

**Hong Kong Offshore Wind Farm in Southeastern Waters
Confirmed Minutes of the Third Stakeholder Liaison Group Meeting
held on 20th May 2011 from 9:30 am to 2:00 pm at OWF Project Site Area and Sai Kung**

Present:

Mr. John CHAN (CLP Power) – Stakeholder Liaison Group Chairman
 Prof. CHAN Lung-sang (HKU)
 Ms. Gloria CHANG (Greenpeace)
 Mr. CHENG King-man (Sai Kung Fishermen’s Association)
 Prof. LAM Kit Ming (HKU)
 Prof. Alexis LAU (HKUST)
 Prof. NG Cho-nam (HKU)
 Prof. Gerald PATCHELL (Friends of Sai Kung)
 Mr. WONG Yung-kan SBS JP (LEGCO Member, Agriculture and Fisheries Industry)
 Dr. YAU Wing-kwong (Tai Po Environmental Association)
 Mr. Frederick YU (Hong Kong Mountaineering Union)

Absent with Apologies:

Dr. CHENG Luk-ki (Green Power)
 Mr. Mike KILBURN (HK Bird Watching Society)
 Mr. LOK Shui Sang (Sai Kung Rural Committee)
 Mr. Ling Man Hoi (Member of Sai Kung District Council)

Also present were SLG Facilitator Timothy J. Peirson-Smith, selected CLP staff and technical consultants from ERM.

| Ref No. | Issues / Discussion | Follow-up Actions and Responsible by |
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| 1. | <p>OWF Project Site Visit</p> <p>The Chairman welcomed SLG members and all visited the Offshore Wind Farm (OWF) site by boat. The Chairman briefly introduced the OWF location and stated that it was 9 km east of Clearwater Bay peninsula. The OWF will generate 1-2% renewable energy for Hong Kong, supplying electricity for 80,000 4-person households and avoid 300,000 tonnes carbon emissions per year.</p> <p>The Chairman explained the Offshore Data Mast would measure various data such as wind, wave, temperature, pressure, humidity, lightning and foundation’s movement. The use of suction caisson technology is new to Hong Kong. The height of the Data Mast will be 35 m above mean sea level and will be equipped with aviation and marine aids.</p> | |

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| | <p>The Chairman informed SLG members that the Data Mast would be designed and fabricated in Shenzhen, China. The Chairman briefly introduced the Data Mast's construction, transportation and installation processes.</p> <p>The Facilitator welcomed SLG members and considered the field trip to the site of OWF useful because by physically going to the site, SLG members could have an idea of the distance from Ninepin Islands, Sai Kung and Clearwater Bay to the OWF site.</p> | |
| 2. | <p>Progress of the OWF</p> <p>The Chairman updated the SLG of the OWF progress and programme:</p> <p>February 2011: Government offered CLP the Provisional Short Term Tenancy April 2011: Data Mast construction contract was awarded to a competent contractor Q2 2012: Target to install Data Mast (after the unsuitable sea condition between October and March is over) 2013: Target to submit OWF for government approval 2015: Target to commence construction of OWF if government approval and necessary permitting is secured</p> | |
| 3. | <p>Follow-up Actions from 2nd SLG meeting: Avifauna Discussions</p> <p>The Facilitator asked the Chairman to answer questions raised in the 2nd SLG meeting.</p> <p><i>Q 1. (Ref. 15 of the 2nd SLG minutes) An absent SLG member noted the severe limitations of vessel visual monitoring for determining impacts, especially on collisions occurring during the operational phase and at night. He wished to know the outcome of the research regarding bird detection and what measures would be proposed to improve the effectiveness of the monitoring regime.</i></p> <p>The absent SLG member also noted to the 3rd SLG that the 2nd SLG statement about bird migration routes being principally along coasts was not relevant to species which cross large bodies of water as many spring migrants to Hong Kong are known to arrive from the Philippines and large numbers of migrants would not be found on offshore islands otherwise (which they are – Po Toi is an obvious example). Since the approved EIA study made no effort to monitor birds at night it had no basis for claiming that there would be little impact. In relation to monitoring birds at night, this has been done with radar for many decades, hence the suggestion, to the 2nd SLG, that this option be explored. Subject to new information being made available at this (3rd SLG) meeting on the above topics or CCTV or thermal camera, it appears that the views of the member raised in the 2nd SLG had not been addressed.</p> <p>ERM restated the problem of bird detection at nighttime discussed in the 2nd SLG meeting, clarifying that information including flying direction and height, behaviour, size and species of birds can be obtained at daytime surveys. By using the radar system, the flying pattern of birds can be obtained but it cannot mark size, species and flying height. Reference was made from overseas data but little useful and reliable information could be sought.</p> | |

