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Panel on Environmental Affairs

Minutes of special meeting
held on Friday, 29 April 2011, at 2:30 pm
in the Chamber of the Legislative Council Building

Members present	**:**	Hon CHAN Hak-kan (Chairman) Hon Audrey EU Yuet-mee, SC, JP (Deputy Chairman) Hon James TO Kun-sun Hon Miriam LAU Kin-yee, GBS, JP Hon Andrew CHENG Kar-foo Hon LEE Wing-tat Hon Jeffrey LAM Kin-fung, SBS, JP Hon CHEUNG Hok-ming, GBS, JP Hon Cyd HO Sau-lan Hon CHAN Kin-por, JP Hon IP Wai-ming, MH
Member attending	**:**	Hon Mrs Regina IP LAU Suk-yee, GBS, JP
Members absent	**:**	Hon WONG Yung-kan, SBS, JP Prof Hon Patrick LAU Sau-shing, SBS, JP Hon KAM Nai-wai, MH Hon Tanya CHAN Hon Albert CHAN Wai-yip
Public officers attending	**:**	**For item I** Mr Edward YAU Secretary for the Environment Miss Vivian LAU Deputy Secretary for the Environment

Ms Katharine CHOI
Principal Assistant Secretary for the Environment
Environment Bureau

Dr Shermann FONG
Acting Principal Environmental Protection Officer
Environmental Protection Department

Miss Linda CHOY
Political Assistant to Secretary for the Environment

Professor LEE Chack-fan
Academician, Chinese Academy of Engineering

Mr Edmund LEUNG
Chairman, Energy Advisory Committee

Dr LUK Bing-lam
Chairman of Nuclear Division, Hong Kong Institution of Engineers

Attendance by invitation : **For item I**

Session 1

WWF Hong Kong

Dr William YU
Head of Climate Programme

Association of Engineering Professionals in Society Ltd

Ir YIM Kin-ping
Senior Vice-Chairman

Individual

Mr Martin OEI
Political Commentator

Hong Kong Environmental Industry Association

Mr Joe NG
Vice President

The Climate Group

Ms Margaret LO
Senior Program Development Manager

Greenpeace

Mr Prentice KOO
Campaigner

Hong Kong Climate Change Forum

Mr Otto POON
Chairman

Civic Party

Mr Albert LAI
Vice-Chairman

CUHK Greenworld

Ms LAW Wai-yan
Committee member

City University of Hong Kong

Dr William CHUNG
Associate Professor

Individual

Mr TSANG Kin-shing

Economic Synergy

Mr Jimmy KWOK
Member of Environmental Preservation Committee

Professional Commons

Ir Nigel LAM

Hong Kong Association of Energy Service Companies

Mr Dominic YIN
Chairman

City University of Hong Kong

Dr Josie CLOSE

Power Assets Holdings Ltd

Mr WAN Chi-tin
Director of Engineering (Planning & Development)

Business Environment Council

Ms Agnes LI
Chief Operating Officer

Friends of the Earth (HK)

Mr Edwin LAU
Director

Individual

Dr Robert HANSON

New People's Party

Mr YEUNG Hong-kit

China Water Technology Ltd

Professor Alex NG

Individual

Mr SIN Chat-ching

Federation of Hong Kong Industries

Mr Daniel CHENG
Deputy Chairman

Hong Kong Association of Energy Engineers

Mr Ronald S CHIN
President

The Hong Kong Institution of Engineers

Ir Dr CHAN Fuk-cheung
Senior Vice President

Civic Exchange

Mr Andrew LAWSON
Project Manager

Global Studies Institute in Hong Kong

Mr Guy LEUNG

The HK Federation of Students

Ms CHAN Sin-ying
Secretary-General

Ocean Home

Mr TANG Wing-wai
Member

Golden Anti-Nuclear Group

Mr LEE Wai-long
Spiritual Leader

Session 2

CLP Power Hong Kong Ltd

Mr S H CHAN
Corporate Development Director

The Canadian Chamber of Commerce in Hong Kong

Ms Ciara SHANNON
Climate Change Advisor

Hong Kong Baptist University Student Union

Ms WU Hon-tong
External Vice President

Peace Green Power

Ms FU Jing
Member

The Students' Union of the Open University of Hong Kong

Mr TONG Chi-pui
External Vice President

HKIED-SUEC

Ms CHONG Pui-ki
External Secretary

Hong Kong University Students' Union

Mr Benson SIU
Vice President (External)

The Student Union of the Chinese University of Hong Kong

Mr LAI Ming-chak
External Vice President

Hong Kong Polytechnic University Students' Union China Affairs Committee

Mr MUI Ka-fai
Vice-Chairman

Five Star War Team

Mr TANG Kin-wa
Member

Committee to Concern Nuclear Energy

Mr FUNG Chi-wood
Chairman

City University of Hong Kong

Dr Michael LEUNG

	The Hong Kong Polytechnic University
	Dr John Freeman BABSON
	The Hong Kong Energy Institute (Branch) Ltd
	Dr H F CHAN Honorary Advisor
	Combat Climate Change Coalition
	Mr Albert OUNG Spokeperson
	NeoDemocrats
	Mr Michael YUNG
	Wisdom Command by Patriotism
	Mr Raymond KO Master
	Environmental Life Science Society, Science Society, The University of Hong Kong Students' Union
	Mr HO Yuen-wa Chairman
Clerk in attendance :	Miss Becky YU Chief Council Secretary (1)1
Staff in attendance :	Mrs Mary TANG Senior Council Secretary (1)1
	Miss Jacqueline CHUNG Council Secretary (1)1
	Miss Mandy POON Legislative Assistant (1)1

I. Impacts of the development of nuclear energy for local power generation on Hong Kong

The Chairman welcomed the Administration and deputations to the meeting to exchange views on the impacts of the development of nuclear energy for local power generation on Hong Kong.

Meeting with WWF Hong Kong
(LC Paper No. CB(1) 2022/10-11(01))

2. Dr William YU, Head of Climate Programme, declared that the two local power companies were members of WWF, and that the Hongkong Electric Power Company was one of WWF trustees. Notwithstanding, the operation of WWF was independent. In November 2010, WWF and Ove Arup & Partners Hong Kong had jointly produce a Carbon Reduction Roadmap 2020 for Hong Kong which showed that Hong Kong had the ability to achieve at least 61% reduction in carbon intensity by 2020 without increasing the share of nuclear power in the fuel mix. Hence, WWF was opposed to the import of more nuclear energy by power companies. He stressed that energy conservation should be the way forward as in the case of Taiwan, Singapore and the United Kingdom where the energy conservation targets could be met through energy efficiency measures. He was disappointed that the Administration had failed to take heed of WWF's repeated requests in implementing energy efficiency measures. He urged the Administration to set energy conservation targets, and to enhance public awareness on the need for energy conservation.

