

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

Held on 26 June 2015 at 2:30pm on 3/F, Hongkong Electric Centre, 44 Kennedy Road, Hong Kong

Present (in alphabetical order):

Mr. Lin-wai CHAN (Lamma Island (North) Rural Committee)

Mr. Norman CHAN (HK Electric)

Dr. Luk-ki CHENG (Green Power)

Mr. Yuk-tong CHOW (Lamma Island (South) Rural Committee)

Mr. Ying-leung KWAN (HK Electric)

Ms. Lai-fan YU (Islands District Council Member)

Mr. Chi-kwong LAU (HK Electric) – Chairman

Mr. Kwok-wo LAU (The Lamma Island Fishermen's Recreation and Sport Association)

Dr. Cho-nam NG (Hong Kong Bird Watching Society)

Dr. Chi-tong TSE (Academia on Electrical Engineering)

Ms. Karen WONG (The Conservancy Association)

Mr. Argo YEUNG (Greenpeace)

Mr. Alfred YIP (Friends of the Earth (HK))

Absent with apologies:

Ms. Samantha LEE (WWF-Hong Kong)

Ms. Kwai-chun LEE (Islands District Council Member)

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

Mr. Chun-leung LO (Cheung Chau Rural Committee)

Mr. Yung-kan WONG (Hong Kong Fishermen Consortium)

Ref. No.	Issue/Discussion	Follow-up Actions & Responsibilities
1.	<p>The Chairman welcomed all Stakeholder Liaison Group (hereafter referred to as “SLG”) members to attend the 7th SLG meeting. As Ms. Frances Yeung & Mr. Prentice Koo had stepped down from the SLG upon their resignation from their affiliations, Mr. Alfred Yip of Friends of the Earth (HK) & Mr. Argo Yeung of Greenpeace had accepted to join the SLG as replacement. Besides, Ms. Karen Wong of The Conservancy Association stood in on behalf of Mr. Rico Wong to attend this SLG meeting.</p> <p>The Chairman briefly introduced the updated SLG membership list at the meeting.</p>	Meeting minutes to be circulated among all SLG members for agreement and posted onto HK Electric’s website within one month after SLG meeting.
2.	The Chairman invited Mr. Norman Chan (HK Electric) to present progress of the offshore wind farm project and the development trend of offshore wind farms worldwide, followed by an overview of the “Public Consultation on the Future Development of the Electricity Market”.	--
3.	Mr. Chan briefly introduced the overall progress of the offshore wind farm project and findings of the wind monitoring work. Mr. Chan stated that operation of the wind monitoring station was in continuation at present for the purpose of capturing additional information for optimization of the wind farm design. Regarding the project progress for the past year, Mr. Chan reported that the foundation design was approved by the Buildings Department (BD) in December 2014. In addition, the Updated EM&A Manual and the Fishery Enhancement Plan were approved by the Environmental Protection Department (EPD) in January 2015. Meanwhile, the HK Polytechnic University in collaboration with HK Electric had applied for the Public Research Fund from the Central Policy Unit in April 2015 serving to support a study to analyze the offshore wind potential in Hong Kong using wind data collected by HK Electric’s offshore wind monitoring station. Results of the study might be useful for formulating the local renewable energy policy in future.	--
4.	<p>Mr. Chan proceeded to go through the development trend of offshore wind farms worldwide and stated that the installed capacity of offshore wind farm had increased significantly in 2014 where UK, Germany as well as Denmark were still the major market stakeholders. Apart from the European countries, Asia regions including China, Japan and Korea had commissioned offshore wind farms in recent years. For offshore wind development in China, the planned capacity by 2020 was estimated to be 10,000 MW in which 1,700 MW would be located in Guangdong province. In particular, the project in Zhuhai Guishan of capacity 198MW with a targeted completion date of 2016 would serve as a reference to our proposed offshore wind farm in Southwest Lamma in view of the similarity in wind resources and geographic constraints between these two projects.</p> <p>Mr. Chan provided an overview on the “Public Consultation on the Future Development of the Electricity Market” currently launched by the Government, and shared HK Electric’s view with regard to the relative merits between the two configuration of renewable energy applications, namely large scale installation and distributed generation. Mr. Chan finally encouraged all members to provide feedback to the Government before the consultation deadline of 30/6/2015.</p>	--
5.	The Chairman invited members for questions concerning the project.	--

