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RECEIVED 11 JUN 2014

Annex

Response Form
Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before **18 June 2014** by one of these means:

mail: Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong

e-mail: fuel_mix@enb.gov.hk

fax: 2147 5834

Part 1 (See Notes)

This is a ☒ corporate response (representing the views of a group or an organisation) or

☐ individual response (representing the views of an individual)

by German Chamber of Commerce
(name of person or organisation)

at _____ (telephone) and _____ (e-mail)

Part 2

Fuel Mix Options

FUEL MIX		IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
Existing (2012)		23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
		Total : 50%			
OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

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Part 3

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
			☐ **Safety** ☐ **Reliability**
1	☐	☐	☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____
2	☐	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐

Option 2 ☐

Reasons: (You can tick more than one box below)

Safety ☐

Reliability ☐

Affordability ☐

Environmental Performance ☐

Others ☐ **Please specify:** _____

Part 4

Other Comments and Suggestions

IT IS THE HKSAR ADMINISTRATIONS RESPONSIBILITY AND BEST OWN INTEREST TO PROVIDE FOR A STABLE AND RELIABLE ELECTRICITY SUPPLY

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11 JUN 2014

Annex

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fax: 2147 5834

Part 1 (See Notes)

This is a ☑ corporate response (representing the views of a group or an organisation) or
☐ individual response (representing the views of an individual)

by Mass Winning Ltd.
(name of person or organisation)

at _____ and _____
(telephone) (e-mail)

Part 2

Fuel Mix Options

FUEL MIX		IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
Existing (2012)		23%	-	22%	55%**
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** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☐ **Safety** ☑ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☑ **Others (please specify):** Why purchase from an ill-performed supplier without cost saving initiatives!!
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐
Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑
Reliability ☑
Affordability ☑
Environmental Performance ☑
Others ☐ **Please specify:** _____

Part 4

Other Comments and Suggestions

Hong Kong is renowned for its stable electricity supply and fair pricing. We cannot see any reason to be converted to an unstable and inefficient supply.

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11 JUN 2014

附件

回應表格
香港的未來發電燃料組合公眾諮詢

請於2014年6月18日或之前透過以下方式提交你的意見。
郵寄地址: 香港添馬添美道二號政府總部東翼十五樓環境局電力檢討科
電子郵件: fuel_mix@enb.gov.hk
傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

創意志有限公司
(個人或機構名稱)

(電話) 及 (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

*以上的燃料比例用以提供一個基礎作規劃電力供應所需的基建，不同燃料的實際分配應按實際情況釐定。

**包括少量燃油。

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見？(請就**每個**方案説明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）:** ______
2	☑	☐	☑ **安全** ☑ **可靠性** ☑ **合理價格** ☑ **環保表現** ☐ **其他（請註明）:** ______

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐
方案2 ☑

原因: (可選擇多過一項)

安全 ☑
可靠性 ☑
合理價格 ☑
環保表現 ☑
其他 ☐ **請註明:** ______

第四部分

其他意見或建議

1. 我在东莞的厂房过去经常停電。
2. 其实香港的空氣污染绝大部分是内地造成。

611B00100

Public Consultation on Future Fuel Mix for Electricity Generation

Submission by the Energy Institute June 2014

Introduction

The Energy Institute (EI) welcomes the opportunity to make the following submissions to Hong Kong Environment Bureau.

This document is a synthesis of the views of EI members collected through a call for contributions and consultation.

The EI is the professional body for the international energy industry. It has a global membership of over 16,000 individuals and 250 organisations and a Hong Kong Branch membership of 200. The Energy Institute provides an independent focal point for the energy community, bringing together industry, academia, other stakeholders and government. The EI's purpose is to develop and disseminate knowledge, skills and good practice towards a safer, more secure and sustainable energy system.

As a charity, incorporated by Royal Charter, with membership across the full range of the energy sector, it is not appropriate for the EI to promote specific technologies or options. Instead, it seeks to assist the consultation process by helping to clarify the key issues and by improving the evidence base on which decisions will be made. This response attempts to bring into focus stakeholders' differing views and reflects those of a cross-section of eminent EI members.

Q1 – How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations?

Key Points from the Consultation

The EI facilitated a discussion forum between representatives of the Environment Bureau, EI members and wider stakeholders on the potential implications of the Consultation on Future Fuel Mix for Electricity Generation. The event highlighted some of the main themes and considerations for the Environment Bureau which are as follows:

1. **Safety**

   Safety is a prime consideration and it is considered that up to today the Hong Kong power generation industry has an exemplary safety record maintained by a high standard of local engineering expertise and professionalism. In the event that Option 1 is chosen, some of the engineering and regulatory control will necessarily be relinquished to power generation authorities on the mainland. It is therefore recommended that serious consideration should be given to safety in any contractual terms and conditions placed on mainland grid supply contracts. Consideration should also be given to the appointment of, and the powers related to safety, given to a regulatory body in Hong Kong who would administer the power supply contract.