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| | <p>ERM explained that the approved EIA Report concluded that the OWF would not cause significant impact to White Bellied Sea Eagles (WBSE). ERM also explained that CLP has considered avoiding bird breeding habitats and major migration routes when selecting the OWF site during the EIA process. However, ERM agreed that the EIA did not include nighttime data of offshore birds.</p> <p>An SLG member raised a concern over bird monitoring and though the EIA has been approved, suggest CLP to explore bird monitoring technologies and tools to overcome technical difficulties to avoid controversies in the future.</p> <p>An SLG member understood that it was practically difficult to monitor nighttime bird migration and suggested CLP look into other countries' cases including Denmark, commenting that it was too early to discuss further until the research review from ERM is available.</p> <p>The Chairman concluded the avifauna discussion by explaining that ERM would share the research findings of different bird detection methods in the 4th SLG meeting.</p> | <p>The Chairman agreed to share the bird monitoring study findings when complete in the 4th SLG meeting</p> |
| <p>4.</p> | <p>OWF Technology Discussions</p> <p>An SLG member enquired into the Data Mast's dimensions, range and resolution.</p> <p>The Chairman replied that the platform is 15 m above water. The Data Mast has three levels of anemometers and the LIDAR can collect data from six points above it. Amongst these 6 points, there will be 3 wind validation points which correspond to the 3 levels of wind anemometers on the mast. [Post Meeting Notes: the height of these 3 validation points are 27m, 35m and 41m above mean sea level]</p> <p>An SLG member stated that 15 m seemed a low platform height when there is typhoon.</p> <p>The Chairman replied that the Data Mast will be unmanned and security personnel will patrol the Data Mast regularly by boat.</p> <p>An SLG member asked how the verticality of the Data Mast can be ensured during installation, and whether tilting and settlement of the data mast will be monitored, and asked for the precise coordinates of the Data Mast.</p> <p>The Chairman replied that by controlling the pressure of the 3 suction pumps on the tripod foundation during installation, verticality can be ensured. The Data Mast will also be equipped with sensors to measure and monitor settlement and tilt, and the results will be monitored by Buildings Department. As for the Data Mast location, it is 861770 east and 817897 north.</p> | |

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| | <p>An SLG member asked if there would be any more advanced OWF technology ready and whether it is possible to swap 3MW to 5MW wind turbines in the future after OWF commissioning and operation.</p> <p>The Chairman replied that the EIA has studied both 3MW and 5MW for the OWF. Currently the world trend is 3MW, despite 5MW may become more popular later. However, more robust foundations are needed and more distance has to be kept between bigger wind turbines. Nevertheless, bigger wind turbines might not be suitable if the wind speed is marginal. Whether 3MW or 5MW is optimum will depend on the data collected by the Data Mast. At the moment it is unlikely that the OWF will be able to swap different sized wind turbines after turbine installation because each turbine size has specific foundation requirements.</p> | |
| 5. | <p>OWF Investment Discussions</p> <p>An SLG member questioned CLP's investment plan for the OWF.</p> <p>The Chairman answered that the current project lifecycle is 20 years and payback will be assessed when Data Mast information is available.</p> <p>An SLG member asked to what extent CLP is committed to the OWF project and whether there is a 'bottom line' to this project. Also, the SLG member was concerned that the project will not go ahead if the cost of offshore wind is significantly more costly than the cost of fossil fuel generated power as citizens are sensitive to higher electricity tariffs.</p> <p>The Chairman answered that the CLP has been driving this project since 2006 and this clearly shows CLP's commitment to exploring renewable energy opportunities. Furthermore, CLP has a Climate Vision to achieve by reducing carbon dioxide significantly by 2050. Once data from the Data Mast has been collected and analysed, CLP will be able to more accurately determine the project cost and wind characteristics.</p> | |
| 6. | <p>Fisheries Discussions</p> <p>An SLG member asked if the OWF zone would allow small boats to fish in the OWF area to attract more tourists to Sai Kung.</p> <p>The Chairman replied that CLP is considering this issue. CLP will discuss the fishing and license matters in restricted zone with Marine Department. However, the safety of small boats is a principal CLP/ Marine Department concern.</p> <p>The Chairman explained that a 'Fisheries Enhancement Plan' (FEP) is required by the project's Environmental Permit and more details can be discussed in future SLG meetings. The FEP will be undertaken after government's approval of OWF is granted.</p> <p>An SLG member stated that with such FEP, fishermen could benefit from the OWF. The SLG member hoped that the OWF can also benefit local people and provide more job opportunities for Sai Kung.</p> <p>An SLG member asked if overnight accommodation would be provided on the platform of the Data Mast.</p> <p>The Chairman answered that the platform is too small and is not designed for overnight accommodation.</p> | <p>The Chairman agreed to consult the relevant stakeholders and the SLG when developing the Fisheries Enhancement Plan (FEP).</p> |

