Consumer Council

Submission to the Panel on Economic Development on "Public consultation on the future development of the electricity market in Hong Kong"

(June 6, 2015)

Introduction

1. The Consumer Council (CC) is pleased to submit its views on the issues raised in the Environment Bureau document the "Public consultation on the future development of the electricity market in Hong Kong". CC's report[1] published in December 2014 called for a broader consideration about different issues in the electricity market beyond the questions posed by the Government in its fuel-mix consultation of March 2014. CC is pleased that the current regulatory review consultation is broader in scope, but is concerned that the current conservative approach could not bring meaningful and significant changes to the long term development of the electricity market in Hong Kong. Hong Kong must be determined and clear about introducing the necessary changes, and will otherwise risk waiting another 10 years till the next major discussion.

2. CC believes there are a number of issues that the Government needs to address, and would like to draw the Legislative Council's attention to them under the following headings:

    a. Affordability of electricity and the rate of return (RoR) on investment

    b. Review and refine the tariff structure to address the demand side and fuel poverty

    c. Increase the use of renewables

    d. Competition, distributed generation and auctions

    e. Establishment of Energy Commission and involvement of consumers

Affordability of electricity and the rate of return on investment

3. In Hong Kong's mature electricity market there are few investment risks. Both companies have extremely good triple A credit ratings and can access debt finance at low cost. CC argues that the regulated RoR of 9.99% is much higher than needed to finance investment, leading to consumers paying more than is necessary.

4. Both companies use relatively low cost debt finance rather than equity to finance most of their investment, and this has become less costly since the last Scheme of Control Agreements (SCAs) was agreed. The US 10-year

[1] Consumer Council (December 2014) Searching for New Directions - A Study of Hong Kong Electricity Market.

Treasury Bond rates, a good indication of risk free return, show a downward trend from about 6.5% in 2000 to 2.25% at the present moment. Recent bond issues suggest the two companies are able to secure good terms on their debt. The cost of finance for China Light & Power (CLP) and Hong Kong Electric Company (HEC) while higher than the US Government is still modest: HEC currently pays between 1.65% and 4.55% (rates of HK$ medium notes)[2], CLP recently secured 10 year loans at 3.125%[3]. The net debt-equity ratio is 65.7% for CLP and 87.9% for HEC at the end-2014[4]. This high gearing means that the average net fixed assets is largely financed by low cost debt, rather than shareholder equity. Effectively, it can be estimated that their returns to equity could be over 23%.

5. CC believes that consumers and not just shareholders should benefit from the low debt costs, and Government should reduce the RoR.

6. CC notes that economic regulators in other jurisdictions are applying RoRs much lower than 9.99% on the relevant asset base. The Australian Energy Regulator has made a final decision in April 2015 to set the allowed rate of return (or cost of capital) for ActewAGL at 6.38% for 2015-2016. In the UK recent price determinations[5] for regulated utilities water and electricity have been around between 4.24% and 5.1% plus the change in retail price index (RPI). RPI, the measure of inflation used, has recently been 1.1%.

7. It is common in other jurisdictions for the permitted RoR to be calculated by the regulator using three components – a prudent capital structure (though regulated companies are not obliged to use this), the cost of debt, and the allowed Return on Equity (ROE). The CC advocates Government establishing a similar transparent approach in determining the RoR for power companies. CC considers a RoR any higher than 5.25% or 6%[6] would be unfair to consumers as they bear the key risks and costs: fuel price, overcapacity in generation, network capacity, and distribution efficiency, through the system of fuel cost adjustment and annual tariff review.

Review and refine the tariff structure to address the demand side and fuel poverty

8. At present the Scheme of Control does not have effective measures to reduce electricity use or shift demand away from peak demand. Current incentives within SCA pay the electricity companies a small reward when they hit modest energy saving and energy audit targets. But energy audits and information while useful are not enough to mobilise customers to change their behaviour.

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[2] HK Electric Investments 2014 Annual Results, Chairman's Statement, p 26.
[3] CLP Media Release (28 April 2015) "Issue of USD300,000,000 3.125% Notes due 2025 by CLP Hong Kong Financing Limited".
[4] Credit Suisse (02 March 2015) Hong Kong Utilities Sector, p 27, 31.
[5] See Credit Suisse *op cit.*
[6] CC's baseline RoR is estimated, by using a typical 50%-50% debt and equity financing structure, a reasonable bench mark interest rate of 3.5%-4% for a 10 year bank loan by comparable size of electricity company with a relative stable stream of income and average market risk premium of 7%-8%. We assume "safe" regulated electricity companies have half of this market risk, so the required equity return is calculated by 10 year loan rate + 0.5 x risk premium, giving a range of 5.25%-6%).