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6.	<p>A SLG member enquired the capacity factor for distributed PV system such as standalone street lights. HK Electric stated that the performance of PV system would depend on the orientation and whether the site would be blocked by the surrounding buildings or terrain leading to a shading effect. In order to maximize solar capture, HK Electric stated that the PV modules should be installed in an area without any surrounding obstruction and should preferably at an inclination angle of 22° facing south. In general, capacity factor for distributed PV system adopted in Hong Kong was low based on experience gained from past installation references.</p> <p>HK Electric added that the performance of distributed wind turbine system in Hong Kong would also be poor given the existence of turbulence and the intermittent yet low wind speed typical in urban areas thus prohibiting meaningful output citing the experience from the Marsh Road Substation where small wind turbines were installed for distributed generation.</p>	--
7.	<p>The SLG member continued to enquire about the renewable energy facility installed at Dawn Island. HK Electric replied that the Dawn Island project developed by CLP was an off-grid RE system comprising of both PV modules and small wind turbines. Based on HK Electric's experience at Lamma Power Station Extension which was the largest commercial scale PV system currently installed in Hong Kong with minimal shading effect, the performance was well above the typical distributed PV system, though the capacity factor was still substantially lower than that of the proposed offshore wind farm at Southwest Lamma.</p>	--
8.	<p>A SLG member shared his experience in recent years of installing distributed RE system at schools for educational purpose comprising both PV modules and small wind turbines and stated the overall performance of these facilities was unsatisfactory from the perspective of power generation. The site locations for the PV modules and small wind turbines were usually blocked by surround buildings leading to lack of wind resource and solar irradiance for achieving a meaningful output. In addition, the SLG reminded that it was a prerequisite to obtain BD's approval for installing these small wind turbines thus incurring an additional constraint for such kinds of distributed RE projects. The SLG member added that there was other small wind energy system adopting specially designed plastic gearwheels for power generation but the project cost was significantly high due to the requirement of patent fee.</p> <p>The SLG member stated that the performance of distributed RE system would be very site specific and should not be considered as a generic solution for developing RE in Hong Kong.</p>	--
9.	<p>Another SLG member shared his experience of installing a PV module at rooftop of his house for powering staircase lightings and opined that such PV system could only serve for entertainment purpose. The SLG member complemented that the development of commercial scale RE system was the only viable solution of utilizing RE in Hong Kong.</p> <p>Another SLG member added that small wind turbines might be suitable for installation on board of vessels to power small electrical appliances.</p>	--
10.	<p>A SLG member stated that the proposed offshore wind farm project had been discussing for more than 8 years while approval from the Government had yet to be granted up to the present. The SLG member appreciated HK Electric's effort in the past years in pushing forward for</p>	--

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	<p>this project and desired the project could receive early Government's approval. In view that the local generation was the preferable option as concluded from feedback of the previous fuel mix consultation exercise, the SLG member enquired whether the Government had mapped out any way forward for developing local RE facilities.</p> <p>HK Electric expressed gratitude to the SLG member and concurred that the proposed offshore wind farm project had been preparing for some years. HK Electric stated that despite the Environment Bureau had yet to agree including the project in the 2014-2018 Development Plan, relevant approvals from the Building Department, Environmental Protection Department, Civil Aviation Department and Marine Department for various technical submissions had been granted. HK Electric would continue to liaise with the Environment Bureau aiming at soliciting Government's early approval for materializing the proposed offshore wind farm project.</p>	
11.	<p>HK Electric advised that over 90% of responses from the previous fuel mix consultation supported the option of increasing the use of natural gas for local power generation and reiterated that the Government was currently launching another public consultation on the future development of the electricity market in which further promotion of local RE development was being consulted. HK Electric trusted all SLG members were supportive to RE and would count on their positive feedback to the Government given that result of the current consultation would likely affect the future policy in Hong Kong on local RE development, bearing in mind that Hong Kong as an international metropolitan city should bear a responsibility to contribute towards sustainable development of having a certain fraction of power generation coming from RE.</p> <p>HK Electric reiterated that it would be a far more cost effective option for developing commercial scale RE systems compared with installing standalone distributed RE facilities. The proposed offshore wind farm was expected to produce electricity equivalent to around 1-2% of the company's annual electricity output, and was a viable option for promoting application of RE in Hong Kong.</p>	--
12.	<p>A SLG member questioned whether Hong Kong had sufficient land resource for developing large scale solar PV system. HK Electric agreed that it would be infeasible to find suitable land-take within the territory to develop a sizable solar PV system and hence the proposed offshore wind farm was the only viable option for RE development in Hong Kong.</p>	--
13.	<p>A SLG member enquired whether the proposed offshore wind farm project could only be materialized beyond 2018 as the project had already been taken out from the 2014-2018 Development Plan. HK Electric replied that the current mechanism would still allow power companies to incorporate new projects into the approved Development Plan subject to Government's approval.</p>	--
14.	<p>A SLG member worried the Government would continue proposing electricity import from the China Southern Grid. HK Electric opined that the local power generation had already been concluded as the preferred option based on feedback from the previous fuel mix consultation exercise.</p>	--
15.	<p>A SLG member informed that majority of the District Councilors supported local power generation to be the preferred option. With regard to establishing local renewable energy portfolio, the SLG member advised that the Government would welcome any views from the public.</p>	--