Meeting with Association of Engineering Professionals in Society Ltd
(LC Paper No. CB(1) 2022/10-11(02))

3. Ir YIM Kin-ping, Senior Vice-Chairman, said that while nuclear energy was relatively less expensive, more reliable and low in carbon emissions, care had to be taken to prevent leakage of radiation and ensure proper disposal of nuclear wastes. The Fukushima incident had demonstrated the need to enhance safety, stability and reliability of nuclear power plants. Given the close proximity of some Mainland nuclear plants to Hong Kong, the Administration should endeavour to conduct risk assessment, establish emergency response mechanism, develop evacuation plan, conduct drill and exercise, as well as educate the public on the preventive measures against leakage of radiation. It should also promote energy-saving and emission reduction measures, and develop renewable energy (RE) and waste-to-energy technology.

Meeting with Mr Martin OEI
(LC Paper No. CB(1) 2045/10-11(01))

4. Mr Martin OEI pointed out that the Manila Trench in the South China Sea was vulnerable to serious earthquakes. An earthquake with magnitude 9 under the Richter scale could cause tsunami and have disastrous impacts on the five neighboring nuclear power plants perching on the coast of the South China Sea and in close proximity to Hong Kong. The Fukushima incident had showed that the cooling system of nuclear power plants would likely fail due to electricity outage as a result of tsunami. While there were claims that the new AP1000 core cooling system could be operated without electricity, this had yet to be tested. In the event of serious nuclear incidents in the neighboring areas, Hong Kong would have immense difficulty of evacuation given its dense population. Therefore, it would be irresponsible to increase the share of nuclear power in fuel mix for electricity generation.

Meeting with Hong Kong Environmental Industry Association
(LC Paper No. CB(1) 2022/10-11(03))

5. Mr Joe NG, Vice President, said that climate change was attributable to excessive use of fossil fuels. The extreme weather conditions had led to much damage and loss. The Administration should consider developing a safe and environment-friendly energy policy taking into account the following –

(a) the need to phase out coal-fired power plants not only because of their high emissions, but also the number of fatalities and injuries which was far more than that from nuclear incidents;

(b) the escalating prices of fossil fuels which had been affecting people's livelihood and sustainable development of the Pearl River Delta (PRD) Region;

(c) the need for a long-term policy to deal with shortage of fuel supply as Hong Kong was dependent upon imported fuels;

(d) caution should be exercised in site selection for nuclear power plants, and comprehensive safety measures should be put in place to prevent leakage of radiation, particularly after the Fukushima incident which had aroused much concern about the safety of nuclear energy;

(e) nuclear plant operators should learn from the Fukushima incident to ensure safety of their plants; and

(f) efforts should be made to develop RE, particularly solar energy, which would not give rise to global warming as in the case of fossil fuels.

Meeting with The Climate Group
(LC Paper No. CB(1) 2022/10-11(04))

6. Ms Margaret LO, Senior Program Development Manager, said that the widespread panic after the Fukushima incident had highlighted the lack of public understanding on nuclear energy and risks. The Fukushima incident had indeed changed public views on nuclear energy, and there was a need for the Administration to enhance transparency and public awareness on the related issues, including the full cost in developing nuclear power which was expected to rise following the Fukushima incident. It should endeavour to reach a consensus with key stakeholders and the public before setting the roadmap on the development of nuclear energy for local power generation. More detailed analyses on the risks and costs of different fuel options in terms of energy security, health/safety/environmental implications and climate change concerns should be conducted. This should show that large-scale RE would be more cost-effective than it was perceived now. As land was one of the main constraints in developing RE in Hong Kong, consideration could be given to setting up RE power plants in the Guangdong Province. Meanwhile, efforts should be made to enhance energy efficiency as a matter of priority.

Meeting with Greenpeace
(LC Paper No. CB(1) 2045/10-11(02))

7. Mr Prentice KOO, Campaigner, said that the Fukushima incident had once again demonstrated that the use of Probabilistic Safety Analysis (which assessed the safety of reactor cores based on historical data and external factors) was not reliable in assessing the risk of nuclear power plants. It failed to take into account other factors such as natural and human calamities, wear and tear of parts, as well as management culture etc. There was a need to identify alternative sources of energy for power generation. Based on the Study on the Potential Applications of Renewable Energy in Hong Kong commissioned by the Electrical & Mechanical Services Department in 2004, an off-shore wind farm with a sea area of 744 square kilometers (km^2) could generate approximately 8 000 million kilowatt hour (kwh) of electricity per year. To meet the projected electricity consumption in Hong Kong, a wind farm with a sea area of 300 km^2 should be sufficient.

Meeting with Hong Kong Climate Change Forum (HKCCF)
(LC Paper No. CB(1) 2072/10-11(01))

8. Mr Otto POON, Chairman, pointed out that the growing energy demand from developing and under-developed countries could not be met by RE or through energy conservation. While supporting the use of nuclear energy, HKCCF acknowledged that recent nuclear incidents had prompted the need to reinforce the safety standards and reliability of nuclear power plants. Consideration should be given to adopting exceptionally high safety factors and

most stringent quality standards in the design of new nuclear power plants. Apart from putting in place double or even triple redundancy for the cooling systems, power plants should be built with strong resilience to stand against natural disasters, and in locations which were freed from the threat of earthquake or tsunami. In-situ facilities for proper handling and storage for nuclear wastes were also required. Stringent Environmental Impact Assessment had to be carried out in a transparent manner with public consultation prior to implementation.

Meeting with Civic Party (CP)
(LC Paper No. CB(1) 2072/10-11(02))

9. Mr Albert LAI, Vice-Chairman, said that according to the survey conducted by CP, around 60% of the 1 002 interviewees supported cessation of importation of nuclear power within a specific timeline. About 60% also indicated that they lacked confidence in the Administration's ability to handle nuclear incidents at the Daya Bay Nuclear Power Station (DBNPS). In the light of the survey findings, CP held the view that the Administration should examine the feasibility of formulating a "No-nuclear Hong Kong" policy taking into account public views. It should also reflect to the Guangdong Provincial Government (GPG) the concerns of Hong Kong people about the safety of nuclear power plants. Consideration should be given to setting up a high-level committee to monitor nuclear safety. It was worth noting that nuclear power only accounted for 1.9% of the overall electricity generation capacity in the Mainland, while wind power was 4.5 times more than that of nuclear power. Hence, there was a need for the two Governments to work out a regional energy plan.

Meeting with CUHK Greenworld

10. Ms LAW Wai-yan, Committee member, pointed out that nuclear energy was not safe as evidenced by the over 200 incidents of Level 3 or above, including those in Chernobyl and Fukushima, which occurred in the past 60 years since the development of nuclear energy. The proposed increase in reliance on nuclear energy for local power generation would put the public at risk. As the electricity consumption of commercial buildings, shopping centres and advertisement signboards was unnecessarily high in Hong Kong, the Administration should endeavour to promote energy conservation to reduce electricity consumption in the long run, with Government buildings taking the lead.

