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13 December 2013

By E-mail

Mr Derek Lo
Clerk to Panel (Economic Development)
1 Legislative Council Complex
1 Legislative Council Road
Central
Hong Kong

Dear Mr Lo,

Panel on Economic Development
Letter from Hon SIN Chung-kai requesting for
information on the two power companies

I refer to the letter from Hon SIN Chung-kai to Panel Chairman dated 11 December 2013 requesting for information related to the two power companies' 2014-18 Development Plan and attach the replies from CLP and HKE in Annexes A and B respectively for your further action please.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Vyora Yau', with a long horizontal stroke extending to the right.

(Ms Vyora Yau)
for Secretary for the Environment

Reply from CLP

Q.1 The feasibility study of transporting natural gas from the Dapeng and Zhuhai LNG terminals for CLP.

A.1 There is currently no physical pipeline connection to transport the gas from the Dapeng LNG terminal to CLP's Black Point Power Station (BPPS). In addition, the Dapeng pipeline system already faces capacity and pressure limitation in supplying their current customers in Shenzhen.

The Zhuhai LNG terminal is planned to supply the Guangdong gas grid. The terminal has no interconnection to BPPS of CLP.

In summary, the natural gas from the above two LNG terminals cannot supply to HK in short term to meet HK's needs in 2015-2017. However, CLP will continue to work with the natural gas suppliers on the remaining two gas supply items, namely the renewal of gas supply from CNOOC and the building of an LNG terminal in the Mainland for supply to HK, under the MOU signed between the National Energy Administration and the HKSAR Government in 2008.

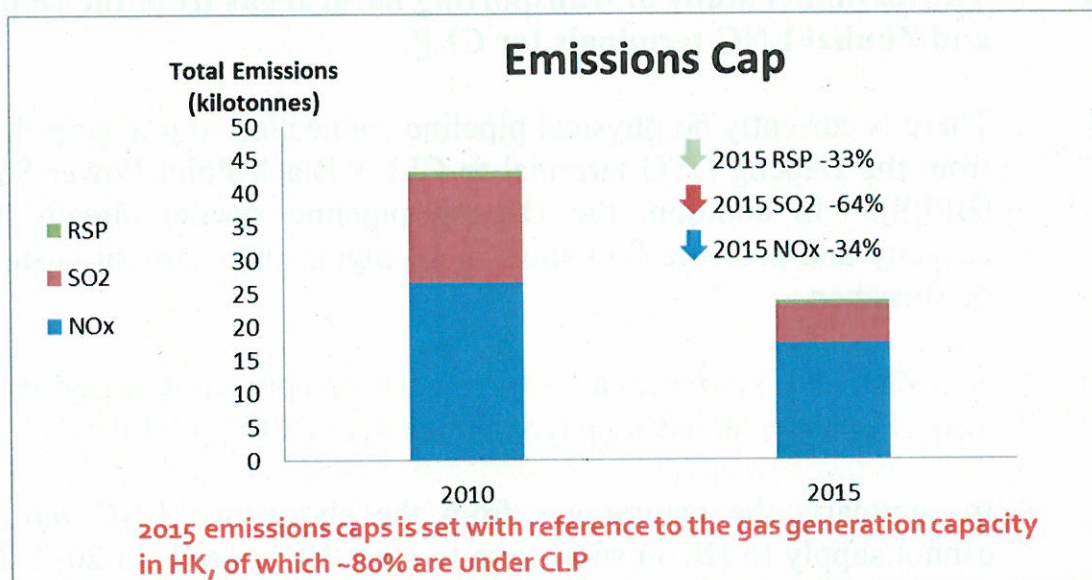
Q2. The feasibility study of purchasing additional electricity from Daya Bay Nuclear Power Station

A2. HK currently imports 70% of the energy output of the Daya Bay Nuclear Power Station (Daya Bay) on a long term contract up to 2034. CLP has started the feasibility study of importing, on a short-term and temporary basis, additional nuclear energy, from the current level of 70%, from Daya Bay. The study covers key areas including technical, economic, commercial and regulatory, etc. Progress so far is on good track and CLP is prepared to report back to the Government when the study result is ready.