2. Reliability

- It is a matter of fact that the current power supply in Hong Kong is much more stable than that currently supplied to Macau. The supply reliability data when quoted as a percentage in the form 99.9xxx% does not reflect the supply reliability to the public. In this regard, it is useful to also report the actual annual power supply "minutes lost" to the customer. The figures were:-
    - Blackout time per household per annum HK
        - HKE: 54sec (2013)
        - CLP: 2min 36sec (2013)
    - Blackout time per household per annum
        - Macau : 6 min19 sec
          (Reference: CEM Sustainability Report 2012),
        - CSG : 2 hours 18 min 36s (Major cities)
          (Reference: China Southern Grid CSR Report 2013)

- It should be further noted that backup electricity generation in Macau is only provided for the tourist industry casinos, which, whilst providing a 100% back up, is not provided throughout the whole of Macau.
- Hong Kong however, is an international financial centre requiring, by specification and the expectation of global business, 24/7 back up power throughout the Territory. Therefore, the specified electricity generation requirements of Macau should not be cited as a direct comparison with Hong Kong, which by the nature of the business requirements of the community, requires a higher specification, higher power availability and a correspondingly lower level of "minutes lost".
- Based on the current track records of the Hong Kong power generation companies in comparison with those of Macau (from Southern China as would be used by the Option 1 grid connection), we believe the supply reliability will necessarily fall.
- In order to assure the power supply quality if Option 1 were to be chosen, technical solutions to enhance the reliability level to the HK grid should be included in terms of load profile, maximum demand, and reserve margin, especially during the summer peak period. It is recommended that these solutions should form the basis of a legally binding condition in the Contractual Agreement for grid power purchase.
- It should be further explored that if such a condition were to be contractually imposed and the current service level maintained and assured, would there be an additional effect on the tariff?
- If Option 1 is chosen, it is recommended that a technical study and a risk analysis should be done to evaluate mainland grid response to electricity supply demand in Hong Kong as well as the response to voltage collapse, dynamic and transient stability, and cascading outages.
- If Option 1 is chosen, it is recommended that a risk analysis be done to evaluate the supply reliability if mainland grid power is supplied to HKE via CLP or through two direct lines, one each to CLP and to HKE.

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3. Environmental Performance

- It is noted that the GHG emissions comparison between Options 1 & 2 is not compared in the consultation document. We recommend that this should be provided.
- If Option 1 were to be chosen, emissions should be considered over the whole region. In this case, a significant proportion of power would be supplied from the Mainland Grid and therefore these emissions, although produced and originating in southern China, should be taken into account.
- Consequently, if option 1 is chosen, it is possible that a net increase in the Hong Kong carbon emissions may result if the emissions resulting from southern China grid power supplied to Hong Kong is taken into consideration.
- If Option 1 is chosen, a new means of measuring the emissions index should be created in order to measure the total emissions generated from Hong Kong power supply.
- It is recommended that an independent Environmental Impact Assessment is commissioned by the Government in order to measure GHG emissions and other air pollution factors originating in China, which are produced as a direct result of supplying Hong Kong with electricity from the southern grid (including nuclear and other emissions from Option 1) as well as from the natural gas supply.
- In order to ensure that all emissions produced by supplying power (electricity and gas) to Hong Kong are properly accounted for, a Hong Kong Regional Emissions disclosure should be formulated to ensure that the 2020 Emission Reduction Targets can be achieved by fairly accounting for emissions resulting from Hong Kong power consumption, wherever the origin of the power generation.

4. Affordability

- It is considered that the consultation document contains insufficient financial data for the public to review & consider. In particular, the assumptions used to formulate the comments in Chapter 4 are not clear. For example:-

  Option 1
  - Cross-Boundary Transmission infrastructure
  - Interconnection between CLP and HKE
  - Setting up/operation of load dispatch management centre
  - Size of required back-up generation capacity
  - Stranded costs of existing generation infrastructure (coal-fired and gas-fired units)
  - CSG electricity price for Hong Kong

  Option 2
  - Number of new gas-fired generating units for CLP and HKE

- Additional natural gas receiving/control stations
- Additional gas supply lines to power stations
- Stranded costs of existing generation infrastructure (coal-fired units)
- Projected Gas Price for new gas supply contract

- A detailed study is required on the funding and investment for the cross border infrastructure is required including its potential effect on the tariff. Particular considerations include:-
  - What would be the implications for HKE which presumably would incur greater capital cost of longer distance infrastructure?
  - What is the share of import volume of the power between the two power companies? (i.e. Does CLP need to import more while HKE less to achieve the 30% import target)
- No mention is made in the consultation document concerning how will the current Scheme of Control be affected by both options?
- It is recommended that a risk analysis is undertaken between affordability and reliability in order to compare the two options and to ensure that the required level of reliability is achieved at an affordable cost.
- A risk analysis should be undertaken on the future price volatility for natural gas and its implications on the future tariff.
- A risk analysis should be undertaken on gas supply security including exploring options from outside mainland China.
- An analysis should be undertaken on the viability in terms of affordability, security and reliability for a dedicated LNG terminal in Hong Kong and this should be considered together with the overall consideration of option 1.