Meeting with City University of Hong Kong
(LC Paper No. CB(1) 2022/10-11(05))

11. Dr William CHUNG, Associate Professor of the Department of Management Sciences, questioned the findings of the consultancy study on

climate change in Hong Kong (the Study). He was not convinced that more economic activities would be stimulated as a result of lower fuel cost under Scenario 3, thereby leading to the projected increase in electricity output. Therefore, he did not agree that the Administration should propose to increase the share of nuclear energy in the fuel mix for power generation based on the findings of the Study. He urged the Administration to reconsider the use of nuclear energy, and explore other fuel options.

Meeting with Mr TSANG Kin-shing

12. Mr TSANG Kin-shing opined that the Building Energy Efficiency Funding Schemes had been able to enhance the energy efficiency performance of buildings and reduce electricity consumption. To further promote energy conservation, the Administration should continue providing funding to the Schemes to encourage wider participation. Efforts should also be made to reduce the intensity of street lights, and introduce legislation to control external lighting. He said that he was opposed to nuclear energy, and that the Administration should publish radiation readings on a daily basis for public reference.

Meeting with Economic Synergy
(LC Paper No. CB(1) 2028/10-11(01))

13. Mr Jimmy KWOK, Member of Environmental Preservation Committee, held the view that the Administration should conduct a holistic review of the proposal to increase the share of nuclear energy to 50% in the fuel mix, taking into account the development of RE, the reduction target on carbon intensity by 2020, and the need to ensure stable supply of electricity to support economic development. Efforts should be made to educate the public on the importance of energy conservation. A comprehensive study on fuel options in terms of their safety, stability and affordability should be conducted with a view to working out a practical fuel mix.

Meeting with Professional Commons
(LC Paper No. CB(1) 2075/10-11(01))

14. Ir Nigel LAM noted that despite growing public concerns about nuclear safety, neither the Administration nor GPG had formulated any contingency plans for DBNPS. Instead of building additional nuclear facilities, he opined that priority should be accorded to reduce electricity consumption through demand-side management. Consideration should be given to extending the scope of the Buildings Energy Efficiency Ordinance (Cap. 610) to cover not only new buildings but also existing buildings which accounted for some 90% of the total electricity consumption. Also, there were a number of ways for the building industry to achieve better energy efficiency of buildings.

Meeting with Hong Kong Association of Energy Service Companies (HKAESC)

15. Mr Dominic YIN, Chairman, considered that the Administration should gauge the views of nuclear experts to work out safety measures to prevent recurrences of nuclear incidents, particularly when the Mainland would continue to build nuclear plants. HKAESC had been active in facilitating exchanges among nuclear experts on nuclear development and safety. Last year, HKAESC invited four Chinese nuclear experts to Hong Kong to introduce the current and future development of nuclear energy in the Mainland. This month, five nuclear experts from Taiwan met with 21 nuclear experts from the research and design institute of China National Nuclear Corporation in Chengdu to discuss nuclear safety improvements. In December this year, four experts from the Mainland would participate in the second forum on nuclear energy focusing on nuclear safety in light of the Fukushima incident.

Meeting with City University of Hong Kong
(LC Paper No. CB(1) 2022/10-11(06))

16. Dr Josie CLOSE said that she was opposed to increased reliance on nuclear energy. Effort should be made to diversify fuel supply to ensure security of power supply. In the long run, energy supply in Hong Kong should move towards the development of smart grid to allow grid connection to a wide range of energy sources, including RE, clean coal, gas, and biochemical technologies, as in the case of the Mainland. In view of the abundance of organic waste, there was a potential to generate biofuels and biogas. Consideration should also be given to the wider use of fuel cell, which was a clean technology available commercially in different forms (e.g. portable, stationary, auxiliary power or UPS device). To achieve diversity of energy supply, a single authority comprising experts with extensive technological knowledge on environment, energy safety and security, as well as economy should be set up. In addition, the Administration should launch a robust territory-wide campaign on energy efficiency to encourage reduction in energy consumption.

Meeting with Power Assets Holdings Ltd (PAH)

17. Mr WAN Chi-tin, Director of Engineering (Planning & Development), supported the proposed target to reduce carbon intensity by 50-60% by 2020. To achieve the reduction target, there was a need to review the current fuel mix taking into account factors such as economic growth, avoidance of over-reliance on single energy source, price fluctuation of natural gas and uncertainty of RE. While gas-fired power generation was better than coal-fired power generation in terms of carbon emission, this was costly. On the other hand, planning for further development of RE was subject to natural constraints and geographical limitations. There was also a need to work out higher safety standards for

nuclear energy in the wake of the Fukushima incident. PAH was committed to promoting energy conservation and had been providing energy audits for free. It also endeavoured to enhance energy efficiency and introduce wind/solar power systems.

Meeting with Business Environment Council (BEC)

18. Ms Agnes LI, Chief Operating Officer, said that BEC provided a business platform for participation of over 100 corporate members across all sectors in Hong Kong. BEC held the view that the Administration should first focus on energy conservation through demand-side management. Given the increased public concern about nuclear operation and safety following the Fukushima incident, the proposed increase in the share of nuclear energy in the fuel mix should only be adopted if all possible means to reduce emissions had been exhausted. Meanwhile, the Administration should enhance transparency of the planning and operation of the existing nuclear plants. Contingency plans and territory-wide emergency drills should be formulated to deal with nuclear incidents. Efforts should also be made to encourage participation in international nuclear forums, as education was the key in helping the public to gain accurate understanding on nuclear power and energy issues.

Meeting with Friends of the Earth (HK) (FOE)
(LC Paper No. CB(1) 2028/10-11(02))

19. Mr Edwin LAU, Director, said that while FOE had taken part in some projects sponsored by the two power companies, FOE had its own view on the development of nuclear energy. Since the establishment of the first nuclear plant in 1954, over 440 nuclear plants had been built in 31 countries/regions. While the general public was only aware of the three major nuclear incidents taken place in Fukushima, Chernobyl and Three Miles Island in 2011, 1986, and 1979 respectively, there were in fact a total of 285 incidents at Level 2 or above which occurred in the past 57 years. These included the Tokaimura and Fukui Prefecture incidents in Japan in 1999 and 2004 respectively, three nuclear incidents at Level 3 to Level 5 and at least seven incidents at Level 0 in USA which had led to economic losses of $28 800 million, let alone the minor incidents at DBNPS. The Chernobyl incident had demonstrated that radiation leakage was beyond human control. Apart from the impacts on lives and ecological environment, the financial risk associated with nuclear power was also very high.