In fact electricity customers face many practical obstacles preventing them from enhancing their buildings' energy efficiency. Often tenants that pay the electricity bill do not own or have legal rights to change the ventilation and air conditioning system, or make changes to the outside fabric of the building. These rights may rest with the owner or the building's management company neither of whom are incentivized to make the necessary changes. This is the so-called "landlord-tenant" market failure. Also tenants might only have a short term lease so see no financial benefit in making minor internal changes even if they are allowed to, since the payback period might extend to post-lease expiry.

9. Another impediment, common in homes and small and medium entreprises, is that the manager / owner lacks the expertise or time to research and implement energy saving projects especially if energy only accounts for one item out of many costs.

10. In some countries electricity companies are mandated to install measures to reduce their customer's energy use. These are funded by revenue collected from customers [7], sometimes supplemented with Government funding. Companies have targets about how many measures to install and there is a system of rewards and fines for exceeding or missing targets. There might also be subsidiary targets for installing measures in poorer or elderly people's homes, or to reduce peak demand thereby avoiding the need to build new plant. In North America and Europe flexible demand management (where electricity use is shifted away from peak time usage) is used in place of little used peak-electricity plants to cost effectively reduce peak capacity. Consumers, in exchange for lower tariffs, agree to install devices in their homes so that the grid manager can remotely reduce the energy used by air conditioning, battery charging and other non-time critical uses. CC believes such instruments should be considered for Hong Kong and could be accommodated within the current SCA. There are also examples of the profits from electricity customers being used to fund other specialist companies or non-profit organisations to install energy efficiency management systems and this is worth serious consideration too.

11. Electricity prices are likely to rise in the coming years as generation switches from coal to gas. It was recently estimated[8] that already 200,000 people spend 10% or more of their income on electricity – a benchmark other countries use to define fuel poverty. CC urges the Government to consider the impact of rising tariffs on low-income family and to refine the tariff structure to favour poorer households. A particular concern has been households with large families, or people living in subdivided homes. These are amongst the most vulnerable of people and there is merit allowing each person, rather than each residential billpayer a lower tariff allowance to affordably meet their basic energy needs.

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[7] See Californian Energy Efficiency System http://www.cpuc.ca.gov/PUC/energy/energy+efficiency/

[8] The Commission on Poverty released a report "Hong Kong Poverty Situation Report 2013" on 29th November 2014

12. However, without the information about how many low-income households are affected by the rising electricity price, the cost and practicality of tackling fuel poverty cannot be assessed. CC urges the Government to conduct research to estimate the effect of new fuel mix policy on the future electricity price and how this will affect different groups of households below the poverty line.

Increase the use of renewables

13. Hong Kong has installed almost no new renewables since HEC's projects on Lamma Island almost a decade ago. In 2002 a report for Government[9] reviewed the major renewable energy technologies. Recent evidence suggests that renewables technologies have become significantly more cost effective and the Government needs to update its views. Since 2002, renewables have been widely deployed in other countries. Solar PV modules have fallen in price and their efficiency has improved[10]. Off-shore wind was largely untested then but it is a fast growing technology in Western Europe and China.

14. Also there has been a convergence in the policies used to incentivise renewable technologies. The deployment of mature renewable technologies like wind, waste / sewage sludge combustion and solar PV is now well understood. The economics are linked to the quality of the local resource (hours of sunshine, reliability of wind) and the competence of the renewables developer. There has been a move away from capital subsidies to a guaranteed (usually subsidized) price support. Around 60 countries use feed-in tariffs[11] which detach the risks that the RE developers cannot mitigate (such as the volatility of fossil fuel prices) but leave the developer to bear the risks they can control (like cost over-runs or poor project design).

15. CC believes that for renewables the feed-in tariff (and other similar schemes that "pay-on-success") should be investigated and, if suitable, deployed. Compared to the reward for investing in renewables under the SCA, feed-in tariff or similar policies are likely to be more effective at encouraging renewables.

Competition, distributed generation and auctions

16. CC favours allowing a wide variety of companies and individuals to produce electricity for their own use and to export into the Hong Kong grid. Such competiton between generators could reduce the cost of electricity to consumers. It could in time include imports from the Mainland once reliability concerns have been satisfied and the imported electricity is shown to reduce overall greenhouse gas emissions. A greater diversity of generation,

[9] EMSD (2002) "Study on the Potential Applications of Renewable Energy in Hong Kong – Stage 1 Report"
[10] International Renewable Energy Agency (IRENA (2012) "Renewable Energy Technologies: Cost Analysis Series – Solar PV"
[11] International Renewable Energy Agency (IRENA (2012) "Evaluating Policies in support of the deployment of renewable power"

especially interconnection with the Mainland, will ultimately be to the benefit of consumers as it will allow the electricity companies to maintain smaller reserve margins, and the most efficient (lowest cost) generators to prosper.