5. Other Considerations - Renewable Energy

- We recommend that the proposed fuel mix should include a specific RE element (e.g. waste to energy, solar, wind etc.) with a target of at least 5%. The Energy Institute would be pleased to assist with recommendations to enable the achievement of this target.

6. Other Considerations - Employment Opportunities

- If Option 1 is chosen, we opine that there will be a reduction in jobs required in the two power companies including professionals in the engineering field. It is likely therefore, that there will be a consequent loss of professional skills in the Power Supply field especially in power generation and / or energy technology. This may lead to a reduction in the Hong Kong skills base and a shortage of professional skills in the field in the longer term.
- Furthermore, this will lead to a lack of technical skill and knowledge which will be needed for future evaluation of the Hong Kong energy industry.

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energy institute Hong Kong

A century of energy professionalism

Q2 – Which of the two fuel mix options do you prefer? Why?

As detailed in the answers to Question1, both Option 1 and Option 2 have their merits and concerns. While our Institute has no clear preference on either option, some members opined that compared to Option 1, Option 2 will provide a more certain and higher level of reliability. It also provides greater control for Hong Kong over its own emission levels. In addition, we recommend that a higher level of Renewable Energy is used in the fuel mix. We are unable to comment upon affordability without having more detailed information on the costs and their basis. However, we have made some recommendations for further analysis of affordability.

Yours Sincerely

Gary Chiang
Chairman of Energy Institute Hong Kong Branch

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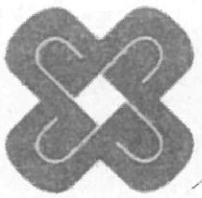
The Association of Experts for Modernization Limited
促進現代化專業人士協會



未來能源組合意見書

香港的電費計算是按投資成本計算一定的利潤，按利潤管制協議的准許利潤回報百分之十計算，以中電近十年每年平均收入約爲三百億港元。港燈電力 2012 年電能實淨利潤約爲 97.3 億港元。過去一直是供電壟斷局面，以往每次電費加價，輿論除了批評電力公司獅子開大口，不恤民情，也要求港府引入競爭，是次港府引入南方電網也是減小過去獨霸及壟斷地位。 政府於 3 月展開公眾諮詢，環境局就中電與港燈早前指稱，南方電網每年停電 3.2 小時，大幅高於本港的 3 分鐘，環境局澄清指這比較並不適當。環境局指，因爲內地停電很多時是地區性的電網所致，不是南網主網問題，有向南網買電的澳門，近月電力故障亦與主電網無關。本港若最終決定從內地輸入電力，會直接從主網輸電。從在商言商的角度，向內地買電勢必影響本地電力公司的利益，有人反對不足爲奇。最令人擔心的是本港電力市場自主權的問題，目前本港已有兩成核電來自內地，若再輸入三成南電，佔了本港一半市場，日後香港可能會失去議價能力。

從南網所得資料，預計在 2020 年後，非化石能源（即並非煤和天然氣）的比例，會由現時的 40%左右增至超過 50%，用煤發電的比例會顯著減少。現時南網售電的二氧化碳排放爲每度電 572 克，低於本港本地發電的碳排放，兩電現時本地發電的碳排放均超過每度電 700 克。香港如改用天然氣發電機，需要投資每部約 30 至 40 億元新的天然氣機組，但每部天然氣發電機組每年只產生 20 億度電，遠低於政府建議由南網輸入的 150 億度電，可用年期亦較短，長遠計算，成本不相伯仲，而且在本港興建機組，消費者還要負擔兩電發展成本；日後天然氣加價，所有成本將由市民乘担，但如果興建跨境電網，便可引入競爭。

香港有機會引入內地南方電力時，又引起不少質疑之聲。天然氣是潔淨能源，也是不可再生能源，國際市場價格波動較大，成本偏貴，若增加天然氣發電比例，將來的電費肯定不會便宜。若是引入內地南方電網的電力，好處是增加市場競爭，各公司加電費時不敢太過分，但買電也帶來一些不確定性。港府必須作長遠議價，使市民可用較環保又便宜的電力。港府應提供詳盡數據供市民比較，最終作出最有利香港的決策。

促進現代化專業人士協會 會長謝炯全博士　　2014 年 6 月 6 日

11 JUN 2014

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Annex

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by Safarifresh Asia Ltd
(name of person or organisation)

at _____ (telephone) and _____ (e-mail)

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** Inclusive of a small percentage of oil

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Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
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2	☑	☐	☑ **Safety** ☑ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐

Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑

Reliability ☑

Affordability ☐

Environmental Performance ☐

Others ☑ **Please specify:** fully control

Part 4

Other Comments and Suggestions

Local develop energy supply is important for long term management, stable supply, import energy may benefit cheaper cost at start, but eventually will be the same cost as our local energy supply.