Meeting with Dr Robert HANSON
(LC Paper No. CB(1) 2028/10-11(03))

20. Dr Robert HANSON considered it inappropriate for the Administration to use reduction of carbon dioxide (CO_2) as an excuse to justify the increased reliance on nuclear energy. He pointed out that CO_2 emission and nuclear

energy were two separate issues. CO_2 was essential for the growth of produce to feed the world's growing population. In fact, many scientists had proved that CO_2 was not the cause of climate change. Reducing or capturing CO_2 was not only expensive, but would also consume resources and drive up energy prices. If the Administration genuinely believed that CO_2 was a problem, and that nuclear power was the answer, it should hold debates on whether human production of CO_2 was a problem and whether nuclear power was safe and necessary. These debates should be carried out in the Legislative Council and qualified speakers should be invited to express their views. This would allow real knowledge and understanding to present their case.

Meeting with New People's Party

21. Mr YEUNG Hong-kit emphasized the need to ensure the safe operation of DBNPS. The Administration should draw up contingency plans and emergency drills for nuclear incidents in consultation with nuclear experts. While efforts should be made to encourage the use of RE and alternative fuel sources, it was worth noting that alternative fuel sources were usually produced from rare earth, the mining of which was a polluting process. As 97% of the world's supply of rare earth came from the Mainland, extensive use of alternative fuel sources would shift the pollution problem to the Mainland. It was also doubtful whether feasibility studies on the use of alternative fuel sources had been carried out, and whether large enterprises should be subsidized to explore the use of alternative fuel sources. A debate on the energy options for Hong Kong was necessary before reaching a decision.

Meeting with China Water Technology Ltd

22. Professor Alex NG declared that he was an appointed Adjunct Professor in Environmental Economics at Peking University, and was the former head of a department of one of the major auditing firms in Hong Kong providing services in relation to climate change and sustainability. He opined that the increasing public concern about nuclear safety was largely due to the lack of understanding on nuclear power. Given that a number of nuclear power plants had been built in the neighboring cities, and the fact that nuclear incidents were unpredictable, he considered it more practical for the Administration to focus on formulating safety measures and contingency plans in the event of nuclear incidents.

Meeting with Mr SIN Chat-ching

23. Mr SIN Chat-ching said that global warming was expected to worsen with the increase in electricity demand and consumption. While every fuel option had its own merits and demerits, he considered the use of nuclear energy for power generation more preferable as it was non-polluting with more stable supply. Apart from the Fukushima incident, there were only two other major nuclear incidents at Three Mile Island and Chernobyl. Besides, the casualties

in the Fukushima incident were caused by tsunami resulting from severe earthquake, and not because of the failure of the nuclear power plant itself. When compared with coal-fired power plants, nuclear power plants were relatively safe in terms of the number of accidents and casualties. Notwithstanding, the Fukushima Prefecture had revealed the need for more stringent maintenance and safety measures. Hence, it was essential to adopt the highest safety standards in the planning, construction and operation of nuclear power plants.

Meeting with Federation of Hong Kong Industries (FHKI)
(LC Paper No. CB(1) 2045/10-11(03))

24. Mr Daniel CHENG, Deputy Chairman, said that FHKI supported the use of nuclear energy for power generation because there was no cleaner and better alternative. Coal-fired power generation was not an option while natural gas was running out. It would take a long time to cut down on power consumption through education, change of lifestyle and replacement of power equipment etc. As the Mainland would continue to build nuclear power plants, Hong Kong should take an active part in the process to facilitate the establishment of a better mechanism and adoption of higher safety standards. The Administration should also work with research and financial institutes to further develop alternative fuel sources, and invest in low-cost power systems such as solar energy. Efforts should also be made to enhance public education on nuclear energy and energy conservation.

Meeting with Hong Kong Association of Energy Engineers (HKAEE)
(LC Paper No. CB(1) 2022/10-11(07))

25. Mr Ronald S CHIN, President, said that HKAEE supported safe, efficient and economic power generation with due regard to the avoidance of environmental degradation. Where avoidance was impracticable, the best affordable mitigation measures should be incorporated. As far as fuel mix was concerned, coal-fired plants were not an option and RE plants should be built as far as practicable. In view of the tight schedule to achieve the target to reduce carbon intensity 2020 and the practical constraints in developing large-scale RE plants, the practicable way was to replace obsolete coal-fired plants by natural gas plants. Only after full examination of the best available nuclear technology and plant location should nuclear power plants be built to supplement the future electricity demand. HKAEE considered that more ambitious target should be set to improve building energy efficiency by 30-50%, particularly for new buildings, given the ready availability of technologies and standards. There was also much room for improvement of the overall thermal transfer value by more than 30%.

Meeting with The Hong Kong Institution of Engineers (HKIE)
(LC Paper No. CB(1) 2028/10-11(04))

26. Ir Dr CHAN Fuk-cheung, Senior Vice President, said that HKIE considered nuclear energy a relatively safe and reliable source of energy supply with low environmental footprint. The Fukushima incident was the result of tsunami and beyond the design parameters of the nuclear power plant. A comprehensive contingency plan should be put in place to prevent similar recurrences. In considering any source of power supply for Hong Kong, the Administration would need to take into account factors, including reliability, environmental-friendliness, safety and affordability, of the energy source. Until the availability of more matured technologies and measures to tackle topographical constraints of RE, nuclear power remained a good source of energy supply to meet the electricity demand in Hong Kong at a competitive cost. It was important for the community to understand the pros and cons of each fuel type in order to reach a consensus on the appropriate fuel mix for power generation. Besides, Hong Kong was obliged to meet the voluntary target set by the Mainland in reducing carbon intensity.

Meeting with Civic Exchange (CE)
(LC Paper No. CB(1) 2022/10-11(08))

27. Mr Andrew LAWSON, Project Manager, stressed the importance to enhance nuclear literacy i.e. the knowledge and understanding of nuclear. Despite that nuclear energy had been used for power generation for over 17 years, nuclear literacy in Hong Kong was relatively low. A nuclear literate society would become more important as the Mainland planned to significantly expand its nuclear capacity, including in the Guangdong Province. There was a need to establish an independent mechanism to monitor the performance and safety of surrounding nuclear plants. Adequate resources should also be earmarked to enhance public education and training for nuclear specialists.

Meeting with Global Studies Institute in Hong Kong

28. While acknowledging that nuclear energy was low in carbon emissions and less expensive, Mr Guy LEUNG pointed out that nuclear power was not absolutely safe, given the devastating and irreparable damages and losses resulting from nuclear incidents. Regardless of the share of nuclear energy in the fuel mix, Hong Kong was facing an increased threat from the development of more nuclear power plants in the Guangdong Province. To achieve the target to reduce carbon intensity without increasing the share of nuclear energy, consideration could be given to using more natural gas or RE. However, there were cost considerations in the increased reliance on natural gas or RE, the latter of which was also less stable in supply.

Meeting with the HK Federation of Students (HKFS)

29. Ms CHAN Sin-ying, Secretary-General, pointed out that there had been a number of nuclear incidents throughout the history of development of nuclear power. The recent Fukushima incident was a result of human errors rather than natural disaster, as the problem stemmed from malfunctioning of the back-up generators. She failed to see why nuclear power was still considered to be "relatively" safe despite the numerous nuclear incidents. HKFS urged the Administration to shelve the proposal to increase the share of nuclear energy to 50% in the fuel mix. Instead, efforts should be made to reduce energy consumption through a reform of the electricity tariff system.