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16.	HK Electric advised that the tariff impact of 3-5% resulted from development of the offshore wind farm as stated in the consultation document would be grossly over-estimated, and reiterated that the electricity generated by the offshore wind farm only accounted for 1-2% of the total electricity generation. As such, the overall impact on electricity tariff would be highly insignificant.	--
17.	<p>A SLG member stated that the existing fuel mix in Hong Kong was dominated by coal thus leading to a lower tariff compared with other modernized cities, and enquired whether the tariff would rise significantly if increasing the share of the natural gas as well as the RE in the overall fuel mix in future.</p> <p>HK Electric replied that the price of natural gas was stable in recent years and the company had announced freezing of tariff for 5 years starting from 2014. For the proposed offshore wind farm at Southwest Lamma, the investment sum of the project would be spread over a number years and hence the impact on electricity tariff would be minimal.</p>	--
18.	A SLG member enquired whether Hong Kong would have its own liquefied natural gas terminal. HK Electric advised that it would depend on the Government's policy.	--
19.	<p>A SLG member expressed that provision of further tariff implication data could facilitate a more detailed discussion on the offshore wind farm project. In addition, the SLG member suggested the power companies could issue RE certificates for promoting RE. By purchasing a RE certificate, corporations and organizations could claim that they had consumed electricity generated from clean energy source to help green the environment.</p> <p>HK Electric advised that the relevant cost data would be reviewed by the Environment Bureau in detail during the course of project approval. In addition, it was believed that the Environment Bureau would develop a suitable policy for further promoting RE in Hong Kong upon consolidating the views from the public through the consultation currently launched.</p>	--
20.	<p>A SLG member expressed that it should take into consideration the potential cost benefits on social and health as well as the reduction of carbon emission the proposed offshore wind farm project could bring along for overall cost assessment.</p> <p>HK Electric replied that the associated potential benefits had already been qualified in the project feasibility study report submitted to the Environment Bureau in 2013.</p>	--
21.	A SLG member advised that a new global climate protocol was expected to be set out in the United Nations Framework Convention on Climate Change (UNFCCC) Paris Meeting in December 2015. In case China committed to undertake emissions reduction activities under the Convention,	--

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	it would be a good opportunity to further promoting RE in Hong Kong with an aim to reduce carbon emission.	
22.	The SLG member added that the current fuel mix of having 50% natural gas, 25% nuclear and the remaining from coal and RE as proposed by the Government had taken consideration of the four energy policy objectives, viz: safety, reliability, affordability as well as environmental performance and it was unlikely to have a significant amendment in near future. In view of lacking hydro power resource in Hong Kong and the intermittent nature of wind and solar energy, the SLG member expressed that the RE portfolio with 1-2% from offshore wind farm was considered appropriate for Hong Kong.	--
23.	The SLG member further expressed that the current Scheme of Control Agreement (SCA) was a simple and effective regime for regulating the electricity market and it could hardly justify opening up the market for competition. The SLG member added that opening up the market would involve huge investment cost for infrastructures which would not be cost effective and favorable to all parties, citing bitter experience from introducing new competitors to the bus companies in previous years.	--
24.	Another SLG member concurred that the current SCA should remain unchanged as the power companies had offered electricity supply with world-class reliability at affordable prices and there was insufficient market size to attract new entrants to the market. The SLG member expressed his view that the Government should take a lead in educating people the social & environmental benefits for further promoting RE in Hong Kong.	--
25.	The Chairman thanked the active participation of the SLG members and counted on all members' support to the renewable energy development in Hong Kong.	--
26.	This meeting adjourned at 4:10 pm.	--