

16 June 2014

Electricity Reviews Division
Environment Bureau
15/F, East Wing, Central Government Offices
2 Tim Mei Avenue, Tamar, Hong Kong.
E-mail: fuel_mix@enb.gov.hk

Dear Sir/Madam:

**Response to the Public Consultation on
“Future Fuel Mix for Electricity Generation”**

Views from

Business Environment Council Limited

In response to the consultation document on *Future Fuel Mix for Electricity Generation* (“consultation document”), Business Environment Council Limited (“BEC”) supports the four principles of the HKSAR Environment Bureau (“Government”) to deliver **safe** and **reliable** supplies of electricity at **affordable** prices with the minimum impact on the **environment**. BEC welcomes the reaffirmation of Government commitments to achieving both local air quality improvement and carbon reduction targets.

Over the last two decades, BEC has taken a leading role in advocating environmental issues in Hong Kong. BEC is a membership organisation, currently with about 180 member companies that span across major holding companies to small and medium-sized enterprises in Hong Kong.

With the input from the BEC Energy Advisory Group and the BEC Climate Change Business Forum (“CCBF”) Advisory Group, the following views have emerged as our collective response to the fuel mix public consultation. Views put forward in this submission represent the views of BEC as a whole, and may not necessarily correlate with the views of individual members.

For the remainder of this submission and as defined in the consultation document, Option 1 refers to importing 30% of electricity through purchase from China Southern Power Grid Co. Limited (“CSG”) and Option 2 refers to using 60% natural gas for local generation, both on a 10 year planning horizon.

Executive Summary

BEC is generally in favour and supportive of Option 2, but is of the view that Government should reconsider whether the high percentage of natural gas proposed (60%) is the ideal ratio for the future of Hong Kong's electricity fuel mix. A more balanced fuel mix ratio may be more appropriate when implementing Option 2 by reducing the percentage of natural gas, maintaining a reasonable level of coal generation and proactively promoting more renewable sources. Option 1 also has merits but should be studied more carefully and requires more information before a decision can be made whether Hong Kong should, sometime in the future, be connected directly to CSG for 30% of our power requirements.

Although the consultation document only focuses on how to generate electricity, BEC believes optimal performance of the electricity market should be realized not only from the generation perspective but also via strong demand side management measures. BEC questions the demand assumptions outlined in the consultation document. If future demand in fact decreases, this could in itself be viewed as a source of 'generation', mitigating the need to build as much new infrastructure as currently suggested in the consultation document. In this respect, Option 2 allows for more flexibility when scaling up future electricity supply because natural gas plants can be deployed in smaller incremental steps, as opposed to committing now to the substantial new infrastructure investment proposed in Option 1.

BEC members have carefully evaluated the consultation proposals through a series of seminars and briefing sessions. On balance, neither option, on its own, presents an ideal solution to Hong Kong's needs, but overall reliability has been identified as the first priority. BEC recommends Government provide more information and consider developments over a longer time frame, with a more incremental and optimized approach. The Government should also reconsider whether the early reduction of coal use and significantly increasing the use of natural gas is the best option for Hong Kong. In addition, BEC encourages Government to further study Option 1. As the Mainland's fuel mix and reliability improves, there may be opportunities to further reduce our air and CO₂ emissions by importing clean, low carbon energy from the Mainland. These opportunities should be actively explored and studied by Government.

In summary, BEC prefers that Government make initial moves now to decarbonize electricity generation in Hong Kong via natural gas (Option 2). And over time, Government should consider imports of genuinely clean, low carbon energy from the Mainland as soon as this can reliably be delivered (Option 1).

Comments on Reliability

Hong Kong has benefitted from one of the most reliable electricity supplies in the world and this has been in part responsible for the city's economic success. Reliability is the first priority for BEC members and this should not be compromised in the current fuel mix decision.

Interconnected grids of comparable size to CSG have failed via cascading outages, as happened in North America in 1998 and 2003, as well as in Europe also in 2003, leaving millions of people without electricity during cold winter nights or hot summer days. Contingencies and backup systems in such large grids are essential but are unlikely to achieve 99.999% reliability.

Not only is it sensible for Hong Kong to have a diverse range of fuels for electricity generation but a diverse range of sources for each of these fuels to minimize supply chain and pricing risk. Coal can be stored on-site and can be obtained easily on world markets. However, gas is different with 100% of CLP and HEC's sources obtained via the Mainland or through Mainland infrastructure. Whilst this is helpful for Hong Kong, Government should re-examine whether new technologies in liquefied natural gas receiving terminals (such as floating storage and regasification units) located in Hong Kong could provide direct access to LNG from world markets to allow more competitive sourcing.

Comments on Safety

In general, the power generation industry is mature and safety risks associated with operating nuclear, coal and natural gas power stations are low, provided that high safety standards and practices are implemented.

If it is decided to import 30% of generation capacity as per Option 1, safety risks stemming from the generation of electricity in CSG will effectively be outsourced to providers other than Hong Kong's current power companies. As such Hong Kong electricity consumers would be relinquishing their stakeholder influence on the issue of safety because CSG sources electricity from a generation market over which Hong Kong consumers have little influence or control.

In the case of local generation (Option 2) a larger portion of engineering and technical skills specialized on the safe operation of generation units would be retained in Hong Kong. This fosters a local industry of research, teaching and centres of excellence, creating opportunities to export this technical know-how to other markets.

Comments on Affordability

There is no evidence provided in the consultation document that Option 1 would be more or less affordable than Option 2. Furthermore, the information does not allow for an informed assessment of whether the current system would be more or less expensive than Option 1 post 2023. In addition, there is no indication whether the off-take from CSG would be base load or peak demand, which could have substantial cost

implications for the Hong Kong community. Undoubtedly affordability plays a key role in deciding the future of Hong Kong's fuel mix. However, this criteria loses value for decision making if lack of information creates uncertainty and lack of trust.