Meeting with Ocean Home

30. Mr TANG Wing-wai, Member, said that there were serious concerns about nuclear safety in the wake of the Fukushima incident. Though nuclear energy was a cleaner fuel source than coal, its use should not be expanded as there was no guarantee that nuclear power was absolutely safe. Besides, the burial of nuclear wastes underground or under sea would pose a hazard to human lives and the environment. The increased reliance on nuclear energy would prompt the development of more nuclear facilities across the border, resulting in more pollution. In the event of any nuclear incident at one of these nuclear plants, the result would be devastating given the dense population in the PRD Region. Instead of increasing power generation to meet the ever-growing demand for energy, more efforts should be made to conserve energy.

Meeting with Golden Anti-Nuclear Group

31. Mr LEE Wai-long, Spiritual Leader, said that the nuclear power plant in Fukushima Prefecture was supposed to be far away from seismic zone and able to withstand earthquakes and tsunami, but the reality spoke for itself. Although Hong Kong was some 3 000 kilometres away from Fukushima Prefecture, it was still under the threat of radiation let alone DBNPS which was situated only 50 miles away from Hong Kong. It was questionable whether contingency plans had been in place for any nuclear incidents at DBNPS. He urged the Administration to shelve the proposal to increase the share of nuclear energy in the fuel mix for local power generation.

Meeting with CLP Power Hong Kong Ltd (CLP)
(LC Paper No. CB(1) 2075/10-11(02))

32. Mr S H CHAN, Corporate Development Director, said that CLP considered nuclear energy a practical and feasible fuel source, which could help reduce carbon intensity in an economical way. When compared with coal-fired power generation, gas-fired power generation could also reduce carbon intensity by half but the price of natural gas could be volatile subject to

international energy market trends. While the environmental benefits of RE were well known, its applicability in Hong Kong was limited by land use constraints and lack of natural resources. Besides, the development costs could be very high with no assurance on the stability of supply. Energy efficiency and conservation measures could reduce carbon intensity, but these alone could not help achieve the reduction target by 2020. Overseas countries like Japan and Germany could only manage to slow down energy consumption with robust energy efficiency and conservation programmes as their economies continued to grow. In view of the technological limitations, revamping the fuel mix was considered relatively practical to achieve the reduction target by 2020. A balanced fuel mix could also ensure a reliable and cost-effective supply of electricity. A holistic approach should be adopted in drawing up an appropriate and feasible fuel mix.

Meeting with The Canadian Chamber of Commerce in Hong Kong (CCCHK) (LC Paper No. CB(1) 2022/10-11(10))

33. Ms Ciara SHANNON, Climate Change Advisor, said that CCCHK generally supported nuclear power which was a highly reliable, relatively low cost and competitively available source of energy. Nuclear energy emitted no green house gas (GHG) in the course of power generation and thus would not cause climate change. The development of more nuclear plants across the border posed both an opportunity and a risk to Hong Kong. CCCHK was particularly concerned about the 28 nuclear reactors (including those present, under construction and planning) in Guangdong Province, of which 10 were in close proximity to Hong Kong. This would make Hong Kong a significant stakeholder, and hence more transparent information on contingency planning in respect of evacuation, water, shelter and health in the event of nuclear incidents was necessary. A balanced view on the risk of nuclear energy was vital for the business sectors in Hong Kong. Therefore, CCCHK suggested setting up a PRD quasi nuclear body with participation of Hong Kong business sectors. The Administration should also formulate a climate change strategy to deal with various issues, including power generation between Hong Kong and PRD. Last but not least, CCCHK would like to extend their deepest condolences, prayers and sympathies to the people of Japan.

Meeting with Hong Kong Baptist University Student Union

34. Ms WU Hon-tong, External Vice President, said that the Administration had been advocating nuclear energy as a clean energy with virtually no emissions that could alleviate global warming. However, no energy was absolutely clean in the course of production. Besides, nuclear incidents could be disastrous as exposure to radiation would not only cause serious harm to humans but also to the environment. Health and other congenital problems arising from nuclear exposure might only surface years after the nuclear incidents. People in Hong Kong would have no place to evacuate in the event

of a nuclear incident at DBNPS, which was located within 100 km from Hong Kong. The Administration should learn lessons from the Chernobyl and Fukushima incidents, and should phase out the use of nuclear energy.

Meeting with Peace Green Power

35. Ms FU Jing, Member, said that the Administration should reflect on the use of nuclear energy in the wake of the Fukushima incident. Given the long half lives of nuclear wastes, the radiation could last for millions of years which would put future generations at risk. It was not justified to increase the share of nuclear energy in the fuel mix to meet excessive electricity demand. Instead, priority should be accorded to energy conservation. By way of illustration, Denmark had been able to reduce electricity consumption following the shelving of nuclear expansion plans through the development of alternative fuel sources. Hence, the Administration should endeavour to encourage energy conservation and development of alternative fuel sources.

Meeting with The Students' Union of the Open University of Hong Kong

36. Mr TONG Chi-pui, External Vice President, said that there was no guarantee on the safety of nuclear energy as evidenced by the Chernobyl and Fukushima incidents. He was gravely concerned about the lack of contingency arrangements in the event of an earthquake that could affect DBNPS. He pointed out that earthquakes were not uncommon in Hong Kong, and in fact a number of earthquakes had occurred in Hong Kong and neighboring areas in the past.

Meeting with HKIED-SUEC

37. Ms CHONG Pui-ki, External Secretary, said that HKIED-SUEC was strongly opposed to the increase in the share of nuclear energy in the fuel mix, given the risks associated with development of nuclear energy. Besides, there was no safe way to dispose of nuclear wastes, and the current practice of burying the wastes deep underground would not only give rise to environmental pollution but also take up land resources. The rationale of increasing power production to support economic development was not convincing. He therefore urged the Administration to conduct a comprehensive review of the energy policy. Efforts should also be made to reduce light pollution and prevent excess energy consumption.

Meeting with Hong Kong University Students' Union

38. Mr Benson SIU, Vice President (External), said that the whole world had awaked to the potential risks of nuclear power and the irreparable damages caused by nuclear accidents following the Fukushima incident. In fact, nuclear energy was neither reliable nor cheap. Given that Guangdong Province was

investing more on wind energy, the Administration should re-examine its energy strategy and consider importing more RE with a view to phasing out nuclear power. Priority should also be given to enhancing energy conservation through improving building energy efficiency and promoting the use of energy efficient electrical appliances.