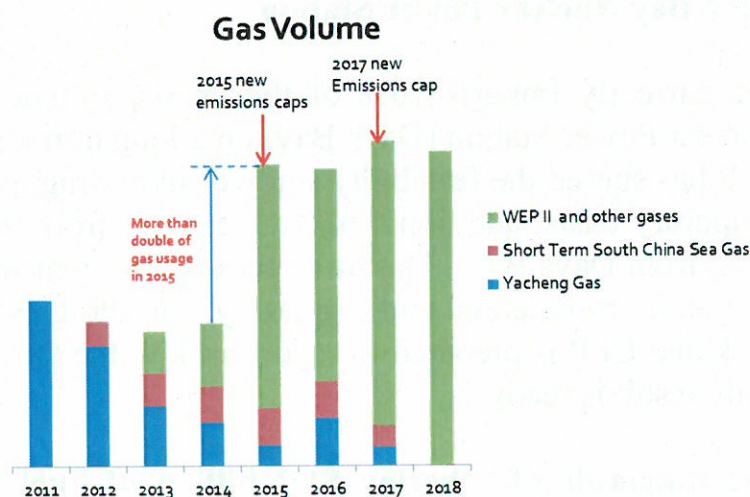
Q3. The timetable of rebating \$1.2 billion of Fuel Clause Recovery Account surplus balance and the reasons for the projected \$1.5 billion of Fuel Clause Recovery Account surplus balance by 2015.

A3. To meet the new 2015 emissions caps, which are significantly more stringent than those in 2013 and 2014 as shown in the following chart, CLP Power and CAPCO (collectively referred as "CLP") have to shoulder about 90% of the required increase in natural gas generation

in Hong Kong. As such, CLP is required to change the current fuel mix towards much more natural gas.

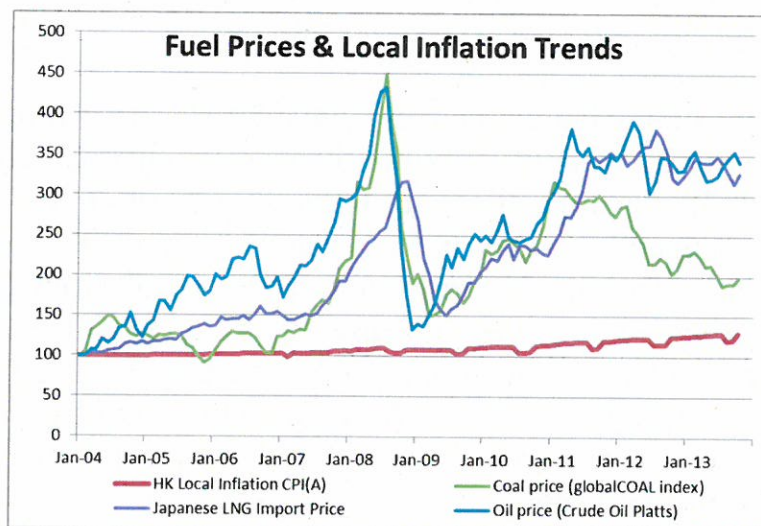


This creates two separate challenges. First, gas consumption volume in 2015 will be double that of 2014. This is because, in order to meet the emissions targets, the principal alternative to burning coal is to burn gas. The chart below illustrates the change in gas volume profile required in order to meet our environmental obligations.



Secondly, CLP's main gas supply for the last two decades has been the Yacheng Y13-1 field in the South China Sea. This depleting reserve needs to be replaced by new sources of supply. To replace our Yacheng Y13-1 supply, a new supply from the West-to-East Pipeline project phase II (WEP II) has been secured from the Mainland, under the Government to Government Memorandum of Understanding on energy cooperation signed in 2008. This gas is priced in line with the

current international market benchmarks, while the Yacheng gas contract was signed 20 years ago when oil was only around US\$20/barrel and hence its price is much lower than the current market price.