Nevertheless the consultation document does state that the cost of supply under Option 1 or 2 will roughly double the unit generation cost over the five years from 2008 to 2012. The assets involved, a major new interconnection under Option 1 or new gas fired power stations under Option 2, each have lives of at least 35 years. Over that time period the costs of imported power under Option 1 or gas under Option 2 will be far greater than the initial capital costs. Unless all costs are taken into account over a much longer timescale than ten years, a proper comparison cannot be made.

BEC recognizes that affordability is important for many business and individual customers. However, based on a recent BEC survey, 75% of Hong Kong businesses are willing to pay more for cleaner electricity, and replace coal with natural gas¹. Nevertheless, generation costs and estimated tariff increases are necessary to better understand 'how much more' companies and individuals would actually have to pay to implement a lower carbon electricity mix. In addition, the costs of implementing renewables in Hong Kong should be clearly outlined to the public. Recent experience overseas (e.g. UK and Australia) has indicated strong consumer protests when actual costs become apparent, especially if these were not clearly set out in advance.

Regardless of either option, it is clear that additional support for the most needy in our society may need to be made available by Government as tariffs would certainly increase.

Comments on Environmental Performance

Both of the proposed options seek a reduction in the proportion of coal used in the fuel mix from today's level of 53%. BEC welcomes the use of more natural gas for generation in Hong Kong. Option 2 will meet the lower bound of the air pollutant emission reduction targets by 2020 and reduce carbon intensity by about 50%. Air emissions overall in Option 2 would be significantly lower than Option 1.

Unfortunately the consultation document provides no certainties as to how the overall air pollutant emissions and carbon footprint of Hong Kong's electricity supply would be affected if 30% of supply would be imported from CSG. Thus the public is being asked to make decisions without sufficient information. Having clarity on this point is particularly relevant from the perspective of running a low carbon business in Hong Kong, because Scope 2 emissions² are usually the biggest factors in the carbon footprint of Hong Kong companies.

¹ See the *2013 Hong Kong Business Survey on Energy Efficiency & Climate Change* available here: <http://www.climatechangebusinessforum.com/en-us/research-11102011>

² Scope 2 emissions are "indirect GHG emissions from consumption of purchased electricity, heat or steam", as defined by The Greenhouse Gas Protocol (<http://www.ghgprotocol.org/>).

Furthermore, from a sustainability perspective the outsourcing of generation as outlined in Option 1 goes against the principle of self-sufficiency and merely off loads environmental impacts to another jurisdiction. Maintaining local generation capacity sets a strong example that not-in-my-back-yard (NIMBY) is NOT an acceptable solution. If global CO₂ and regional air pollutant emissions are to be reduced, genuine reductions (e.g. by using more gas and more renewable energy) must be made.

In this respect, every effort should be made to support the local generation of renewable energy where this is practicable and supported by adequate natural resources (ie. wind, solar radiation, siting, etc). In addition, BEC encourages Government to fully utilize landfill gas in Hong Kong and to generate electricity from waste incineration. Government should also consider more support from its own funds for promoting the development of more demonstration PV or micro wind projects for its own buildings, those of NGOs and the general public. Furthermore, reasons need to be provided why the planned wind farms by CLP and HEC have not been included in the current company development plans. Collectively these renewable energy projects could provide a considerable portion of electricity demand for which devising special incentive policies would be worthwhile.

Other considerations

The 10 year planning horizon should be extended to provide a more optimal longer term plan to transition Hong Kong away from the current fuel mix, especially given the long lead times needed to build and operate assets as well as the changes expected in CSG's fuel mix and grid infrastructure over the longer term.

The information for the community to reach an informed choice for the future fuel mix is limited and incomplete. Essential information on cost and environmental impacts is missing and needs to be provided by Government to facilitate a consensus building mechanism. The recent BEC survey points out that lack of information is one of the major obstacles to creating public buy-in for changing the fuel mix.³

Furthermore, BEC is not currently persuaded that Macau is a suitable model for Hong Kong to follow, given its smaller size and the different nature of both its economy and regulatory framework.

It is noted that the consultation document does not propose that additional electricity be sourced from a dedicated generation station for Hong Kong located in Guangdong, similar to the current arrangement of the Daya Bay Nuclear Power Station. It would be useful for Government to explain to the community as to why this is no longer an option for Hong Kong, since it has worked well for the last 20 years. As such, the option of increasing dedicated nuclear power supply to Hong Kong should be revisited.

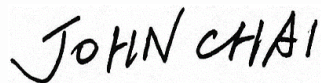
³ See the *2013 Hong Kong Business Survey on Energy Efficiency & Climate Change* available here: <http://www.climatechangebusinessforum.com/en-us/research-11102011>

In Closing

Whilst Government notes in the consultation document that only supply side issues are covered, BEC regards demand side initiatives as equally important and would welcome further policy proposals from Government as soon as possible. Indeed, if demand can be reduced from the projected levels foreseen in the document, it may be necessary to revisit the need for new infrastructure in the short term, until it is clear whether longer-term demand growth can be moderated or not, before significant additional investments are made.

BEC is looking forward to working constructively with Government in taking our views forward. If there are any questions or concerns in regards to the content of this submission please contact our Chief Executive Officer, Ms. Agnes Li, at agnesn@bec.org.hk or 2784 3950.

Yours sincerely,



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cc Mr K.S. Wong – Secretary for the Environment, HKSAR Government
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