Meeting with The Student Union of The Chinese University of Hong Kong (CUHKSU)

39. Mr LAI Ming-chak, External Vice President, was skeptical whether the current knowledge of nuclear power was able to control and prevent leakage of radiation in the event of nuclear incidents as evidenced by the Chernobyl, Three Mile Island and Fukushima incidents. The impacts of a nuclear incident would be far-reaching and devastating. Therefore, CUHKSU objected to the proposed increase in the share of nuclear energy in the fuel mix. Instead, the Administration should consider expanding the use of RE and promoting energy conservation.

Meeting with Hong Kong Polytechnic University Students' Union China Affairs Committee

40. Mr MUI Ka-fai, Vice-Chairman, said that while nuclear energy was considered relatively safe and less expensive, it was worth noting that disposal of nuclear wastes incurred considerable cost. The current practice of burying the nuclear wastes underground was not sustainable and subsequent treatment of these wastes had yet to be developed. The decommissioning of nuclear power plants was another issue to be addressed. The Administration should review whether the import of nuclear energy was the best option for Hong Kong.

Meeting with Five Star War Team

41. Mr TANG Kin-wa, Member, pointed out that environmental protection was often compromised for economic growth. By way of illustration, incineration and landfill disposal had been adopted to treat waste rather than reduction at source. The Administration had also over-estimated energy consumption and had failed to conserve energy. As the import of more nuclear energy would mean exposing Hong Kong to nuclear risk, he urged the Administration to shelve the proposal to increase the share of nuclear energy in the fuel mix.

Meeting with Committee to Concern Nuclear Energy
(LC Paper No. CB(1) 2072/10-11(04))

42. Mr FUNG Chi-wood, Chairman, said that while nuclear power generation had less carbon footprint than fossil fuels, it was still much higher than RE since the construction, operation, mining and milling of uranium, and

decommissioning of nuclear power plants would consume electricity and cause GHG emissions as well. In order to reduce GHG emissions from power generation, efforts should be made to expedite the development of RE, including wind energy. In the United Kingdom, existing wind farms were able to supply 5 200 MW of electricity and a number of wind farms were under construction or in the pipeline. Therefore, more efforts should be made to develop wind energy for power generation in Hong Kong. It was worth noting that the first wind farm with 67 wind turbines at Kwo Chau Island was able to produce a total of 200 MW of electricity.

Meeting with City University of Hong Kong (CityU)

43. Dr Michael LEUNG opined that sustainable electricity supply would rest with a proper balance among safety, environmental protection, stability and affordability. While the unit price of nuclear power was low at around 50 cents per kWh, the hidden costs arising from damages were too high to afford as evidenced by the Fukushima incident. The Administration and the power companies should review and enhance the existing safety standards and measures for DBNPS. The public should be well informed of the evacuation procedures in the event of any nuclear incidents at DBNPS. CityU supported the setting of an aggressive target to reduce carbon intensity by 50-60% by 2020. The most economical and safe way to achieve the target was through energy efficiency and conservation. More resources should be earmarked for energy efficient building services systems, including district cooling systems. The Administration should also promote the use of electric vehicles given their environmental performance.

Meeting with The Hong Kong Polytechnic University
(LC Paper No. CB(1) 2028/10-11(05) & CB(1) 2109/10-11(02))

44. Dr John Freeman BABSON opined that the Administration should endeavour to reduce reliance on nuclear power, and actively explore other sustainable fuel alternatives. Apart from radiation leakage, disposal of nuclear waste was another major concern given the long half-live of spent uranium. The fundamental problem with nuclear power was that it was beyond effective human control in almost every dimension. By way of illustration, the Fukushima incident had greatly upset the shipping industry as demonstrated by a recent case whereby a container ship being suspected of having been contaminated was required to anchor outside the port for a comprehensive radiological inspection. A series of such delays would place the shipping company at a competitive disadvantage.

Meeting with The Hong Kong Energy Institute (Branch) Ltd (EIHK)
(LC Paper No. CB(1) 2022/10-11(09))

45. Dr H F CHAN, Honorary Advisor, said that the development of nuclear

energy for local power generation would certainly have a major impact on Hong Kong. While nuclear energy was a technically feasible option to reduce carbon footprint, its safety should be reviewed in the light of the recent Fukushima incident. Though nuclear power plants were designed to attain a high safety standard, minor accidents would occur from time to time due to mechanical failures or human errors. It was questionable whether the nuclear power plants in the neighbouring region could be operated safely. EIHK suggested that DBNPS should be retrofitted to a higher safety standard and more training should be provided for the employees. Furthermore, an independent body with Hong Kong's participation should be set up to monitor the operation of DBNPS. As regards the proposal to increase the share of nuclear energy to around 50% in the fuel mix by 2020, EIHK was doubtful if this could be achieved given that the recent Fukushima incident would inevitably slowed down the development of nuclear power in the Mainland.

Meeting with Combat Climate Change Coalition (CCCC)

46. Mr Albert OUNG, Spokeperson, advised that CCCC comprised some 30 different bodies, including green groups and social/religious organizations, which were independent from the two power companies. Following the Fukushima incident, the public was gravely concerned about nuclear safety. The situation was further aggravated due to the lack of information on the operation, safety control and crisis management of the nuclear power plants nearby. Recent surveys showed that some members of the public did not support the import of nuclear energy. CCCC considered that instead of increasing the share of nuclear energy in the fuel mix, more efforts should be made to promote energy conservation and develop RE to combat climate change. The Administration should accord priority to energy conservation, and encourage the public and enterprises to reduce electricity consumption. Consideration should be given to setting out a reduction target, providing incentives for energy conservation, and subsidizing measures to improve energy efficiency. Efforts should also be made to enhance public awareness on energy conservation.

Meeting with NeoDemocrats (ND)
(LC Paper No. CB(1) 2109/10-11(01))

47. Mr Michael YUNG indicated that ND was skeptical about the proposed increase in the share of nuclear energy to 50% in the fuel mix for electricity generation by 2020 to reduce carbon intensity. It believed that the proper way to achieve the reduction target was to develop RE, open the electricity grid, and reduce the contingency for electricity supply. It was absurd that the two power companies were selling the surplus electricity to the Mainland while importing nuclear energy from the latter. While nuclear energy appeared to be low in price and carbon footprint, substantial resources would be incurred in the event of nuclear incidents. The Administration should expedite the development of RE

and reduce the reliance on nuclear energy. Furthermore, DBNPS should be shut down upon expiry of its life span.

Meeting with Wisdom Command by Patriotism

48. Mr Raymond KO, Master, said that the nuclear incidents at Fukushima Prefecture, Three Mile Island and Chernobyl had demonstrated the devastating effects of radiation leakage. He enquired if an environmental impact assessment on DBNPS had been conducted in the event of radiation leakage. Instead of importing nuclear energy, the Administration should consider developing RE. More resources should be earmarked for expanding the generation capacity of the three wind turbines on Lamma Island which could only produce very limited electricity. Efforts should also be made to developing solar energy in Hong Kong.

