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Responses to the Government Public Consultation on Sustainable Development Strategy –  
Chapter 3 Renewable Energy

This is a collection of 8 submission papers from members of **Renewable Energy Network (REN)**, a Hong Kong-based network of individuals and groups involved in the region's development of renewable energy.

These responses reflect REN's nature as a platform for all views and backgrounds. We combine these replies for single submission to demonstrate our Network's commitment to collaborative solution building.

**Renewable Energy Network**

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**Renewable Energy Network (REN) was initiated by  
Friends of the Earth (HK) in 2003.**

**The Network, based in Hong Kong, is open to all groups and individuals involved in  
RE development in the region. It facilitates RE research and projects through  
discussions, member collaborations and field trips.**

**The network has over 50 members  
including energy companies and RE developers and researchers in Hong Kong.  
Friends of the Earth (HK) is the founding and current facilitator of the network.**

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**Submission No.1 from Dr Josie Close, The Hong Kong Photovoltaic Consortium (HKPVC)**

**The Hong Kong Photovoltaic Consortium (HKPVC)** welcomes the initiative of the Council for Sustainable Development in setting up the series of workshops as well as distributing the Invitation and Response Document: Sustainable Development Making Choices for our Future. It is a genuine effort to reach out more widely to Hong Kong's community and engage its views. The HKPVC applauds the Council for that inclusiveness, as highlighted in Agenda 21, Rio Declaration 1992 but rarely practised in Hong Kong.

**1.0 Renewable Energy Technologies**

**Technical advances in technologies:**

As a specialist group we naturally support the widespread development and application of photovoltaic generated electricity throughout Hong Kong. However, we also recognize that no single technology can meet all HK's needs but we should be diverse in our technologies. In that respect the selected renewables of the commissioned EMSD Study are not sufficiently comprehensive. The Study was made several years back and its release delayed until 2002. In the intervening years there have been considerable advances in all technologies with beneficial effects on performance, productivity and cost. Other technologies not yet included in the Study should now be included in longer-term planning (50yrs minimum) for HK's energy future through intensive Government supported R&D and pilot projects.

**1.1.0.Diversity of Technologies:**

**1.1.1 Marine:**

Advances in marine technology may offer considerable opportunities for HK since it is surrounded by water. The European Marine Energy Centre (EMEC), supported with EU funds, is promoting research into a range of technologies (marine currents, wave and tidal systems) presently being trialed with some in first or second phase commercial application. Companies are developing the technologies with existing marine experience from the offshore North Sea oil industry.

Marine technology is very important because the energy source is predictable. Capturing this energy source then provides HK with a known (predictable) base RE supply. (Water density is four times greater than wind for equivalent velocity.)

**1.1.2. Fuel Cells**

There is no mention of the worldwide R&D impetus on fuel cells or the production of hydrogen or natural gas fuels. (Natural gas and bio-fuels could have special relevance for agricultural areas of

China being a new income source. Hong Kong could produce its own natural gas from bio-digestion of its organic waste)

### **1.1.3. Hydrogen technology**

This is particularly important because the generation of hydrogen becomes the storage means for intermittent technologies, PV and wind. (*The generated electricity used to split water into its components and then store the hydrogen for sunless/windless days. Storage can be localized like water storage in buildings.*)

## **2.0. Holistic approach**

### **2.1. Integration**

We should not separate our thinking and policy on **renewable energy** from **urban planning** (solar access and natural wind flows), building design (passive design for energy efficiency) or building services and appliances (low-energy use). **Waste management** should also be interlinked because our waste is also a source of energy, not by incineration, but organic waste can produce biogas by anaerobic digesters. Biogas can be used in Stirling Engines and in Fuel Cells to generate power. As HK re-develops, it should be integrating these concepts.

### **2.2. Planning:**

We need to start introducing RE concepts in all our new developments now.

All future planning applications should be required to show the building's energy sources. A set percentage (say 10%) must be shown to be produced from renewable energy. The important point about this proposal is that it also leads to improved energy efficiency of building, services and appliances. All parties in the design will be focused on reducing the energy use leading to better understanding of where/how the energy in each building is used. Technological advances can produce better quality systems using less electricity for less cost. (ref computers, laptops, mobiles, most business and domestic appliances) *Note Melbourne priced study met Kyoto Protocol reduced emissions standards by systems technology upgrade.*

### **2.3 Energy Efficiency**

Renewable energy and energy efficiency are linked. (Ma Wan School PV arrays estimated to produce 9% of annual energy demand, with BEMS system this could become 14% of total required.)

This is part of the holistic approach. HK's Codes of Practice are out of date in their modest requirements. More stringent Codes should be enforced.

## **3.0 Future Market**

### **3.1. Existing Scheme of Control/Post 2008 electricity market:**

The existing agreement prohibiting alternative generation (except for emergency purposes) has effectively blocked RE development, application and the interest of the design/construction professions/developers. We know from HKPVC experience. Third Party Grid-connection (or Open

Access) is a priority that must be included in the post-2008 electricity market. HK needs a liberalised market in order to make best use of the diversity of technologies locally positioned.

