that the 1-year wind data collected would be normalized with long term weather available from a suitable local meteorological station before coming up with the long term annual wind distribution. The wind data analysis together with the annual energy production estimation would be conducted based on the long term annual wind data.</p>	--
21.	<p>A SLG member expressed his to support to renewable energy but would like to enquire about the total project cost and tariff implication.</p> <p>HK Electric replied that the project cost could only be finalized upon return of tenders for the wind turbine generator, foundation, submarine cables, electrical and civil infrastructure contracts. HK Electric further advised that the proposed wind farm was not expect to impact much on the tariff as the capital outlay would be amortized over several years. Another SLG member concurred the impact would not be significant as the</p>	--

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	development represented only 1 to 2% of the total electricity output.	
22.	A SLG member enquired and HK Electric replied that civil aviation lights would be installed on top of the nacelle of each wind turbine and the this arrangement was in line with the requirement imposed by the Civil Aviation Department.	--
23.	<p>A SLG member enquired whether sea turtles had been covered in the environmental monitoring plan.</p> <p>ERM replied the EIA report had addressed the issue of sea turtles. As the offshore wind farm site was located at least 1km away from the potential Southwest Lamma Marine Park and the analysis of sighting data indicated that the wind farm area was not of high importance as interesting habitat, there would be no adverse impacts to sea turtles during the construction and operation of the proposed offshore wind farm. ERM added that it might have difficulty to identify sea turtle visually and the current monitoring plan was focused on marine mammals. ERM further opined that GPS/satellite tracking currently being carried out by AFCD should be the most effective mean to monitor sea turtles.</p>	--
24.	<p>A SLG member asked whether bird detection system would be installed to minimize the bird collision risk by stopping the wind turbines upon detection of bird flocks approaching the offshore wind farm.</p> <p>ERM reiterated that the offshore wind farm was not located within important bird habitat or on the flight path of migratory birds and hence it was concluded in the approved EIA report that the potential risk of bird collision would be low. As such, it was not envisaged at this stage the need to devise specific measures such as stopping of wind turbines to cater for the unlikely event of bird collision.</p> <p>Another SLG member added that birds might realize the existence of offshore wind farm and hence no adverse impacts were envisaged due to operation of the offshore wind farm. Another SLG member advised that the sudden stoppage of wind turbine might cause impact to the grid stability and hence it was not recommended.</p>	--
25.	This meeting adjourned at 4:30 pm.	--