Meeting with Environmental Life Science Society, Science Society, The University of Hong Kong Students' Union (ELSS)

49. While supporting the Administration's targets to reduce carbon intensity and combat climate change, Mr HO Yuen-wa, Chairman, said that emphasis should be placed on energy conservation and the use of energy efficient products. According to the Hong Kong Ecology Footprint Report 2010 released by WWF Hong Kong, carbon footprint had accounted for 60% of the total ecological footprint in Hong Kong. It was necessary for the Administration to step up publicity on the need to reduce GHG emissions and to encourage wider community participation to take forward mitigation measures. As the operation of DBNPS had caused a rise in the temperature of surrounding waters and adversely affected the marine ecology and biodiversity in the area, close monitoring on a regular basis was required to ensure that timely remedial measures could be taken as appropriate.

50. Members also noted the following submissions from deputations not attending the meeting –

LC Paper No. CB(1) 2022/10-11(11)	—	Submission from Hong Kong Energy Studies Centre;
LC Paper No. CB(1) 2022/10-11(12)	—	Submission from The Conservancy Association;
LC Paper No. CB(1) 2022/10-11(13)	—	Submission from The Chinese Manufacturers' Association of Hong Kong;

LC Paper No. CB(1) 2072/10-11(03) — Submission from Professor Timothy W TONG, The Hong Kong Polytechnic University;

LC Paper No. CB(1) 2072/10-11(05) — Submission from Mr LIM Hung-tat; and

LC Paper No. CB(1) 2072/10-11(06) — Submission from Hong Kong General Chamber of Commerce.

Meeting with Administration

(LC Paper No. CB(1) 2022/10-11(14) — Administration's paper on the impacts of the development of nuclear energy for local power generation on Hong Kong

LC Paper No. CB(1) 2022/10-11(15) — Paper on Hong Kong's Climate Change Strategy and Action Agenda prepared by the Legislative Council Secretariat (updated background brief))

Relevant papers

(LC Paper No. CB(1) 2833/09-10(01) — Administration's paper on Public Consultation on Hong Kong's Climate Change Strategy and Action Agenda

LC Paper No. CB(1) 753/10-11(01) — Administration's paper on the consultancy study on climate change in Hong Kong

LC Paper No. CB(1) 1370/10-11(05) — Administration's paper on Consultancy Report – A Study of Climate Change in Hong Kong)

51. At the invitation of the Chairman, the Secretary for the Environment (SEN) responded to the deputations' views. He said that there were four guiding principles underlying the existing energy policy, namely safety, reliability, environmental protection and affordability. Safety was the priority and could not be compromised. SEN stressed that Hong Kong's current fuel mix, which relied predominantly on coal, was in need of an urgent review. Of primary importance was to suppress the portion of coal, which was highly polluting and unsustainable, in our fuel mix. As to the new fuel mix, SEN said that as the world was still examining the Fukushima incident, it would not be responsible for the Administration to rush into either rejecting or accepting the use of more nuclear power at this stage. The Administration would closely monitor the development in nuclear energy, and formulate its energy policy in

an objective, scientific and rational manner. He agreed that energy conservation remained the way forward. To encourage energy conservation, funding in the order of $450 million had been allocated to the Buildings Energy Efficiency Funding Schemes to improve the energy efficiency of buildings. It was also worth noting that while the Gross Domestic Product grew by 13% between 2005 and 2009, local electricity consumption only increased by 3.6%.

52. As regards nuclear safety, SEN said that the subject had been thoroughly discussed by Panel on Security. The Administration had been working closely with the Mainland authorities in reinforcing the notification mechanism on nuclear incidents. To enhance the transparency of the operation of DBNPS, the Administration held in-depth discussion with the Hong Kong Nuclear Investment Company Limited and the China Guangdong Nuclear Power Holding Co. Ltd. on enhancement of the mechanism on information disclosure in end 2010/early 2011. A new arrangement had been put in place for notification of events at Level 0 and Level 1 within two working days. This was already above the requirements of the International Atomic Energy Agency (IAEA). In the light of the Fukushima incident, the Security Bureau would review the existing Daya Bay contingency plan, particularly in respect of public participation in drills and exercises. Since members of the Panel on Environmental Affairs were not necessarily members of the Panel on Security, the Chairman requested the Administration to provide information on the safety standards, notification mechanism and evacuation plans for DBNPS.

Admin

53. Noting that the Fukushima incident was rated Level 5, Ms Audrey EU asked how the rating of a nuclear event was determined. SEN explained that the rating of a nuclear event was made according to the International Nuclear Event Scale laid down by IAEA.

Core considerations of future fuel mix

54. Mr CHAN Kin-por said that while nuclear energy was clean and relatively inexpensive, the potential costs associated with the remedy of damages and losses arising from a nuclear disaster would be substantial. He enquired if the Administration was prepared to re-assess the full cost of developing nuclear energy, including the remedial costs of a nuclear disaster, and make a comparison with the costs of other fuel options. SEN assured members that the associated costs of different fuel options as well as their carbon footprints would be taken into consideration in revamping the fuel mix.

55. Mr Jeffrey LAM agreed to the need to develop a low-carbon economy to address the problems of climate change and depletion of fossil fuels. To this end, the Administration had proposed a target to reduce carbon intensity by 50-60% by 2020 when compared with 2005, representing a 19-33% absolute reduction in total GHG emissions, as well as the strategy and measures, including revamping the fuel mix, to achieve the target. While SEN had stated

that the Administration would not jump into conclusion on the future fuel mix, it should explain the measures to be taken to achieve the reduction target, and the need to increase the share of nuclear power in the fuel mix, particularly after the Fukushima incident. SEN said that the proposed target to reduce carbon intensity by 50-60% by 2020 was well-received by the general public. While a number of emission reduction measures had since been implemented to achieve the reduction target, a revamp of the fuel mix was necessary in order to replace the highly polluting coal-fired power generation. The Acting Principal Environmental Protection Officer added that the consultants responsible for the consultancy study of climate change in Hong Kong had been invited to carry out additional modeling work and analyses to evaluate the options for reducing the carbon intensity in Hong Kong by 2020. They had taken into account future growth of population and economy as well as past situation and trends.

56. As regards the Fukushima incident, SEN said that it had prompted the implementation of more stringent safety standards and controls on nuclear power plants worldwide. Meanwhile, the National Nuclear Safety Administration (NNSA) had stepped up safety inspections of existing nuclear facilities, commissioned a comprehensive review of nuclear power plants under construction, and suspended temporarily the approval of new nuclear projects pending comprehensive safety inspection and completion of nuclear safety planning. Professor LEE Chack-fan/Chinese Academy of Engineering (CAE) added that there was a need to enhance public education and information exchange on the developments in nuclear energy. Mr Edmund LEUNG/Energy Advisory Committee (EAC) echoed that education on nuclear energy needed to be reinforced. Dr LUK Bing-lam/HKIE agreed that it was important for the public to understand the pros and cons as well as the associated costs of each fuel option, and that public knowledge on nuclear and radiation should be enhanced. He also considered it necessary to conduct probabilistic risk assessment on DPNPS on a weekly basis.