### **3.2. Decentralised energy generation**

**Decentralised generation** fits the holistic concept of responsibility for localised energy generation, energy use and waste management

#### **3.2.1. Modular and Low space demand:**

Decentralised generation is much faster to set-up (3 days for a wind-turbine and a few weeks for a PV array against years for a large-scale power plant) and systems can be added as demand requires and money is available. This makes much better use of finances with less financial risk. (Ref Small is Profitable – Rocky Mountain Institute.)

Land use by comparison with conventional power plant is negligible. PV and Vertical Axis Wind Turbines (VAWT) can be supported on existing building structures and fuel cells sited in building basements fed from natural gas/bio-gas/hydrogen supplies locally produced

#### **3.2.2 Income generation**

Decentralised generation and third party access to the grid and regulations covering guaranteed payment (USA PURPA 1978) would permit independent generation and facilitate sale to the grid and income from it. This should encourage developers to include such systems in their new schemes. *\*Note present HK tax laws provide 100% allowance tax relief for capital spent on power generation plants.\**

#### **3.2.3 Security of Supply**

Decentralised supply = security of supply (Note in the black-outs and brown-outs experienced round the world in 2003, the buildings with local supply sources such as PV kept the lights on. Storage resources in buildings could ensure the lifts and critical connections would remain in operation.)

Much emphasis is presently placed on HK's 99.9% electricity reliability yet few consumers need this level and many would opt for lower reliability with lower tariff if such demand-side management (DSM) policy was in place. DSM policies are favourable to PV because PV power generation usually matches peak commercial demand commanding higher tariff value.

### **4.0 Proposal**

#### **4.1.0 Public support:**

Surveys by the Advisory Energy Committee in 2003 and 2004 have shown a surprisingly high support for renewables including appreciable willingness to pay for a tariff rise of 6-10%. As well as the general view that the 1%,2% 3% proposal is far too conservative. This should support the government in its negotiations with the utilities to include RET generation.

Broader choice of electricity supply indicates the need for a more open and liberalised electricity market in Hong Kong post-2008. The HKPVC would strongly support this action.

#### **4.2 Fast-track model:**

##### **4.2.1 Hong Kong's RET base + job opportunities:**

A fast-track model is required to accelerate HK forward from its present very modest base of RET installations. The knowledge of our design, construction and engineering community is equally modest. However, there are jobs and economic opportunities in advancing these renewable energy technologies that other countries (Japan, Germany and Australia) have already appreciated. Hong Kong's industries and workforce should be encouraged to invest in these technologies but this will require Government Policy, Legislation and Financial Instruments to actively promote it. (The Government has a huge property stock and can create markets through its own patronage. The HKPVC aims to set-up a HK Schools PV Installation Programme for widespread PV schools applications.)

##### **4.2.2 Components development & manufacture**

As specialists in photovoltaics we know from experience that the majority of quality products and system components still come from Europe, USA and Japan. However the future market is in Asia but we are not yet developing and producing the components for this potentially enormous market. Why not!

#### **4.3. Long-term Solar Energy Economy:**

We would like to bring to the attention of the Council for Sustainable Development the economic model that the German Federal Ministry has instigated with economic analysis from Wuppertal Institute (reported in ISES White Paper). Energy productivity increases, primary energy use is lowered without diminishing the German economy and transitioning it to 25% RET use by 2030. We take the view that HK needs a similar economic model for long-term planning transition to Solar Energy Economy.

**END**

**Submission No. 2 from Friends of the Earth (HK)**

香港地球之友就可持續發展文件之回應

可再生能源部分

**整體回應**

香港地球之友積極支持本港推動發展可再生能源，尤其贊成主動、率先發展風力發電，並輔以推動太陽能、氫能等後來趕上的新能源。

縱使香港土地有限，但政府可著力考量在近岸或沿海水域發展風力發電，藉此減輕對土地使用的壓力。

進一步而言，污染無國界，本會認為，除了在香港設置可再生能源設施，更應以更寬廣的視野積極與廣東省合作，聯網輸電。

外界普遍誤以為粵港兩地互輸電力存在困難。實際情況反而是，兩地早已聯網，深圳大亞灣核電站的電力就是透過聯網，把電力輸送到香港；中華電力也有透過電網，把電力售予廣東。

再者，廣東省沿岸風力資源豐富，現時已有 5 個風力發電場，每年生產電量近 9 千萬度，發展潛力不容忽視。

更重要的是，內地不論是人力及土地成本，均遠低於香港，能有效拉近傳統電力與可再生能源的電價。

**重點回應關鍵問題**

一、 在保證電力穩定供應的前提下，我們應否開始採取步驟，讓電力總需求的某一百分比由可再生能源發電提供？

絕對同意，否則難以體現推動可再生能源、落實可持續發展的決心。然而，問題提及的「某一百分比」，絕非在 2012 年僅提供 1% 可再生能源用電的「卑微」目標。據香港地球之友推算，香港可發展的可再生能源潛力為 5%。