612B00034

香港特別行政區立法會
LEGISLATIVE COUNCIL
OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

立法會 謝偉銓議員辦事處
OFFICE OF THE HON. TONY TSE

《未來發電燃料組合》
意見書

立法會議員謝偉銓
（建築、測量及都市規劃）

2014 年 6 月 12 日

香港中區立法會道1號立法會綜合大樓802室 Room 802, Legislative Council Complex, 1 Legislative Council Road, Central, Hong Kong
電話 Tel: (852) 2880-5622 傳真 Fax: (852) 2880-5128 電郵Email: info@tonytsewaichuen.com
網址 Website: www.tonytsewaichuen.com
Facebook: www.facebook.com/TonyTseWaiChuen

香港特別行政區立法會
LEGISLATIVE COUNCIL
OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

立法會 謝偉銓議員辦事處
OFFICE OF THE HON. TONY TSE

立法會議員謝偉銓
對《未來發電燃料組合》的意見

香港特區政府於 2014 年 3 月 19 日發表「未來發電燃料組合」諮詢文件，並展開為期 3 個月的公眾諮詢。本人之議員辦事處於今年 6 月 3 日舉辦了「未來發電燃料組合」研討會，邀請了業界人士就諮詢文件中所建議的兩個方案進行討論。綜合了大家的意見，本人及業界均認為未有一個較為可取的方案。

根據諮詢文件，政府建議的第一個方案，未來的燃料組合為煤(10%)、核能(20%)、電網(30%)及天然氣(40%)。這個方案讓香港得到更多元化的燃料組合，而向南方電網(南網)購買電以輸入更多電力的建議，亦突破了香港政府的一貫政策，開放市場，引入競爭。然而，政府與南網洽購電力的細節欠缺鋪陳，包括：

1. 為甚麼南網輸電佔燃料組合 30%，理據何在？
2. 供港的電量是甚麼燃料組合？特區政府如何確保及落實有關組合符合香港市民的要求？
3. 跨境輸電網絡的建設及成本詳情為何？是否由特區政府或南網共同出資建造？
4. 南網供電的可靠率僅達 99.96%，如何確保供港的電源能夠滿足香港市民對電源可靠的要求及需求？
5. 南網作為國企，特區政府有否評估在電力價格的議價能力？

基於上述的關注，本人對方案一予以保留。

香港中區立法會道1號立法會綜合大樓802室 Room 802, Legislative Council Complex, 1 Legislative Council Road, Central, Hong Kong
電話 Tel: (852) 2880-5622 傳真 Fax: (852) 2880-5128 電郵Email: info@tonytsewaichuen.com
網址 Website: www.tonytsewaichuen.com
Facebook: www.facebook.com/TonyTseWaiChuen

至於第二個方案，燃料組合為煤(20%)、核能(20%)及天然氣(60%)。此方案重點是由天然氣作主導，作本地發電燃料。無可否認，為進一步達至減排目標，減少依賴燃煤及轉用潔淨能源是必要的安排。由於天然氣價格較燃煤為高，亦受市場供求波動。氣源的穩定性及價格至為重要，然而，特區政府並未就如何確保有關燃料量及價格的穩定性提供建議 。

電力與市民生活息息相關，未來的發電燃料組合，將對香港的經濟及民生產生影響。是次的公眾諮詢所提出的兩個方案，各有利弊，亦有隱憂，並不全面。在兩個方案之外，是否有其他可供討論或選擇的方案呢？最後，本人認為當局在規劃未來電力供應時，必須考慮市民的接受能力及能否配合香港未來的發展。

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電話 Tel: (852) 2880-5622 傳真 Fax: (852) 2880-5128 電郵Email: info@tonytsewaichuen.com
網址 Website: www.tonytsewaichuen.com
Facebook: www.facebook.com/TonyTseWaiChuen

613B00001

613B00001

Annex

Response Form:
Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before 18 June 2014 by one of these means:

mail: Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong

e-mail: fuel_mix@enb.gov.hk

fax: 2147 5834

Part 1 (See Notes)

This is a ☑ corporate response (representing the views of a group or an organisation) or
☐ individual response (representing the views of an individual)

by CONTROL UNION AUSTRALIA PTY LTD
(name of person or organisation)

at _____ and _____
(telephone) (e-mail)

Part 2

Fuel Mix Options

FUEL MIX		IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
Existing (2012)		23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
		Total : 50%			
OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐
Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☐
Reliability ☑
Affordability ☐
Environmental Performance ☐
Others ☐ **Please specify:** _____

Part 4

Other Comments and Suggestions

WE PREFER CURRENT MIX INSTEAD OF EITHER OF THE OPTIONS BECAUSE OF COST RISK.

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附件

回應表格
香港的未來發電燃料組合公眾諮詢

請於2014年6月18日或之前透過以下方式提交你的意見。

郵寄地址： 香港添馬添美道二號政府總部東翼十五樓環境局電力檢討科

電子郵件： fuel_mix@enb.gov.hk

傳真： 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

HONG KONG ELECTRICAL CONTRACTORS' ASSOCIATION LIMITED
(個人或機構名稱)

______ (電話) 及 ______ (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	透過從內地電網購買更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

*以上的燃料比例用以提供一個基礎作規劃電力供應所需的基建。不同燃料的實際分配應按實際情況釐定。

**包括少量燃油。

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見？(請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☐ 安全 ☐ 可靠性 ☐ 合理價格 ☐ 環保表現 ☑ 其他（請註明）：資料不足
2	☐	☑	☐ 安全 ☐ 可靠性 ☐ 合理價格 ☐ 環保表現 ☑ 其他（請註明）：資料不足