We know that this rising cost and the increased gas consumption, necessary to meet emissions standards, will lead to higher fuel cost for customers. To alleviate the impact, CLP is taking a variety of measures as far as practical, to ease the burden on customers. For example, the implementation of the gas turbine efficiency improvement project will mean that after the upgrade the same amount of electricity can be generated with less gas. Furthermore, in 2012, we were able to obtain a short term supply of gas from another field near Yacheng, which is less expensive than the WEP II gas though still at a price higher than the original Yacheng gas contract.

We will continue to offtake as much as we can from Yacheng in the coming years, so that we can make the best use of the lower cost gas. In addition, we also work with the Yacheng supplier trying to secure more gas over our contractual right. We will also continue to search for other potential alternative gas sources.

On coal generation, we will continue to maximize the use of environmental friendly coal and enhance the operational performance of our generating units so as to reduce emissions.

In the course of the Development Plan discussions, CLP and Government discussed the feasibility of a small amount of additional import from Daya Bay in order to alleviate tariff pressure due to increased gas consumption and gas prices. CLP is working on this

temporary and short-term additional small amount of energy import arrangement with the Daya Bay Nuclear Power Station. Daya Bay has been serving Hong Kong safely and reliably for the past 20 years. This arrangement requires no additional investment on new infrastructure, nor does it require Daya Bay to increase new generation capacity.

The Fuel Clause Recovery Account (FCA) can be used to smoothen out tariff volatility. While there is anticipated surplus in the FCA in 2013, it would allow us to make use of it to absorb partially the anticipated increase in Fuel Clause Charge (FCC) in 2015. We also plan to run down the FCA to a deficit of around HK\$1.5 billion to further reduce the increase in FCC in 2015. With these two arrangements, the projected increase in FCC can be brought down significantly in 2015. We anticipate fuel market prices will continue to be volatile and we would try every effort to reduce fuel cost as much as we can.

Supplementary Information on Tariff Stabilisation Fund (TSF) Balance:

- The balance of the TSF and the calculation of permitted return are unrelated. The fund balance does not form any part of the average net fixed assets that serve as the basis for calculating the permitted return.
- It should be clarified that media reports that most of the need for CLP's basic tariff increase is for the sake of the surplus of TSF balance is incorrect.
- Under the Scheme of Control Agreement, the TSF serves to accumulate and provide funds to ameliorate tariff increases or facilitate tariff reduction where appropriate. In order to ensure the TSF can properly serve its purpose, CLP and the Government would agree to maintain the forecast TSF balance at a reasonable level during the discussion in the annual Tariff Review. Since 2009, the forecast TSF balances of CLP have been set at around \$100 million to \$300 million. CLP's forecast balance of some \$300 million by end of 2014 in the current exercise is not a new arrangement.
- Starting from 2014, the cap of the TSF balance is set at 5% of CLP's annual total revenues from local sales. However, the forecast TSF balance level for each year will be stringently examined by the Government at the annual Tariff Review. For instance, CLP's forecast TSF balances for the period of 2014-18 Development Plan are set at the level of around \$300 million, which is less than 1% of CLP's annual total revenues from local sales. It

should be noted that the TSF balance should be maintained at a reasonable level to properly serve its purpose.

- Back in the 2013 Tariff Review, the Basic Tariff originally saw a need for an increase due to rising costs. However, in view of the anticipated TSF balance of around \$700 million at the time, CLP and the Government agreed to draw down an amount of around \$600 million from the TSF balance to address the needs for the 2013 expense forecast. This arrangement resulted in no change in Basic Tariff for 2013. For 2014 tariff, however, as TSF balance was projected to deplete almost fully, it would not be able to cater for the rising costs and the need to support Hong Kong's infrastructure development projects. As a result, the 2014 Basic Tariff will need to be increased to meet these needs.

HEC's Reply

Q4: The rationales for HEC to increase its net tariff by 7.5%.

A4: The rationales for the increase of Basic Tariff by 7.5% are as follows:

The justifications on the adjustment of Basic Tariff by 7.1 cents (7.5%) have been elaborated and presented in HEC's LegCo submission on 10 December 2013 (Annex HEC-B).