二、 已知短期內用可再生能源發電比用化石燃料昂貴，社會作為一個整體應如何支付這高出的電費？

在衡量成本時，政府和可持續發展委員會有責任與義務提供全面的訊息，讓社會大眾了解以下的真正「發電成本」，市民才知所選擇：

- 在計及環境成本後，究竟傳統燃煤的實際成本為何？
- 香港每年因空氣污染而付出的醫療代價有多高？
- 香港一年有多少人因空氣污染等因素而喪生？
- 香港兒童近十年患上哮喘的數字及發展趨勢為何？
- 維多利亞港近十年低於 5 公哩的能見度天數及趨勢為何？
- 過去一年，維港上空有幾天是藍色？有幾天是灰色？
- 請告訴大家，兩間電廠近五年逐年排放出多少二氧化碳及硫化物？
- 請告訴大家，我們要用上幾棵樹，才能吸納電廠所排放的二氧化碳？
- 請告訴大家，今年的石油價格，較去年年初增加了多少？
- 請告訴大家，風力、太陽能的成本是與日俱增，還是不住下降？
- 最後，請政府告訴大家，若以上述問題衡量風力發電，其「成本」又是如何？

三、 我們應否要求電力公司提供某一百分比的電力來自可再生能源？

當然要，也必然要。兩間電力作為本港主要的電力供應機構，責無旁貸承擔以上責任。一如前述，我們相信電力公司可提供 5%的可再生能源電量。

完

**Submission No. 3 from Jasper Ip**

Response to Sustainable Development document :Making Choice For Our Future

1. Should we begin to take steps to generate a certain percentage of our electricity from renewable energy sources, having due regard to ensuring that the reliability of our power supply will be maintained?

Generating electricity from renewable energy source should not be a major factor affecting the reliability of power supply in Hong Kong.. Overseas countries like Germany, Demark, Spain etc. have demonstrated successfully how renewable power be incorporated in the energy mix with some of them even attain 15% of electricity from renewable source. In China, there has been legislations to ask grid operators to incorporate electricity from wind farms whenever is available. While in Hong Kong, the development of renewable energy is in the very initial stage and renewable energy will be composed of a very minor percentage of electricity in the portfolio according to the government study. It is difficult to see the incorporation of a few percentage of electricity from renewable energy source will caused our power supply unreliable.

2. Bearing in mind that RE is recognised as being more expensive than fossil fuels in the short-term, how should we, as a community, meet the likely increased cost of electricity from renewable sources?

RE is recognised as being more expensive than fossil fuels because the government haven't taken social cost, environmental cost and indirect economic cost into the accounting procedures. The government should give a full account of the real cost of fossil fuel to the public.

Overall:

Policy is crucial for the development of renewable energy in large scale. A fixed grid connection price for wind power in Guangdong Province in China and an extension of the Production Tax Credit (PTC) for renewable energy in the US have boost more wind projects in Guangdong and in the US. In Hong Kong, the government should formulate energy policies to govern the development of renewable energy in the territory, provide a fair ground renewable energy to enter the market and diversify the energy sources.

There are debates between the utilities and RE developers about the safety issues connecting renewable energy to the grid. Yet no definite connection rules have been put forward so far. At this stage, RE developers need to negotiate with utilities on a case-by-case basis for grid connection. RE developers are usually required to pay substantially and this makes the RE project uneconomical. Transparent grid connection measures should be implemented to facilitate grid access for RE developers.

Education also plays an important part for developing a sustainable society. Decision makers should be updated with the latest technology advancement on renewable energy so that they will can incorporate more RE in their planning. Raising public awareness towards renewable energy and sustainable development as a whole will reflect the demand from the society for more renewable energy, as well as a cleaner Hong Kong to be developed .

**END**

**Submission No. 4 from Lap Li**

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**RESPONSE TO KEY QUESTIONS**

**1. Yes. Hong Kong should take steps to generate an ambitious percentage of electricity from renewable energy (RE). An ambitious target is the key factor to the successful RE development**

- In the last decade the world has achieved double-digit growth in renewable energy, yet over 80% of its production is generated from only a handful of countries. The development's initiation is not attributed to these countries' vast vacant lands, ample idle engineers or excessive national reserve, in fact, their resources were also quite limited in the beginning. The secret to their success is an ambitious target.
- There is a well-researched background paper for the Bonn Conference 2003 written by Thomas Verheye and Joergen Henningsen describing cases that demonstrate how **concrete targets lead to increased impacts in various fields**. The paper is available on <http://www.renewables2004.de/en/cd/default.asp>.
- RE percentage target acts as a trigger of a series of progress, progress in energy conservation, in energy efficiency, in alternative energy invention, in building design, in energy recycling...I can go on and on. **RE targeting should be evaluated on multiple dimensions. Its benefits simply are not limited to the 1, 2 or 5% clean energy generation.**
- **RE targets should be understood as the furthest of foreseeable possibility, rather than the nearest, surest doable.** Should Hong Kong fail to reach a certain target within a certain time, no one should take blame and the scheme should not be marked unsuccessful. RE Target requires the greatest endeavor, however like school exams, not able to reach the full 100 mark does not mean the student had not done its best and well.

