Annex B

EIA report on
"Re-provision of Open Cycle Gas Turbines at Lamma Power Station"

Relevant Extract of the draft minutes of
the Environmental Impact Assessment Subcommittee meeting
held on 14 February 2022

Question-and-Answer Session (Open Session)

Project Details

1. In response to a Member's question on the replacement plan for the gas-fired combined cycle gas turbine unit (CCGT) (GT57) to be demolished in this project, Mr Y L Kwan advised that a new CCGT (L11) had been scheduled for commissioning in 2022 and was therefore not covered in this EIA report.

2. The Member went on to enquire about the expected frequency for the proposed oil-fired open cycle gas turbine units (OCGTs) to operate, Mr Y L Kwan shared that the operation of the existing OCGTs was infrequent over the course of a year. On average, each OCGT operated for less than one hour per month in 2020. He also confirmed that the proposed OCGTs were oil-fired.

Carbon Emissions

3. A Member thanked the project proponent for the written responses on her questions raised before the meeting. She enquired about the overall target of the project to achieve carbon neutrality. Mr Y L Kwan advised that HK Electric had devised short-term to long-term plan for achieving carbon neutrality. The increase in the use of natural gas for electricity generation would be an interim measure to reduce the carbon emissions. While HK Electric would explore the possibility to deploy renewable energy such as wind energy by developing an offshore wind farm, the supply of back-up electricity by the OCGTs was indispensable in view that wind energy could be subject to the prevailing weather conditions. The Chairperson followed to ask and Mr Kwan confirmed that the main purpose of the proposed OCGTs was to provide back-up electricity supply in case of emergency.

4. With regards to a Member's questions on carbon emissions, the carbon capture and storage technology of the proposed OCGTs, Mr Y L Kwan explained that the carbon emissions from the OCGTs were negligible in comparison with the overall

operation of the Lamma Power Station since the main purpose of the OCGTs was to provide back-up during emergency situations. Therefore, the studies on carbon capture and storage technology had not been taken into consideration in this report.

Consideration of Alternatives

5. Considering that CCGTs would be more efficient and generate less air pollutants, a Member enquired about the possibility for deploying CCGTs to replace one or two of the proposed OCGTs in this project. Mr Y L Kwan considered that the OCGTs could not be replaced by CCGTs in view of the start-up time required for the CCGTs to meet the operational requirement under emergency situations. The Member considered that new and advanced technology might speed up the start-up time to fulfil their operational requirement while enhancing energy efficiency and reducing carbon emissions. Mr Kwan explained that apart from the start-up time required for CCGTs, preparation in advance including the extra and ad hoc supply of natural gas, made it infeasible to cater for any unforeseen emergency situations.

6. The Member followed to ask whether the new OCGTs would be deployed to provide electricity during peak season such as summer time. Mr Y L Kwan advised that the main purpose of the new OCGTs was to maintain back-up power supply in case of emergency situations. He assured Members that the OCGTs would not be deployed unless necessary given the high fuel costs involved. Mr Kwan added that as three OCGTs might be sufficient for the operational requirement, HK Electric might construct the OCGTs in phases and review the need to construct the additional OCGT as and when necessary.

Air Quality Impact

7. A Member sought information on the predicted pollutant concentrations before and after the replacement of OCGTs. Mr Frank Wan advised that significant reduction in the pollutant concentration was expected after the replacement of the four new OCGTs, including around 50% annual reduction in nitrogen oxides and around 60% annual reduction in respirable suspended particulates and fine suspended particulates.

8. The Chairperson followed to ask about the reasons for the reduction in pollutant emissions for the new OCGTs. In comparison with the ageing OCGTs which were commissioned in the 1980s, Mr Y L Kwan explained that the new OCGTs

would be more efficient due to the advancement of technology and thus would generate less air emissions during operation.

Waste Heat

9. In respect of the handling and recovery of waste heat, Mr Y L Kwan explained that the waste heat could not be recovered based on the design of OCGTs. The minimum temperature of the flue gas of the new OCGTs would be the same as the existing ones, which would be discharged through the chimneys. Given the distance from the nearest air sensitive receivers (ASRs), it was considered that the waste heat generated by the new OCGTs would not cause adverse air impact to the ASRs. Mr Kwan also confirmed that there was no hot water discharged due to cooling purposes.