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

~~方案1 ☐~~
~~方案2 ☐~~

原因: (可選擇多過一項)

- **安全** ☐
- **可靠性** ☐
- **合理價格** ☐
- **環保表現** ☐
- **其他** ☐ **請註明:** _____

第四部分

其他意見或建議

請提供更加資料及方案，再作考慮。

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附件

回應表格
香港的未來發電燃料組合公眾諮詢

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電子郵件: fuel_mix@enb.gov.hk
傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

Mak Kee International H.K. Limited
(個人或機構名稱)

_____ (電話) 及 _____ (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

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**包括少量燃油。

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見? (請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☑ **其他（請註明）：** 內地電網供電不穩定；電力供求在內地出供不應求，相信買電的價格會比較昂貴。
2	☑	☐	☐ **安全** ☑ **可靠性** ☑ **合理價格** ☐ **環保表現** ☐ **其他（請註明）：**

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐
方案2 ☑

原因: (可選擇多過一項)

安全 ☐
可靠性 ☑
合理價格 ☑
環保表現 ☐
其他 ☐ **請註明:** _____

第四部分

其他意見或建議

考慮發展其他再生能源的可能性，例如：Bio-mass、風能、潮汐能...

616B00003

Modern Terminals

616B00003

Our Ref: 240-L025-14

16th June 2014

Electricity Reviews Division
Environment Bureau
15/F, East Wing, Central Government Offices
2 Tim Mei Avenue
Tamar, Hong Kong

By Fax & By Post
(Fax: 2147 5834)

Dear Sirs/Madams,

Response to the Public Consultation on
Future Fuel Mix for Electricity Generation for Hong Kong
from Modern Terminals Limited

1. Introduction

In March 2014, the Environment Bureau issued a consultation document on "Future Fuel Mix of Electricity Generation for Hong Kong" to collect public views on proposed fuel mix options with regard to safety, reliability, cost and environmental performance as stipulated in the Government's energy policy and/ or other relevant considerations. Option 1 proposed importing more electricity through purchase from the Mainland power grid or, more specifically, importing from China Southern Power Grid Co. Limited ("CSG") which the future fuel mix ratio will be roughly 50% imported electricity (of which 20% being nuclear electricity currently imported from Daya Bay Nuclear Power Station ("DBNPS") and 30% being new purchase from CSG), 40% natural gas and 10% coal and renewable energy ("RE"). Option 2 proposed using more natural gas for local generation such that the future fuel mix ratio will be roughly 60% natural gas, 20% nuclear electricity imported from DBNPS and 20% coal and RE.

Modern Terminals Limited ("MTL") welcomes the Government's initiatives to consider future fuel mix revamp for sustainable development of Hong Kong in terms of environment, economy and society.

ModernTerminals

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2. Container Terminal Operators' concerns about "Reliability"

Nowadays, most of container handling equipment deployed in Hong Kong is powered by electricity, such as quay cranes, harbour cranes, rail-mounted gantry cranes and rubber-tyred gantry cranes. All these cranes are installed with sophisticated electronic devices which are sensitive to power supply quality. Any sudden fluctuation of electricity voltage or frequency will likely damage those delicate electronic components in the equipment, leading to equipment breakdown and thus lowering the productivity of container terminals. More seriously, Hong Kong's overall competitiveness will be impacted as the logistics sector is one of the Four Pillar Industries of the Hong Kong economy.

It is apparent that container terminals regard "Reliability" the most crucial factor in electricity supply. The industry cannot afford energy instability. Our past experience with the local power companies has given us confidence that they will continue to invest and improve their service reliability. On the contrary, it is doubtful that Option 1 can achieve the same level of reliability and stability because it has not been put to test before. However, MTL encourages the Government to carry out further studies on the practicality for Option 1 and release more data and information to the public so that an informed decision can be made.

3. Container Terminal Operators' concerns about "Affordability"

The capital investment in container terminal is huge and the payback period is long. In terms of running cost of the industry, energy cost takes up a significant proportion in the operating expenses, as electricity supply is required by most of the container handling equipment and refrigerated containers. Therefore, any significant fluctuation of electricity tariff or change of cost structure shall be carefully evaluated before launching, otherwise the logistics industry will be seriously affected. Unfortunately, both Option 1 and Option 2 do not provide sufficient information and justifications on the tariff estimation. Especially for Option 1, there is no release of detail of scheme of control nor price negotiation mechanism with Mainland China's power grid company to ensure a stable and affordable energy price by the Hong Kong Government. As mentioned in the report that the 30% imported power to Hong Kong will account for merely 1 to 2% of the total power grid capacity on the Mainland, we therefore have doubt on the negotiation and bargaining power of Hong Kong Government.