2. On this question liberal economists and other countries are the best consultants. I can offer several observations:

- Electricity pricing should be hinged upon two factors: **usage and affordability**. Pricing should be adjusted not only help cover the cost of RE investment, it can be used effectively discourage high, inefficient or unnecessary electricity usages.
- Clean energy development is not just business between the Government, electricity companies and the public. In Europe, the RE market has a turnover of 10 billion EUR per year. RE is thriving in those countries compare to the rest of the world, yet their citizens do not pay a drastically high electricity cost. The reason is they have **policy framework and financial tools that aid RE development**. They are Hong Kong as one of the most advanced financial center in the world, can draw significant investment in clean energy, which is characteristically more expensive to set up, but also much cheap to operate. Another detailed paper on “Mobilizing Finance for RE” can be extracted from the Bonn Conference website at <http://www.renewables2004.de/en/cd/default.asp>.
- Without venturing into a preach on “pollution and global warming impose a cost of unimaginable magnitude,” I will just say, true, the low cost of fossil fuel and coal is the reason why RE is not as competitive in the current legislative, regulatory, and financial models. But if the models are shifted to better **internalize external costs**, they can have a profound impact on the use of renewable energy and their market development. RE can be made affordable to large majority of public in Hong Kong. The solution for reasonable RE cost for the public is eloquently described by Janet Sawin and Christopher Flavin on “National Policy instruments” available on the Bonn Conference website.

3. **Yes. We should implement measures to facilitate access for RE suppliers to the main electricity power grid. Otherwise RE would be too costly.**

- If the Government does not take initiative to facilitate Grid Access it is the same as saying NO to RE.
- The past 10 years of earnest but unsuccessful lobbying by environmental organizations and RE entrepreneurs have proven that power companies in Hong Kong are unwilling to open grid for local RE development. **Power companies will not change this advantageous position unless the Government steps in.** In

other words the Government has been a supporter of monopolistic and closed energy market. We look forward to a change for better.

4. **Wind potential of a site should be the prime consideration.** Visual impact of wind farm should not just be evaluated as “wind turbine or no wind turbine,” but also “more air pollution or less air pollution”. Noise impact has been overstated in the consultation paper. The most advanced wind turbine generates negligible background noise. With the current rate of noise reduction development, wind turbine will only become less and less audible.
5. It depends. Conceptually, Hong Kong should provide incentives, and alter regulations to mandate the provision of rooftop solar energy panels or other buildings design features that could contribute to promoting the use of RE. However, new buildings should receive more incentives. **The Ma Wan School Rooftop PV Project conducted by HKPVC, whose response is also included in this document, showed good results.**
6. **Yes. Electricity supplies are in an advantageous position to invest in RE.**

#### **ADDITIONAL COMMENTS**

Some technologies are just worth investing. RE is one of them. But naturally whatever we choose to development, our unique advantage should be identified.

None would deny that Hong Kong has limited space, and the author fully agrees that it is neither practical nor cost-effective to turn 40% of Hong Kong’s land into RE plants, yet we should be reminded that developing RE is not all the same as implementing RE.

**Hong Kong is a resourceful city not in terms of space, but of people, education, intelligence, network, creativity and ingenuity.** Hong Kong people, almost by nature, live and breathe on efficiency, compactness, and fluidity. One of Hong Kong’s special pride is the ability to “bend and expand”. The ability to bend is called for here in developing clean energy. Hong Kong is famous for making immense achievement in incredibly small environment with limited resource. In fact, the city thrives on efficiency.

The City’s wits and wisdom, i.e., its natural desire for efficiency, can offer immense contribution to the world’s RE development. **Hong Kong can establish a special branch of RE technologies fitted to high population density areas.**

Computer, cellphone, electronics reduced size drastically over the past 5, 10 years driven by market forces. Such potential in efficiency enhancement can also apply to the development of clean energy. In facing the elusive but real threats of fuel shortage, pollution, global warming, we cannot waive responsibility claiming Hong Kong is small.

#### CRITIQUE ON CONSULTATION PAPER

As a city with high degree of financial intelligence, “expensive” is used in the consultation paper with insufficient context. Cost of building RE has not been weighed against cost of not building RE. The paper mislead by posing a direct cost comparison between fossil fuel generated energy and alternative energy.

**END**

**Submission No. 5 from Dr Edward Lo**

**Summary on comments from Edward LO on RE part, in response the IR Document from HKSAR Government**

1. Should we begin to take steps to generate a certain percentage of our electricity from renewable energy sources, having due regard to ensuring that the reliability of our power supply will be maintained?

**Yes, a certain percentage of our electricity should be generated from renewable energy (RE).** HK is part of the global village; hence we should actively taking part in reducing the global warming effect.