17. In the near term there is merit in introducing competition between firms seeking to build, design and operate new renewable plants. A recent innovation in policy has been the auctioning of renewables subsidies favouring the most competitive renewables developers. In the UK the first auctioned feed-in tariffs[12] resulted in very low subsidy for a small amount of large-scale solar, and bids for off-shore wind that were around 25% less expensive to consumers than the previous non-auctioned version of support.

18. Some consumers (including public sector facilities like schools) wish to play an active role in deploying renewables because they have suitable rooftops / facades. Such solar PV systems could in theory reduce peak demand because sunlight tends to peak when electricity demand is highest.

19. Hong Kong Government's energy policy should aim for better use of responsive demand management, more clean energy and strict energy efficiency measures. Flexible energy sources and responsive demand side management through user control, apart from providing benefits to consumers, are also helpful in achieving the government's clean energy policy objectives. However, the current grid management strategy only incentivizes the development of new electricity plant to meet peak demand instead of responsive demand management. In a distributed generation system the distribution network has to be more flexible, allowing for trigeneration, renewable energy source deployment, as well as responsive demand side management.

20. The transition to a choice of clean energy in future is not just technical, it needs pro-active measures. With no growth in electricity consumption, achieving clean energy goals will mean reducing output from existing fossil fuel electricity plants. There will be competition between the established stakeholder interest of incumbent and clean energy producers. Incumbent electricity companies, that own coal and nuclear plants, find it more financially attractive to operate these than to buy electricity from independent wind and solar producers, thus, distibuted generation and responsive demand will not be the electricity companies' preferred option, even though it could be an an effective means to ensuring supply and demand are in balance.

21. At present the electricity companies do not pay for the electricity they receive from such 'distributed generators'. In other countries small generators are offered a feed-in tariff or at least 'net metering'. If the government means to achieve clean energy in future or offer choices to consumers, more distributed generation should be explored and access to the grid should be allowed. CC is aware of the effect of unnecessarily high feed-in tariffs offered to some classes of beneficiary, and suggest that the structure of tariff should be

[12] Department of Energy & Climate Change (26 February 2015) "UK Official statistics - Contracts for Difference (CFD) Allocation Round One Outcome"

regulated to limit the impact on fuel poverty. Access to the grid also should be fairly priced to reflect the cost.

Establishment of an Energy Commission and Involvement of Consumers

22. The policies and new incentives described above, to ensure the roll-out of energy efficiency, investment in renewables, and fair access terms for distributed generation and other new entrants, will require on-going dialogue with the electricity companies. Independent analysis needs to be undertaken and overseen to assess major infrastructure projects like the need for interconnection between Hong Kong Island and Kowloon, or between Hong Kong grid and the mainland, and about the practicality of converting the town gas network to natural gas. There will have to be careful monitoring to ensure the targets are being met and any unintended consequences are quickly addressed. This will require a critical mass of skilled personnel. There is strong interaction between the electricity market, the gas market, energy efficiency deployment and the road fuel markets. CC believes that an Energy Commission needs to be established to ensure these different policies are all taken forward.

23. CC welcomes Government's support for the publication of segmented accounts. This will improve the visibility of financial data for generation, distribution and supply and will allow the natural monopoly activities and the contestable activities to be separately scrutinised for public interest and monitoring. But CC also calls for greater transparency of information on the new obligations: how many energy efficiency measures are being installed, which type of customer is benefitting, how much small-scale renewables have been installed, what is the cost to the consumer. We believe another important role for the Energy Commission is to ensure that such data is meaningful and is made available in an accessible way so stakeholders can provide informed and relevant comment. Like many other markets, consumers are much more involved in the planning and forming process of the independent regulator which Hong Kong is lacking at the moment.

Conclusion

24. CC would press for the rate of return to be brought down to 5.25%-6%, for a reassessment of the opportunities for solar PV and off-shore wind and rapid deployment of the already cost-effective generation like energy-from-waste. This would need the introduction of a new mechanism like the feed-in tariff which is common in other jurisdictions. CC urges the Government to consider ways to encourage more clean and efficient electricity, in part through distributed generation and measures favouring demand side management to meet the challenges in energy market. Improving the energy efficiency of buildings, both residential and commercial, should be an important priority. CC recommends that a system of targets with appropriate rewards and penalties be established either on electricity companies or other firms to ensure delivery. CC also believes that an Energy Commission be established to oversee the electricity, town gas, road fuel and energy efficiency markets.