In recent years, HEC has curbed its Basic Tariff adjustments to reduce the substantial increase of the overall net tariffs due to doubling of gas generation since 2010 with the new gas price 4 times that of the first gas supply contract, and higher coal price in the same period. HEC's Basic Tariff remains stable and records only a mild aggregated increase of 0.2 cents/kWh between 2009 and 2013 which is far below Hong Kong's cumulative inflation rate of 13% over this period.

Taking 2013 as an example, since the sales revenue cannot fully cover the business operation outlay, over HK\$400M had been transferred from the Tariff Stabilization Fund (TSF) to make up the shortfall. This led to the almost full depletion of the TSF.

For the adjustment of the Basic Tariff next year, this is mainly because of the substantial rise in material and contract prices, and labour costs have led to continuous increase in our operating expenses. Together with the loss of the buffer function from the almost-depleted TSF, HEC's Basic Tariff has to be raised in 2014.

According to the SCA, HEC is permitted to earn a return of 9.99% on its total value of the Average Net Fixed Assets for that year, while 11% for its Average Renewables Net fixed Assets. In consulting with the Government on the tariff review of the following year, HEC follows the tariff review procedures stipulated in the SCA taking great caution and due consideration of its operating expenses, fuel prices, capital investments, electricity demand and sales, the balances of the Fuel Clause Recovery Account and the TSF, etc.

Under the SCA, the function of the TSF is to provide a buffer to ameliorate tariff impact over the agreement period. As such, HK Electric is required to provide and cumulate adequate funding in the TSF to maintain its buffer function when adverse conditions arise.

To assure proper functioning of the TSF, HEC will maintain the TSF balance at a reasonable level when we carry out the tariff review each year with the Government. From 2009 onward, HEC has kept the TSF balance between around HK\$100M and HK\$300M. Following the same arrangement, HEC forecasts that the TSF balance will be about HK\$200M in 2014.

As concluded in the SCA Mid-term Review, the cap on the TSF balance has to be lowered to a cap of not more than 5% of HEC's annual total sales revenues from 2014 onwards. In its 2014-2018 Development Plan, HEC is only approved to maintain the TSF balance at about 1~2% of its annual total revenues. HEC reckons that the future TSF balance has been lowered to the minimum level that it could just marginally serve its buffer function.

Q5: The trend of HEC's coal and gas prices for the past 5 years and the coming 5 years.

A5: The actual coal and gas prices for past 5 years and the forecast coal and gas prices for coming 5 years are shown in the table below:

Year	Actual				Forecast					
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Coal (US\$/MT)	123.2	91.7	121.8	109.7	93 ~ 115					
1st Batch Gas Contract (US\$/GJ)	4.3	4.0	4.2	4.4	4.5 ~ 5.5					
2nd Batch Gas Contract * (US\$/GJ)	-	13.9	17.5	19.4	17.5 ~ 19		18.5* ~ 20.5*			

Notes :

The disclosure of fuel price forecasts in ranges is to avoid materially disadvantaging HEC in the negotiations with potential fuel suppliers in price or off-take volumes, resulting in higher fuel prices and hence jeopardizing the economical interests of our customers.

* The existing 2nd Batch Gas Contract will finish at end 2014. The gas price forecast between 2015 and 2018 are estimated by assuming that the contract can be renewed with the original gas supplier for another 4 years with the same terms and gas quantity.

Q6: The utilisation rates and reserve margins of HEC's generating units for the past 5 years

A6: The utilization rates and reserve margins are shown in the tables below.

6.1 Utilization Rates by Generating Units

(%)	Year				
	2009	2010	2011	2012	2013 Provisional
2 Combined Cycle Gas Turbine Units (Total 680MW)					
L9	87%	92%	90%	91%	92%
GT57	4%	59%	69%	61%	72%
8 Coal-fired Units (Total 2,500MW)					
L1	26%	13%	6%	18%	8%
L2	48%	39%	30%	40%	35%
L3	8%	1%	2%	3%	2%
L4	58%	55%	59%	57%	59%
L5	61%	57%	56%	59%	58%
L6	61%	53%	48%	51%	51%
L7	74%	65%	65%	68%	71%
L8	74%	66%	66%	70%	72%
5 Simple Cycle Gas Turbines and Black Start Units (Total 555MW)					
GT1	0.03%	0.05%	0.01%	0.02%	0.01%
GT2	0.12%	0.01%	0.02%	0.02%	0.01%
GT3	0.23%	0.01%	0.03%	0.08%	0.01%
GT4	0.35%	0.04%	0.02%	0.13%	0.02%
GT6	0.12%	0.03%	0.01%	0.03%	0.02%