I support the idea of **starting with a small number of percentage of RE**; to avoid a too large increase in electricity price. The percentage should be technically and economically viable. The “Ambitious Model” in the IR Document may be a bit difficult to be achieved technically, while the progress of the “Incremental Change Model” in the IR Document may be too slow. Therefore I suggest to slightly increasing the percentages in the “Incremental Change Model” and advancing the target years: **1%, 2.5 % and 5% for 2010, 2015 and 2020 respectively.**

2. Bearing in mind that RE is recognized as being more expensive than fossil fuels in the short-term, how should we, as a community, meet the likely increased cost of electricity from renewable sources?

Under the consideration of the current budget condition of HKSAR government and I personally prefer a “small government” structure. **I support that the consumers should meet the likely increased cost of electricity from RE.**

In fact, I expect the cost gap between RE and fossil fuel will decrease significantly in coming years due to technological advancements & wider applications of RE on one side and political instability in fossil fuel exporting regions on the other side.

There may be areas where government policies and technical insight could help to lower the life cycle cost of RE, say by reduce the entry barriers of RE and 'pollution levy'.

I do not support cross subsidy. **However, when calculating the real life cycle of RE, intangible benefits from RE to the society should also be taken into account**, such as the possible reduction in health care expenses from the government due to improved air quality in HK, the possible increase in tourist income/foreign investment due to "greener" international image of HK.

3. Should we implement measures to facilitate access for RE suppliers to the main electricity power grid?

**Yes, we should implement measures to facilitate easy and low cost access for RE suppliers to the main electricity power grid.** Surely this will attract more investment on RE. Currently, the complicated approval process on grid connection is a huge barrier on wider application of RE in HK.

To reduce the possible resistance force from power utility companies, it is not advisable to implement "reserve metering"; which is very common in western countries. Anyway, in situation of HK, the chance of any surplus energy from RE systems for selling back to the utilities is very remote. The main point of the grid connection in HK is simply for ensuring a reliable backup.

The provision of the grid connection should be done on a fair basis. There should be no cross subsidy from other users of the grid; at the same time, there should not be over charge from the power utility companies on the provision.

Currently, as set in the very unfair requirements of the Supply Rules from the two the power utility companies, their customer are not allowed to have electrical RE systems in their own premises even these electrical RE systems are not connected electrically to the power grid. Therefore, other than an easy grid connection, **I strong propose that the power utility companies must allow complete freedom (no application required, no charge) for their customers to install electrical RE systems within their own premises provided that the electrical RE systems are not connected electricity to the grid** (however they may be connected to the power grid mechanically, optically, etc.)

4. Under what circumstances would you accept the location of a renewable energy facility, such as a wind farm or an energy-from-waste incineration plant (albeit equipped with the latest technology in emission reduction) in your district? Or in a country park or coastal waters?

**The location of a RE facility can be anywhere provided it is agreeable by the general public or to conduct an EIA study to ensure that environmental impact is reasonably low and acceptable.**

We understand it is a challenging task, and it may have some implications on overall cost of the RE system. However, we have to keep a right balance between “local” environmental impacts and “global” environmental impacts.

5. Should we provide incentives or make regulations to mandate the provision of rooftop solar energy panels or other building design features that could contribute to promoting the use of RE?

In HK, there are already too many regulations governing buildings and the construction industry. **I do not support mandatory requirements, but I support incentives.** In the current state of art of RE technology, there is no way for building developers to install RE systems without incentives.

**Currently, the Building Regulations provide incentives for building developers to incorporate certain green features in their building design. At least, RE systems should be treated fairly in the same way,** since RE systems is a green feature. If possible, additional incentives in forms of: more favorable plot ratio, exemptions from GFA, tax free and accelerated depreciation rate for RE equipment can be considered.

6. Should we require electricity suppliers to generate a certain percentage of power from RE sources?

**Yes, it is one of the social responsibilities of the power utility companies.** In fact, they should take the leading role, otherwise any decided target percentages of RE cannot be achieved easily.

Even with the possible opening up in grid connections, the two power utility companies are still likely to generate almost all electricity in HK in coming tens of years. **Therefore, if there are any decided target percentages on RE in HK as a whole, they should be required to commit with the same percentages at the same pace.**

**Other comments on the RE part:**

- The government should provide education and promotion programme on the usages/impacts/advantages of RE.
- The government should enhance the R & D for RE applications and policy formulation with expert studies and regional cooperation/partnership. By cooperating with nearby regions, some of the RE sites can be near but off from HK, with electricity feed back to HK.
- Other than RE, energy conservation is also an important topic in sustainable development, and the government should also actively promote it.
- RE and open grid access should be two of key topics in the revision of the Scheme of Control between the power companies and the government. In the new Scheme of control in 2008, there should be: easy and fair open access of the grid to RE suppliers, minimum requirements on percentage of electricity from RE, and incentives to increase the percentage of RE above the minimum required level (such as slightly higher return rate on investment on the additional RE capability, etc.). In addition, in the new Scheme of Control, HKSAR government should force the power companies to remove unfair requirements in their Supply Rules, such as the one I mentioned above on the electrical RE systems not connected to the grid electrically.

**END**

**Submission No. 6 from Daphne Mah**

Dear Sirs,

I would like to share my views on the development of renewable energy in response to your consultation document titled “Sustainable Development – Making Choices for Our Future”.