Modern Terminals

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4. Other Suggestions

MTL considers that Option 1 is an "untested" scheme for importing 30% of electricity from the Mainland power grid. On the other hand, Option 2 will have heavy reliance on natural gas. As an alternative, MTL suggests the Government to consider increasing the ratio of nuclear energy by purchasing more electricity from DBNPS as Hong Kong is only importing about 70% of generation output from DBNPS. Moreover, as either Option 1 or Option 2 will increase the consumption of natural gas, the Government may consider extending the use of liquefied natural gas ("LNG") to vehicles. In other countries, LNG has been extensively used in heavy-duty vehicles such as container tractors. The wider use of LNG can further improve roadside air quality as well.

As mentioned in previous section, MTL welcomes the Government's initiatives of considering future fuel mix revamp. However, the Government shall not confine the decisions to only two options but shall lead the public to evaluate any other flexible solutions in order to achieve a generally acceptable outcome that is beneficial to our society.

Yours faithfully,
For and on Behalf of
Modern Terminals Limited

K.T. Lee
General Manager
Engineering and Procurement Department

616B00006

附件

回應表格
香港的未來發電燃料組合公眾諮詢

請於2014年6月18日或之前透過以下方式提交你的意見。

郵寄地址: 香港添馬添美道二號政府總部東翼十五樓環境局電力檢討科
電子郵件: fuel_mix@enb.gov.hk
傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

CJM CO., LIMITED
(個人或機構名稱)

(電話) 及 (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

*以上的燃料比例用以提供一個基礎作規劃電力供應所需的基建。不同燃料的實際分配應按實際情況釐定。

**包括少量燃油。

616B00006

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見？(請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☑ **安全** ☑ **可靠性** ☑ **合理價格** ☑ **環保表現** ☑ **其他（請註明）：** 因內地供電量自己不足, 但難信任
2	☑	☐	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）：**

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐
方案2 ☑

原因: (可選擇多過一項)

安全 ☑
可靠性 ☑
合理價格 ☑
環保表現 ☑
其他 ☑ **請註明:** 方案一, 因為不相信內地, 如果要選擇, 只會選二

第四部分

其他意見或建議

太陽能會較為最好的環保物料, 因沒有任何傷害物質, 也不會放出影響空氣及環境

61680000 9

RECEIVED 16 JUN

附件

回應表格
香港的未來發電燃料組合公眾諮詢

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電子郵件: fuel_mix@enb.gov.hk

傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或

☐ 個人回應 (代表個人意見)

中華基督教會長洲錦江幼稚園

(個人或機構名稱)

______ 及 ______

(電話) (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
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**包括少量燃油。

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見? (請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☑ **安全** ☑ **可靠性** ☑ **合理價格** ☑ **環保表現** ☐ **其他（請註明）:** 欠監管
2	☑	☐	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）:**

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐
方案2 ☑

原因: (可選擇多過一項)

安全 ☑
可靠性 ☑
合理價格 ☑
環保表現 ☑
其他 ☑ **請註明:** 有保證及信心

第四部分

其他意見或建議

內地電力足夠嗎？

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616B00014

附件

回應表格
香港的未來發電燃料組合公眾諮詢

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電子郵件: fuel_mix@enb.gov.hk
傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

Good Power Electronics Ltd.
(個人或機構名稱)

及

(電話) (電郵)

第二部分
燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
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**包括少量燃油。

616B000014

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見? (請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☑ **安全** ☑ **可靠性** ☐ **合理價格** ☑ **環保表現** ☑ **其他（請註明）:** 無議價能力,受污染,不受控
2	☑	☐	☑ **安全** ☑ **可靠性** ☑ **合理價格** ☑ **環保表現** ☑ **其他（請註明）:** 香港人自主商議監管

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐

方案2 ☑

原因: (可選擇多過一項)

安全 ☑

可靠性 ☑

合理價格 ☑

環保表現 ☑

其他 ☑ **請註明:** 特區政府自行監管有效性高,不須向北據雞.

第四部分

其他意見或建議

覺香港人不順其意時,可停你水/電.如"東江供水"議價力低,減量亦不可.民生依賴過多,死路一條.有如有條件的限制外國進口生牛,雞等,香港人要涯貴雞/牛,讓"五丰行"獨佔,雖有議價力.

616B00040

616B00040

16 JUN 2014

Annex

Response Form

Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before **18 June 2014** by one of these means:	
mail:	Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong
e-mail:	fuel_mix@enb.gov.hk
fax:	2147 5834

Part 1 (See Notes)

This is a

- ☐ corporate response (representing the views of a group or an organisation) or
- ☑ individual response (representing the views of an individual)

by 大同電機公司
(name of person or organisation)

at ______________ (telephone) and ______________ (e-mail)

Part 2

Fuel Mix Options

	FUEL MIX	IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
	Existing (2012)	23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
		Total : 50%			
OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☑ **Safety** ☑ **Reliability** ☑ **Affordability** ☑ **Environmental performance** ☑ **Others (please specify):** _____
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐
Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑
Reliability ☑
Affordability ☑
Environmental Performance ☑
Others ☑ **Please specify:** _____

Part 4

Other Comments and Suggestions

Safety, reliability ,綠電認證，即用戶直接向可再生能源認購電力，再經電網輸送電力至用戶使用，當中用認證的方式去證明購買的電力為真正的可再生能源。