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| 7. | <p>Landscape and Visual Impact / Geopark Discussions</p> <p>The Facilitator invited SLG members to comment on the project site visit.</p> <p>An SLG member stated that the Sai Kung District Council was concerned whether the OWF would affect the Global Geopark UNESCO application. Another SLG member pointed out that according to the 2nd SLG minutes, 9 Geoparks in the world have wind farms.</p> <p>ERM explained that wind farms in Geoparks do not construe negative impact for the UNESCO application and some wind farms existed before Geoparks designation.</p> <p><i>[Post meeting note: The name of the nine Geoparks are: Hexigten National Geopark (China); Kanawinka (Australia); Swabian Alps (Germany); Psiloritis Geopark and Lesvos Geopark (Greece); Naturtejo (Portugal); Maestrazgo (Spain); and, Lochaber Geopark and Shetland Geopark (UK Scotland).]</i></p> <p>The Chairman stated that with the OWF project being implemented, more local education would be conducted by CLP on the OWF, renewable energy and climate change. In this regard, CLP will discuss with the Sai Kung community the best way to conduct such local environmental education.</p> | |
| 8. | <p>Subsequent SLG Meetings</p> <p>The Facilitator stated that the 4th SLG meeting would be held in Q4 2011. The Facilitator enquired the Chairman's and SLG members' opinion on the activities for the 4th and 5th meetings and reminded the Chairman of the need to share research regarding bird detection at the 4th SLG. The Facilitator also suggested visiting the Data Mast fabrication yard.</p> <p>The Chairman stated that paying an SLG visit to the fabrication yard to see the size of the Data Mast would be possible as the progress of construction would be satisfactory by then and it takes approximately an hour to visit the fabrication yard from Kowloon MTR station. For the 5th SLG (Q2 2012 meeting), it is proposed to visit the installed Data Mast at sea as sea conditions should be suitable.</p> <p>Following discussion and agreement, the Chairman concluded that: 4th SLG meeting – visit Data Mast fabrication yard in She-kou plus bird detection research presentation by ERM 5th SLG meeting – Boat Trip to the installed Data Mast</p> <p>An SLG member asked if there are any wind farms in She-kou and another member enquired about onshore wind farms in China.</p> <p>ERM replied that in China currently only Shanghai has an OWF and understand that there are no onshore wind farms in She-kou.</p> | |

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| | <p>The Facilitator enquired whether weekday or weekend is more convenient for subsequent SLG meetings. SLG members replied that both are suitable if adequate advance notice of 3-4 weeks is provided.</p> <p>The Facilitator noted that adequate notice should be provided for the 4th SLG as some SLG members may need to secure China Visas.</p> | <p>The 4th SLG meeting is tentatively scheduled on 2 December, official invitation will be sent to members one month in advance</p> |
| 9. | <p>Worldwide OWF Updates</p> <p>The Facilitator invited the Chairman to brief SLG members regarding wind farm developments worldwide in the last six months.</p> <p>The Chairman answered that the total number of OWF is increasing and many European countries are developing OWF proactively to meet carbon reduction targets. UK has the greatest number of OWF because it is located close to the windy North Sea. OWF project investors receive subsidies in European countries.</p> <p>The Facilitator stated that in the UK, some companies are willing to pay a premium for renewable power so to promote CSR, green credentials and corporate image. The Facilitator questioned the possibility of such in Hong Kong.</p> <p>The Chairman replied that it would be more appropriate to consider such initiatives at a later stage.</p> <p>The Facilitator questioned if the local community is broadly supportive of the OWF project.</p> <p>An SLG member replied that Sai Kung District Council members generally support the project.</p> <p>Any Other Business</p> <p>The Chairman recalled that according to the SLG Terms of Reference that SLG members would serve 2-year terms, and asked the SLG members whether they would stay on for another 2-year term.</p> <p>The Facilitator enquired if there were any further questions and thanked everyone for sharing their expertise and local knowledge.</p> <p>The SLG meeting closed at 1330 hours.</p> | <p>The SLG members agreed to confirm their decision concerning SLG membership individually.</p> <p>The Chairman closed the meeting by explaining that the meeting minutes would be circulated among all SLG members and agreed and posted on the project website: www.clp.com.hk/offshorewindfarm within one month of the SLG meeting.</p> |