**1. Should we begin to take steps to generate a certain percentage of our electricity from renewable energy sources, having due regard to ensuring that the reliability of our power supply will be maintained?**

Hong Kong should definitely take steps to generate a certain percentage of our electricity from renewable energy sources. The government should require two power companies which are the major contributors of local gaseous emissions to introduce renewable energy into their energy mix. It is hard to see why a modest target such as 5% cannot be adopted in the near term. The renewable target as proposed by the government-commissioned Renewable Energy study is pitifully low, showing no genuine commitment from the government for developing sustainable energy.

How the renewable target for Hong Kong should be set is definitely not merely a technical issue. Key considerations go beyond the availability of technology and land in Hong Kong. We should also consider social and economic factors such as the public’s demand for renewable energy and the prospects of cooperating with our neighbor province Guangdong on renewable development. The pitifully low renewable targets set by the government consultant was the most unfortunate result from failing to provide an environment for the general public to get involved and failing to take into consideration of the opportunities of importing renewable energy from Guangdong.

In other words, the government should provide an “enabling environment” for the general public to get involved and make informed decision in the decision-making process of the renewable target for this city. And the “enabling environment” can be created by conducting studies which provide comprehensive, comprehensible and updated analyses on key issues such as the economic costs of power generation from fossil fuels in Hong Kong. A recent study by The University of Hong Kong in 2002 estimated that the health costs of air pollution-related diseases in Hong Kong would be at least \$11.1 billion in 2000. I believe that a more detailed follow-up

study specifically looking into the health costs from power generation is very much needed for this discussion.

**2. Bearing in mind that RE is recognized as being more expensive than fossil fuels in the short-term, how should we, as a community, meet the likely increased cost of electricity from renewable sources?**

The ultimate aim of introducing renewable energy in Hong Kong is to develop energy policies that are sustainable. With this goal in mind, I believe the key issues that we should be **“bearing in mind”** are definitely not this oversimplified statement, but in fact:

1. Hong Kong has been bearing immense health costs because of air pollution. A study conducted by The University of Hong Kong in 2002 found that 4,300 premature deaths, 17,000 hospital admissions were resulted from air pollution-related heart and respiratory diseases. A separate study also conducted by The University of Hong Kong, as mentioned in my comments on Question 1 found that the total health costs of air pollution would be at least \$11.1 billion in year 2000.
2. The general public has been suffering from the deteriorating quality of living. Even though some of the members of the general public may not experience acute diseases in days of poor air quality, their quality of living still deteriorate in the absence of clear air.
3. Air pollution causes fatal accidents. Smog, whose impact on local visibility has been growing, has caused marine accidents in which people were injured or even lost precious lives. In the early morning on 20<sup>th</sup> August this year, visibility on the sea was reduced to less than 1000 m because of smog. 5 vessel collisions occurred in just 45 minutes. 10 sailors fell into the water and one of them died.<sup>1</sup> There is an urgent need to reduce smog because firstly Hong Kong is a busy port and secondly the occurrence of smog has been on a rising trend. South China Morning Post reported that 16.7% of the days in the first 10 months this year were suffered from poor visibility of less than 8 km.<sup>2</sup>
4. The international image of Hong Kong has been damaged. Hong Kong has been portrayed as Asian's World City by the HKSAR government. However, the problem of smog was widely and frequently reported in local and international media in recent years. The disgraceful encounters of Hong Kong's smog problem with the China's first astronaut Colonel Yang Liwei who visited our Victoria Harbour last year and the French Air Force's aerobatic team which

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<sup>1</sup>

<sup>2</sup> South China Morning Post, “Seeking a Solution through the Haze”, 26<sup>th</sup> October, 2004.

performed an aerial display earlier this year, were highlighted in big captions in local and international media. The damaged international image is not only a matter of disgrace, but a matter of losing competitiveness in the world market as international companies may relocate their business from areas of poor living environment.

5. The increase in electricity prices is not necessarily substantial and should not be overestimated. A study commissioned by the HKSAR government on renewable energy, released in 2002, found that international experience has shown that the generation costs of wind energy (land-based) is \$0.2 to 0.35/kWh, which is already competitive with that of conventional fossil-fuel sources which is \$0.2 to 0.4/kWh. We should also bear in mind that the figures quoted in this study were already outdated and the costs of wind energy are now even lower as a result of further technological advancement.
6. The public support for renewable should not be underestimated. As mentioned above, the cost of wind energy is already competitive with that of conventional energy. Even if we assume the price of wind energy is twice that of conventional energy, having 5% of wind energy in our energy mix will only lead to a 5% rise in tariff. With more efforts on environmental education about the benefits of renewable energy and the social costs of conventional energies, our society's support for renewable energy can in turn offer the much needed support to the HKSAR government during the negotiation with the local power companies.

At present, there is a lack of detailed studies on the public's attitudes on renewable energy. But two recent surveys indicate that the general public's support to renewable might be higher than what we have perceived. The first survey was conducted by the Census and Statistic Department of the HKSAR Government which interviewed 2.2 million domestic households in 2003, and the survey found that:

- 63.6% of the interviewed households supported the Government to introduce renewable energy;
- 31.9% indicated that they would choose to use renewable energy if they could have a choice.