616B00041

616B00041

16 JUN 2014

Annex

Response Form
Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before **18 June 2014** by one of these means:

mail: Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong

e-mail: fuel_mix@enb.gov.hk

fax: 2147 5834

Part 1 (See Notes)

This is a ☐ corporate response (representing the views of a group or an organisation) or

☑ individual response (representing the views of an individual)

by 福特工程公司
(name of person or organisation)

at _____ (telephone) and _____ (e-mail)

Part 2

Fuel Mix Options

FUEL MIX		IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
Existing (2012)		23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
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OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☑ **Safety** ☑ **Reliability** ☑ **Affordability** ☑ **Environmental performance** ☑ **Others (please specify):** _____
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐

Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑

Reliability ☑

Affordability ☑

Environmental Performance ☑

Others ☑ **Please specify:** _____

Part 4

Other Comments and Suggestions

Safety, reliability ,綠電認證，即用戶直接向可再生能源認購電力，再經電網輸送電力至用戶使用，當中用認證的方式去證明購買的電力為真正的可再生能源。

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616B00044

16 JUN 2014

RECEIVED
16 JUN 2014

敬啟者:

未來發電燃料組合公眾諮詢意見

就政府建議未來發電燃料組合的兩個方案，本會意見如下：

本會建議可先行方案二，同時亦要詳細研究方案一的長遠可行性，例如：

（一）從內地電網購電，內地是否可以穩定地供電、可靠度有幾多、如內地是用煤發電，排放的污染物會否影響環境。

（二）天然氣的價格又高，波動幅度又大，對電價有直接的影響，會否將增加了的成本轉嫁市民身上？這一切將會對香港的經濟和市民的生活有著長遠的影響。希望政府能進行全面研究和審慎制定有利於市民和環境的執行計劃。

此致

環境局

西貢區鄉事委員會

主席：駱水生 謹啟

2014年6月11日

SAI KUNG RURAL COMMITTEE
香港新界
西貢區鄉事
委員會
N.T. H.K.

BUSINESS ENVIRONMENT COUNCIL
商界環保協會

616B00047

616B00047

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 CO_2 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 gas[1]. 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 emissions[2] are usually the biggest factors in the carbon footprint of Hong Kong companies.

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[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 CO_2 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,

Prof John Chai
Chairman
Business Environment Council Limited

cc Mr K.S. Wong – Secretary for the Environment, HKSAR Government
Ms. Christine Loh – Under Secretary for the Environment, HKSAR Government
Ms Agnes Li, CEO, Business Environment Council

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附件

16 JUN 2014

回應表格
香港的未來發電燃料組合公眾諮詢

請於2014年6月18日或之前透過以下方式提交你的意見。
郵寄地址: 香港添馬添美道二號政府總部東翼十五樓環境局電力檢討科
電子郵件: fuel_mix@enb.gov.hk
傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☐ 個人回應 (代表個人意見)

Metrix Engineering Co., Ltd.
(個人或機構名稱)

_____ (電話) 及 _____ (電郵)

第二部分

燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

*以上的燃料比例用以提供一個基礎作規劃電力供應所需的基礎。不同燃料的實際分配應按實際情況釐定。

**包括少量燃油。

616B000051

16 JUN 2014

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見？(請就**每個**方案説明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☑	☑ **安全** ☑ **可靠性** ☐ **合理價格** ☐ **環保表現** ☑ **其他（請註明）：** 將來價格可能上升，影响民生，而且若從南方買电，當地之污染空氣亦可能吹到香港，对於環保方面得益不大。
2	☑	☐	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）：**

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐
方案2 ☑

原因: (可選擇多過一項)

安全 ☑
可靠性 ☑
合理價格 ☐
環保表現 ☐
其他 ☑ **請註明:** 兩电已相當努力做到方案二之要求，據消息指示快將達標。

第四部分

其他意見或建議

至於環保方面，環保是區域性的問題。本港空氣污染其實部份原因是受到深圳、東莞工廠之影响，故從內地南方買电，对環保方面亦估得益不大。

616B00053

616B00053

16 JUN 2014 附件

回應表格
香港的未來發電燃料組合公眾諮詢

請於2014年6月18日或之前透過以下方式提交你的意見。

郵寄地址: 香港添馬添美道二號政府總部東翼十五樓環境局電力檢討

電子郵件: fuel_mix@enb.gov.hk

傳真: 2147 5834

第一部分(見註)

這是 ☑ 團體回應 (代表個別團體或機構意見) 或
☑ 個人回應 (代表個人意見)

雷耐梅 及香港美術專科學校
(個人或機構名稱)

_____ 及 _____
(電話) (電郵)

第二部分
燃料組合

燃料組合		輸入		天然氣	煤 (及可再生能源)
		核能 (大亞灣核電站)	從電網購電		
現時 (2012)		23%	-	22%	55%**
方案1*	通過從內地電網購電以輸入更多電力	20%	30%	40%	10%
		總共：50%			
方案2*	利用更多天然氣作本地發電	20%	-	60%	20%