Notes :

1. The utilization rates above are calculated based on the actual annual available hours. The outage times induced by routine and compliance maintenances or replacement/upgrading work are excluded.
2. The lowest operating priorities are given to the two coal-fired units L1 and L3 as these two units are not equipped with Flue Gas Desulphurisation (FGD) and Low NOx burner emission control facilities.
3. Coal-fired unit L2 has equipped with FGD only but without the Low NOx burner.
4. To comply with the statutory requirement on doubling the gas generation from 2010 for emission reduction, GT57 has been converted to gas firing and operating as a baseload unit since 2010.
5. According to the Specified Process Licence of Air Pollution Control Ordinance issued by the Government, the two combined cycle gas turbine units L9 and GT57 should have the highest operating priorities. Further, they have to generate electricity in accordance with the contractual gas supply quantity.

6. According to the emission clauses in the Specified Process Licence issued to the Lamma Power Station, the four 125MW light oil gas turbines and one 55MW black start gas turbine (total 555MW) will only be permitted to operate in contingencies or for short-time peak-logging.
7. The utilization rates shown for 2013 are provisional only. The actual figures will be available in late January 2014.

6.2 Reserve Margin

	2009	2010	2011	2012	2013 Provisional
System Maximum Demand(MW)	2,537	2,510	2,498	2,494	2,453
Usable Generating Capacity (MW) * @	3,180	3,180	3,180	3,180	3,180
Usable Reserve Margin (%) * #	25%	27%	27%	28%	30%
<p>* According to the emission clauses in the Specified Process Licence for the Lamma Power Station, only the eight coal-fired units and the two gas-fired units are permitted to generate electricity for the system under normal operating conditions. Hence in calculating the Total Usable Generating Capacity, the aggregated ratings of the 5 light gas oil-fired gas turbines with a total capacity of 555MW should be taken out from the Total Nominal Installed Capacity.</p> <p>@ Due to the intermittent nature of renewable energy sources, the wind turbine (800kW) and the photovoltaic system (1MW) are not included in the Total Usable Generating Capacity.</p> <p># Two coal-fired units, L1 (250MW) & L3 (250MW) and the gas-fired unit, GT57 (345MW) will reach the end of their useful lives in 2017, 2018 and 2020 respectively. The total usable generating capacity will be reduced by 845MW to 2335MW. To maintain the necessary generating capacity and supply reliability, HEC is required to install a new gas-fired unit, L10 to timely supplement the installed capacity shortfall.</p> <p>Remark : As GT57 was converted from two oil-fired gas turbines relocated from ex-Ap Lei Chau Power Station, the unit has been in service for over 30 years. GT57 was originally planned to operate only as a peak logging unit or serve as a backup under contingency. The operation of GT57 has been changed as a baseload unit since 2010 to help meet the Pearl River Delta regional air quality improvement target.</p>					
Nominal Installed Capacity(MW) ** @	3,735	3,735	3,735	3,735	3,735
Nominal Reserve Margin (%) ** #	47%	49%	50%	50%	52%
<p>** According to the emission clauses in the Specified Process Licence for Lamma Power Station, the four 125MW light gas oil-fired gas turbines and one 55MW black start light gas oil-fired gas turbine (total 555MW) will only be operated in contingency or short-time peak-logging. These four gas turbines will reach the end of their service lives from 2019 onward. The detailed arrangement will be further discussed with the Government.</p> <p>Remark : All these 5 light gas oil-fired gas turbines were originally installed in HEC's ex-Ap Lei Chau Power Station in the 1970s. With that Power Station demolished, because of cost saving and more relaxed environmental legal requirements in those days, these retreated units with only short service lives could be relocated to Lamma Power Station at end 1980s after modification and serve as backup generating units for contingency and peak logging over the past two and half decades.</p>					