The second survey was jointly conducted in August this year by The Open University of Hong Kong, Friends of the Earth (HK) and Green Power, which successfully interviewed 83 of the total 159 candidates of the 2004 Legislative Council election (response rate: 52.2%). The survey found that:

- 98% of the respondents supported the development of renewable energy in Hong Kong;
- 82% supported the development of renewable energy in Hong Kong even the electricity price would increase 5%.

It is indeed disappointing to find that this consultation document has presented an oversimplified picture of the cost issue of renewable energy. The use of conventional energy such as coal, oil, and nuclear leads to considerable costs which are not reflected in our electricity bills. As a result, damages to the environment, to our health and to our society are all paid by society. Renewable energy is clean and brings little or no social costs. There is a serious distortion of the energy markets and it is the responsibility of the government to rectify this.

I believe that the government should take up a much more active role to regulate the energy market so that renewable energy can compete in the market in a level playing field. In relation to the policy choices, international experiences show that incentives given to renewable energy is often regarded as a more politically acceptable way than adding social costs to conventional energy. In other words, supporting policies for renewable energy should be formulated to provide incentives for renewable providers.

### **3. Should we implement measures to facilitate access for RE suppliers to the main electricity power grid?**

At present, the two power companies have not developed mechanism for allowing RE suppliers get access to the power grid. All renewable projects as a result have to go through case-by-case scrutiny which is a lengthy and confusing process creating huge unnecessary administration costs for RE projects. The administrative and time costs are particularly huge for renewable projects because most of them are small in scale and the additional costs may represent a significant proportion of their budgets.

Many experiences around the world, and even in our neighboring province Guangdong, have demonstrated that grid connection of renewable energy is technically viable.

### **4. Under what circumstances would you accept the location of a renewable energy facility, such as a wind farm or an energy-from-waste incineration plant (albeit equipped with the latest technology in emission reduction) in your district? Or in a country park or coastal waters?**

It should be noted that in other parts of the world, renewable projects such as offshore wind farms are so artistically arranged in alignment that they turn out to be a landmark and add tourism value to the area.

A few wind turbines would be set up in Hong Kong as demonstration projects which are invaluable education tools to the general public about the environmental impact of wind energy. The general public will then decide whether, for example, the noise level, which has been much reduced to a low level by today's technology, would be acceptable to them. In fact, any location, no matter it is in a country part or coastal waters, is feasible provided it can go through the scrutiny of the environmental impact assessment process in Hong Kong.

**5. Should we provide incentives or make regulations to mandate the provision of rooftop solar energy panels or other building design features that could contribute to promoting the use of RE?**

Economic incentives with the establishment of a health market structures (including grid connection) of renewable energy will be a much more effective means. The government may consider to providing economic incentives for the developers who install building-integrated photovoltaic system or who purchase renewable energy to meet part of a building's electricity demand (the precondition is that the power companies have to provide the "green" energy as an option in their energy mix). The Building Department recently released a practice note on green features for new building development, which sets out government incentives to encourage the design and construction of green buildings. One of the incentives includes a list of "green" features that may be exempted from the Gross Floor Area and Site Coverage calculations. The practice note can be a good vehicle for the government to provide incentives for renewables.

**In addition to the above, I would also like to share views on the following issues:**

**1. The potential of cooperating with Guangdong for renewable development should be fully explored.**

Under the backdrop of the recently established "9+2" Pan-Pearl River Delta Cooperation, and the HKSAR government's planning to implement crossborder emission trading pilot scheme by 2006, it is surprising to find that this consultation paper paid so minimal attention to the opportunities of cooperation with Mainland China for renewable development.

Cooperation with Guangdong on wind energy has one big advantage for Hong Kong: Guangdong can provide land for wind farms which are land-intensive in nature in order to achieve economies of scale that is essential to drive the cost down. Guangdong has already established several commercial-scale wind farms. More importantly, Guangdong has implemented renewable supporting policies such as a REFIT of RMB 0.528/ kWh<sup>3</sup> for wind energy to boost investment certainties in Guangdong. In fact, REFIT in Guangdong is expected to kick off large-scale development of RE as in Germany.

Elsewhere in Asia, the heads of the nations are much more proactive in building up regional efforts to develop renewable energy. Under cooperative framework of The Association of Southeast Asian Nations (ASEAN), the heads of the 10 member states and governments have already established a working committee for the promotion of renewable energy by for example, developing standardization of renewable energy products.

Looking back to Hong Kong, the HKSAR government still has not demonstrated its vision and commitment for the long-term development of sustainable energy. The platform for closer cooperation for environmental protection is now set up by the “9+2” Pan Pearl River Delta cooperation network. The HKSAR Government should seize this opportunity to foster regional development of renewable energy.

