

Enclosure

Legislative Council – Panel on Environmental Affairs

**Views from the Hong Kong Institution of Engineers
on the environmental impacts arising from the proposed construction of a Liquefied
Natural Gas Receiving Terminal by the CLP Holdings at Sokos Island**

Introduction

1. The LegCo Panel on Environmental Affairs (Panel) invited views from the Hong Kong Institution of Engineers (HKIE) on the environmental impacts arising from the proposed construction of a Liquefied Natural Gas Receiving Terminal by the CLP Holdings at Sokos Island.
2. HKIE noted an EIA report comprising several thousands pages had been issued and reviewed by the Authorities.
3. To examine this report covering such a large scope in details and within the time frame set herewith would not be possible.
4. If a thorough assessment supported by technical arguments were indeed needed, HKIE believed that it ought to be a task of a properly staffed consultant commissioned under a separate assignment.
5. Noting no specific issues were being identified with the invitation, HKIE presumed the Panel is only seeking views in a general context.

Environmental Impacts

6. Environmental impacts, in the present context perceived by the public, were mainly undue influences to the environment resulting from the behaviour or acts of mankind.
7. It is seldom those behaviour and acts could exonerate this public perception and come clean without any negative impact to the environment, however serious or minimal and whether recoverable or irreversible.
8. At the same time there are some that may have an overall positive impact for the long-term gain of the environment.
9. Hence, the primal mission, from an engineering point of view, is on controlling and improving the activities in an efficient manner whilst introducing minimal impact to the environment, on a more global front and at a larger horizon.

The Project

10. The project in question is the construction of a Liquefied Natural Gas Receiving Terminal at Sokos Island.
11. There are three elements that would merit an engineering scrutiny and they are the fuel

liquefied natural gas (LNG), the construction of a receiving terminal (Terminal) and the location chosen at Sokos Island (Sokos).

Fuel

12. Natural gas is one of the fuel sources that could generate electricity. It can be transferred through pipeline or shipped in the form of LNG. Different kind of fuel has different scales of impact and risk from supply sources to demand points.

13. For comparison, LNG produces no particulate, sulphur dioxide and less nitrogen oxide than coal for better air quality. When burnt in a combined cycle generating plant, LNG also produces a lot less carbon dioxide than that using coal for the same output of electricity, alleviating the effect on the global warming.

14. In terms of electricity supply, it is therefore not enough to compare the scales of the impact of each raw fuel alone before expended, it is also necessary to assess the difference of the net system impact after the fuel is converted into the generation of electricity.

15. However, the fact that LNG is a cleaner fuel than coal should not over-shadow a proper risk assessment and consideration of its overall impact to the environment throughout the supply chain including mining, processing, transportation, storage and discharging of LNG both in and outside Hong Kong waters.

Construction

16. The Terminal as a building structure would certainly bring a negative impact to its surrounding location. It is a facility for receiving, storing and regasifying of a potential polluting ingredient. HKIE wished to point out large-scale spillage of LNG might cause irreversible ecological damage.

17. A more robust structure to contain the risk of fuel leakage and to ensure safety must be incorporated in the design. Likewise, the provisions of redundant equipment for monitoring and combating system failure must be provided. All risks must be properly addressed.

Location

18. The choice at Sokos as the location of receiving station is ecological sensitive and attention must be addressed to any impact on the surrounding marine ecology and cycles.

19. HKIE, at this stage, could not offer any comment on the suitability of this location choice, apart from stating the obvious that a structure storing a highly inflammable and irritant substance is best situated away from the populace.

20. On the other hand, construction of inter-oceanic pipelines as an alternative would require connections to multiple suppliers with a matching grid of pipeline network for the need of the security of fuel supply and delivery.

21. This paper is not able to assess the optimal trade-offs.

Recommendation

22. HKIE noted the Advisory Council on the Environment and the relevant authorities had endorsed the submitted EIA report with conditions laid down for mitigation measures. HKIE wished to stress that all such conditions must be carefully examined, observed and discharged.
23. In order to ensure any resulting impact is not irreversible, controlling measures of the project must be considered in three phases. The pre-construction phase, the construction phase and the operation phase.
24. The pre-construction phase:
- A comprehensive set of environment mitigation must be developed, supported by thorough scientific researches.
 - Marine activities must be observed and controlled, in particular along the zones that involve dredging, piling, jetty and undersea piping work.
 - Measures to preserve plants and minimise disturbance to wildlife must also be identified.
25. The construction phase:
- An independent and transparent mechanism must be set up to monitor the construction in term of its on-going environmental performance.
 - Performance discrepancies and any unexpected event so emerged must be reported.
 - The Administration should consider regulating the construction activities in a stringent manner, erring on the environmentally safe side.
26. The system operation phase:
For the operation of the Terminal, HKIE stressed that a set of operation codes covering system and Terminal handling to meet the relevant international standards on restoring and maintaining the environmental and ecological balance before the construction is not enough. Additional improvements should include:
- Taking on a rigorous approach on ecology conservation, air quality compliance and water quality improvement objectives.
 - Including initiatives on marine and wildlife conservation and rehabilitation activities as guidelines for and as an inducted corporate culture to the operator.
 - Independent audit on the performance during the initial operational period to monitor and ensure due compliance.

Conclusion

27. Prosperity and development of an affluent society rely on ongoing technical advancements from which, at times, might have an impact on the environment. These impacts need to be assessed constructively and broadly, considering both positive benefits and negative impacts that can arise and not to be taken as outright unacceptable in a negative manner.
28. Where opportunity arises, HKIE believed Hong Kong as a developed economy should demonstrate no efforts should be spared to commission a reliable and environmental sustainable infrastructure project at home ground.

29. Whilst it is easy to say we should not assess the environmental impact on any particular project on its own but with what improvement it will bring on a regional front. And whilst it is easy to say we may have to suffer pain during the construction for the time being and hope for an ultimate gain in future.

30. But HKIE believed these should not be reasons for us not to aim for a higher ground to prepare, complete and operate projects with stringent control and, improved and enhanced parameters.

31. Given it due and careful consideration in engineering planning, HKIE believed the construction of this project could be controlled and improved. We may not even have to suffer the labouring pain.

32. Equally the community should be aware of that every individual waste however minute, counts and accumulates, on a global front. And equally the community should be aware pollutants remain emitted whether a project is built at our doorsteps or elsewhere, both being on the same horizon.

33. Given it due and proper focusing on the pertinence, HKIE believed the community would appreciate all would bear a responsibility to mitigate negative environmental impacts.

34. To meet our needs, HKIE viewed this project is a step towards a net reduction on environment impact, at home ground and for the region.