*以上的燃料比例用以提供一個基礎作規劃電力供應所需的基建。不同燃料的實際分配應按實際情況釐定。

**包括少量燃油。

第三部分

具體諮詢問題

問1: 就安全、可靠性、合理價格、環保表現及其他相關的考慮而言，你對兩個燃料組合方案有何意見? (請就**每個**方案說明你的看法)

方案	支持	不支持	不支持方案的原因 (可選擇多過一項)
1	☐	☐	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）:** _____
2	☐	☐	☐ **安全** ☐ **可靠性** ☐ **合理價格** ☐ **環保表現** ☐ **其他（請註明）:** _____

問2: 你認為在兩個燃料組合方案中，哪一個較理想？為什麼？(請只選擇**一個**)

方案1 ☐

方案2 ☐

原因: (可選擇多過一項)

安全 ☐

可靠性 ☐

合理價格 ☐

環保表現 ☐

其他 ☐ **請註明:** _____

第四部分

其他意見或建議

本人贊同中華電力的看法與立場

616B00053

致： 環境局電力檢討科
（香港的未來發電燃料組合公眾諮詢）
郵寄： 香港添馬添美道2號政府總部東翼15樓環境局電力檢討科
電郵： fuel_mix@enb.gov.hk
傳真： 2147 5834

方案1

通過從內地電網購電以輸入更多電力	
輸入	
核能（大亞灣核電站）	20%
從電網購電	30%
天然氣	40%
煤（及可再生能源）	10%

方案2

利用更多天然氣作本地發電	
輸入	
核能（大亞灣核電站）	20%
從電網購電	–
天然氣	60%
煤（及可再生能源）	20%

意見

本人讚同中電的意見

請於**2014年6月18日**或之前向環境局提供意見。

雷剛楠

616B00056

616B00056 Annex
16 JUN 2014

Response Form
Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before **18 June 2014** by one of these means:

mail: Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong

e-mail: fuel_mix@enb.gov.hk

fax: 2147 5834

Part 1 (See Notes)

This is a ☑ corporate response (representing the views of a group or an organisation) or
☐ individual response (representing the views of an individual)

by LANDIS & GYR LTD. (name of person or organisation)

at _____ (telephone) and _____ (e-mail)

Part 2

Fuel Mix Options

	FUEL MIX	IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
	Existing (2012)	23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
		Total : 50%			
OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☑ **Safety** ☑ **Reliability** ☑ **Affordability** ☑ **Environmental performance** ☐ **Others (please specify):** _____
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐
Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑
Reliability ☑
Affordability ☑
Environmental Performance ☑
Others ☐ **Please specify:** _____

Part 4

Other Comments and Suggestions

- Local industry / production has to be supported.
- Electricity company in HK is more social responsible and efficient than any electricity generation in China.

616B00059

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16 JUN 2014

Annex

Response Form
Public Consultation on Future Fuel Mix for Electricity Generation for Hong Kong

Please send this response form to us on or before **18 June 2014** by one of these means:

mail: Environment Bureau, Electricity Reviews Division, 15/F, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong

e-mail: fuel_mix@enb.gov.hk

fax: 2147 5834

Part 1 (See Notes)

This is a ☐ corporate response (representing the views of a group or an organisation) or

☑ individual response (representing the views of an individual)

by 太平洋航空有限公司
(name of person or organisation)

at _____ (telephone) and _____ (e-mail)

Part 2

Fuel Mix Options

FUEL MIX		IMPORT		NATURAL GAS	COAL (& RE)
		NUCLEAR (DBNPS)	GRID PURCHASE		
Existing (2012)		23%	-	22%	55%**
OPTION 1*	Importing more electricity through purchase from the Mainland power grid	20%	30%	40%	10%
		Total : 50%			
OPTION 2*	Using more natural gas for local generation	20%	-	60%	20%

* The above fuel mix ratios aim at providing a basis for planning the necessary infrastructure for electricity supply. Flexibility should apply to actual deployment of each fuel type, having regard to the circumstances happening on the ground.

** Inclusive of a small percentage of oil

Part 3

Specific Questions for Consultation

Q1: How do you view each of the two fuel mix options with regard to safety, reliability, cost, environmental performance and other relevant considerations? (Please indicate your view on **EACH** of the two options.)

Option	Support	Not Support	Reason for NOT supporting (You can tick more than one box)
1	☐	☑	☑ **Safety** ☑ **Reliability** ☑ **Affordability** ☑ **Environmental performance** ☑ **Others (please specify):** _____
2	☑	☐	☐ **Safety** ☐ **Reliability** ☐ **Affordability** ☐ **Environmental performance** ☐ **Others (please specify):** _____

Q2: Which of the two fuel mix options do you prefer? Why? (Please tick **ONLY ONE** box)

Option 1 ☐

Option 2 ☑

Reasons: (You can tick more than one box below)

Safety ☑

Reliability ☑

Affordability ☑

Environmental Performance ☑

Others ☑ **Please specify:** _____

Part 4

Other Comments and Suggestions

Safety, reliability ,綠電認證，即用戶直接向可再生能源認購電力，再經電網輸送電力至用戶使用，當中用認證的方式去證明購買的電力為真正的可再生能源。