I would particularly want to raise a point that in several public occasions, the HKSAR government officials questioned that Guangdong which has been running out of electricity would have no surplus green energy to be sold to Hong Kong. However, it should be noted that renewable energy and convention energy have different roles to play in Guangdong: renewable energy is being used to improve the existing energy mix towards sustainable development whereas conventional energies in particular coal-fired, nuclear and natural gas are used as the base-load and regarded as the tool to overcome the present electricity shortage. Hong Kong's role in regional cooperation of renewable energy development is a catalyst to start-up this green energy market, a customer that help build up the demand for its green energy, a provider of investment for green energy, a partner to transfer technologies and a bridge connecting Guangdong with the international renewable markets, rather than a snatcher of Guangdong electricity.

## **2. The HKSAR Government should demonstrate stronger leadership for sustainable development**

The government could have and should have done more and now Hong Kong has been lagging behind in the world in the development of sustainable energy.

In a broader sense, the government should send a clear signal to the power companies that it is a long-term government policy to develop renewable.

In a micro scope, the government can create a substantial demand to start up the renewables market as it is the largest consumer of local electricity. It should take the lead by requiring all government buildings, government vehicles to adopt renewable targets.

Sincerely yours,  
Daphne Mah

**END**

**Submission No. 7 from C. C. Ngan**

**Purposes of Incorporating RE in our Energy Portfolio**

I support the incorporation of suitable level of RE into our long term energy portfolio for the following reasons:

- It discharges HK's obligation to contribute to the worldwide effort in reducing greenhouse gas emission for Climate Change reason
- It will educate HK residents and visitors the need to preserve our energy reserves in view of the challenges to harvest energy from the nature

Use of RE could contribute to the improvement of regional air quality. Yet, HK should understand that RE is not the **one and only one** measure to cope with the regional air quality issue. There are other cost effective and timely options, such as energy efficiency, pollutant control at the sources, etc. available for different type and scale of pollution issues.

**RE Target for HK**

HK is not ready to set its own RE target at this moment because:

- We have no consensus what is RE and what is not, especially for those waste-based energy (landfill gas and energy from incineration)
- We do not have clear understanding on the quantity and quality of "available" and "deployable" solar and wind energy resources in HK
- We do not have consensus on the land available for RE development (e.g. country parks and other conservative areas have covered almost half of HK's land and it is uncertain if HK community are willing to permit large scale RE facilities in these preserved lands)

**What should HK do in Short to Medium Terms?**

- Establish a community consensus on the scope of RE
- Establish a community consensus on the trade-off between RE usage and deployment of other natural resources in HK
- Support and facilities studies to understand the characteristics of our available and deployable solar and wind resources
- Support and develop RE technologies that are suitable for application in the urban and highly populated areas
- Support and facilities demonstration and education projects so as to prepare the community (in terms of awareness, acceptance, commitment, skill set, market rules, etc.) to capture meaningful RE opportunities when they arise
- Impose a levy on the use of all carbon based fuel in HK and use the money to support the above RE initiatives

**Long term RE Vision for HK**

- A balanced energy portfolio with appropriate level (affordable, achievable and aligned to international efforts) of RE
- A regional RE hub that facilitates RE development in nearby regions (e.g. in terms of project financing, greenhouse gas emission verification, knowledge transfer, education, etc.)
- A research and development centre of urban RE technologies

**END**

**Submission No. 8 from Hauman Yeung**

Comment on the government paper:

1. Describe wind farm as visual nuisance is quite misleading. In United States, a lot of surveys reflect that many people love wind farm because they look beautiful.
2. Threats to bird are also not true. Surveys reflect that glass curtain building is far more threatening than wind farm. I strongly suggest that glass curtain building should be strictly prohibited in the coming future. We can also save a lot of energy by stop building such bird-killing buildings.
3. 4000 hectares (240 times of Victoria park) land use is a very misleading figure. Wind farms are normally built on slope hillside which is not for development. In Hong Kong, only one fifth of our totally area is suitable for development. We have more than plenty of land for wind farm.
4. 2% by 2012 and 12 % by 2027 was described as “ambitious model” is absolutely ridiculous for me. I can’t imagine how slow it is compare to the developed countries all over the world.

Suggestion

- 1 Energy conservation is far more important than utilization of renewable energy. There is a lot of energy conservation technology all over the world. Government should set up an expert team to survey on the utilization of energy conservation technology. Area should include:
  - A Large site such as Disney theme park, Hong Kong airport and MTR etc.
  - B Building construction material
  - C Building design
  - D Better incentive system on the labeling of energy conservation electrical equipments
- 2 Setting up an energy conservation target is also far more important that setting up the utilization of renewable energy target.
- 3 The technology of renewable energy almost changing everyday. I am sure that the cost of the PV cell in the paper has already outdated. US have developed new technology on PV cell by using plastic base. The government should set up an expert team to search for the latest technology on renewable energy usage.
- 4 The government should set up a carbon credit system. Every energy user (including gas, oil and electricity) should pay certain amount to buy the carbon credit from the government. The calculation of carbon credit and price can take reference on the open carbon market worldwide. The government can use the sum of money to buy back the carbon credit from renewable energy or clean energy provider in the future.

**END**