Future Modification and Upgrading

10. A Member enquired about the possibility for converting to the use of green fuel such as hydrogen during the operation of the OCGTs in the future. Mr Y L Kwan advised that the supplier of OCGTs would be required to ensure that the new OCGTs could be converted to the use of green fuel for operation with minimum modification and upgrading in the future.

Waste Management

11. A Member considered that the construction and demolition (C&D) materials generated from the construction of OCGTs should be minimised with a view to reducing the solid waste to be disposed of at the landfill. Mr Y L Kwan assured that detailed waste management plan would be devised to minimise the amount of solid waste to be disposed of.

Energy Saving

12. In reply to a Member's enquiry about the campaign to promote energy saving in the community, Mr Y L Kwan advised that HK Electric had placed continuous efforts in the promotion of energy saving through various campaigns such as the Feed-in Tariff Scheme, Smart Power Care Fund, Smart Power Building Fund and Smart Power Education Fund, which encouraged different sectors to enhance energy efficiency, adopt low carbon lifestyle and deploy renewable energy. He said

that HK Electric would spare no efforts in promoting energy saving in the community.

Conclusion

13. There being no further questions from Members, the Chairperson thanked the project proponent team for their detailed presentation and clarification in relation to the project.

(The presentation team left the meeting at this juncture.)

Internal Discussion Session (Closed-door Session)

14. The Chairperson advised that the EIA Subcommittee should make recommendations to ACE on the EIA report with the following consideration:

(i) endorse the EIA report without condition; or
(ii) endorse the EIA report with conditions and / or recommendations; or
(iii) defer the decision to the full Council for further consideration, where issues or reasons for not reaching a consensus or issues to be further considered by the full Council would need to be highlighted; or
(iv) reject the EIA report and inform the project proponent of the right to go to the full Council.

15. The Chairperson proposed and Members agreed to endorse the EIA report with conditions and / or recommendations.

Waste Management Plan

16. A Member suggested that the project proponent should endeavour to reduce the amount of solid waste to be disposed of at the landfill such as utilising the waste-to-energy facilities. The Chairperson concurred with the Member and suggested that the project proponent should be recommended to devise a waste management plan with a view to reducing the amount of solid waste. Another Member considered that chemical waste should be included in the plan as well.

17. The Chairperson suggested and Members agreed that the project proponent should be recommended to devise a comprehensive Waste Management Plan, subject to the consultation with DEP, with a view to minimising the disposal of solid waste

generated from the project, including but not limited to inert construction and demolition (C&D) materials, chemical waste and other types of waste at the landfill as far as possible.

Carbon Emissions

18. The Chairperson suggested recommending the project proponent to step up its efforts in contributing towards carbon neutrality. A Member was of the view that it might not be appropriate to impose a condition or recommendation since the control and reduction of carbon emissions was not part of the existing requirement under EIAO as well as the Technical Memorandum. The meeting agreed that it was not necessary to impose condition or recommendation in this regard.

Consideration of Alternatives

19. Considering the project proponent's operational requirement on start-up time to handle emergency situations, a Member suggested and the meeting agreed that it was not necessary to impose condition or recommendation for deploying CCGTs instead of OCGTs in this project.

Energy Saving and Energy Efficiency

20. Given that the main purpose of the new OCGTs was to cater for emergency situations and the usage was highly infrequent, the meeting agreed that it was not necessary to impose condition or recommendation in respect of energy saving and energy efficiency.

Future Modification and Upgrading

21. A Member was concerned about the technical feasibility for the proposed OCGTs to convert to the use of hydrogen or other green fuel in the future given the significant differences in the infrastructure for the gas turbine units. The Chairperson remarked that the objective of this EIA report was to assess the environmental issues relating to the construction and commission of the new OCGTs. Given that no adverse environmental impact was anticipated arising from the construction of the new OCGTs, Members agreed that condition or recommendation was not required.

22. There being no other comments from Members, the meeting agreed that the EIA report could be endorsed with only one recommendation. The project proponent team would not be required to attend the subsequent full Council meeting.

(Post-meeting notes: The recommendation was circulated to Members for comments on 16 February 2022.)

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EIA Subcommittee Secretariat
February 2022