57. Noting that much tighter safety standards would be adopted for nuclear power plants following the Fukushima incident, Mr LEE Wing-tat enquired about the safety standards adopted in the Mainland. He also enquired about the enhanced notification mechanism, and the evacuation plans for DBNPS. Mr CHAN Kin-por further asked if the enhanced notification mechanism for DBNPS would be extended to cover other nuclear power plants in the Mainland, and whether a provincial-wide contingency plan would be formulated between Guangdong Province and Hong Kong. Ms Audrey EU expressed concern that Hong Kong would have no choice but to accept nuclear energy, since nuclear energy had already been widely adopted in the Mainland. Given its close proximity to Hong Kong, local residents would have nowhere to evacuate in the event of a nuclear disaster at DBNPS. Hence, it was essential for the public to have the right to participate in and access to information on the development of nuclear energy in the Mainland. There should also be more information exchanges on safety standards and requirements for nuclear development in the

Mainland. In this connection, she had suggested inviting the China Guangdong Nuclear Power Holding Co. Ltd. to attend the meeting to exchange views with members. The Chairman advised that the Clerk had sent an invitation letter to the said organization but received no reply so far.

58. In response, SEN said that the Mainland had fully adopted the IAEA standards for the development of nuclear plants since 1980s. The operators of nuclear power plants, the respective Mainland authorities and IAEA were in the forefront to uphold nuclear safety. He agreed that it was necessary to enhance communication and information exchange to allay public concerns about nuclear safety. At the meeting with NNSA, the relevant authorities had confirmed that the notification mechanism would be enhanced in all nuclear power plants in the Mainland, including DBNPS. Under the enhanced mechanism, a new arrangement had been put in place for notification of events at Level 0 and Level 1 which was already above the IAEA requirements. Professor LEE Chack-fan/CAE added that the Mainland had adopted the latest and the state of the art international standard in developing nuclear power. Nuclear power plants of older models had been required to carry out upgrading works to attain the most up-to-date standards. Dr LUK Bing-lam/HKIE agreed to the need for more exchanges with nuclear experts in the Mainland on the safety requirements in the development of nuclear energy. He understood that the Mainland authorities were planning to hold a conference on nuclear safety.

59. Ms Audrey EU sought elaboration on HKEI Ltd's suggestion of retrofitting DBNPS to improve safety. Mr H L CHAN/HKEI said that in the light of the Fukushima incident, consideration should be given to using non-electricity driven passive water feeds in DBNPS for cooling purposes. Pre-pressurized containers could also be used to prevent gas exchange and explosion. HKEI supported the setting up of an independent body to monitor the operation of DBNPS.

60. Mrs Regina IP enquired about the suitable locations for permanent storage of nuclear wastes. Professor LEE Chack-fan/CAE said that nuclear waste with low radioactivity (such as gloves used in nuclear power plants) could be buried in shallow ground, while nuclear waste with high radioactivity (such as spent fuel rods) would need to be sealed in containers and buried deep underground in desert or semi-desert areas with no underground water.

Energy conservation

61. Mr CHAN Kin-por considered it necessary to reduce the reliance on nuclear energy, which should only be used as a last resort. The costs incurred from importing nuclear energy should have been invested in developing RE and promoting energy conservation. He enquired how the Administration would take forward RE development and energy conservation projects. SEN re-iterated that energy conservation was indeed the way forward. To this end,

relevant bills and incentive schemes had been introduced to promote energy efficiency. As regards RE, SEN said that the Administration adopted an open attitude on the development of RE. In fact, the two power companies had started exploring the feasibility of offshore wind farms, and were planning to install a total of about 100 wind turbines for power generation. One of them had also installed the largest scale of photovoltaic system in Hong Kong. Noting that the scale of RE was not large enough to replace mainstream energy use, he said the Administration had proposed to increase the share of RE in the fuel mix from less than 1% to 3-4%.

62. Mr LEE Wing-tat expressed disappointment at the slow progress of improving building energy efficiency. Given that commercial buildings accounted for around 70% of the electricity consumption in Hong Kong, there was a need to apply the Building Energy Codes to all buildings and not just new buildings. Consideration should be given to revoking the current regressive tariff rates for heavy electricity consumers, and introducing incentives to encourage energy conservation. He sought the Administration's response to Greenpeace's suggestion of maintaining the share of nuclear energy in the fuel mix at 23% while making further efforts to conserve energy. SEN stressed that the target to reduce GHG emissions could not be met simply through energy conservation and increased reliance on RE, the potential of which had yet to be further explored. Mr Prentice KOO/Greenpeace said that the proposed increase in the share of nuclear energy in the fuel mix was meant to meet the projected increase in electricity demand, which in his view could be met by energy efficiency measures. The initiative to tighten the overall thermal transfer value standards would greatly reduce electricity consumption of commercial buildings. He also agreed that the regressive tariff rates offered by local power companies to commercial enterprises with heavy electricity consumption should cease to apply lest this would encourage more electricity consumption.

63. Mrs Regina IP said that if energy conservation was the way forward, the Administration should refrain from including any electricity subsidy scheme in future Budgets as this would likely encourage energy wastage.

Exchange with the Mainland

64. SEN said that the Administration had led a delegation to exchange views with NNSA in April 2011. The visit aimed to enhance understanding on the development of nuclear energy in the Mainland and to learn more about the safety measures adopted in response to the Fukushima incident. The delegation comprised representatives from a number of government departments (including Environment Bureau, Security Bureau, Department of Health, Electrical and Mechanical Services Department and Hong Kong Observatory), nuclear experts and academics from Hong Kong, as well as members of the Energy Advisory Committee and the energy industry. During

the visit, NNSA explained in detail their function, legislative framework, departmental regulations, safety requirements and guidelines, etc. under the regulatory regime on nuclear safety in the Mainland.

65. Dr LUK Bing-lam/HKIE said that he was a member of the Hong Kong delegation and he was impressed with the open-mindedness of NNSA officials and their strong safety culture. The Hong Kong delegation had reflected the worry of Hong Kong people on nuclear safety, and urged NNSA to allow greater transparency in the operation of nuclear power stations and enhanced notification mechanism on nuclear incidents. Noting that NNSA had set up a number of field stations to monitor gamma radiation, the delegation requested and NNSA agreed to share the data once the computerized system was in place. He hoped that a cross-strait forum/conference would enable better understanding and communication on nuclear development in the region.

66. Mr Edmund LEUNG/EAC said that the visit to NNSA was fruitful, and that continued dialogue would be necessary. Professor LEE Chack-fan/CAE added that the Administration fully acknowledged the grave concerns of Hong Kong people on nuclear safety and was well-prepared for the visit to NNSA. It was hoped that the information exchange would help promote a better understanding of nuclear energy and its development in the Mainland.

II. Any other business

67. There being no other business, the meeting ended at 5:40 pm.

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Legislative Council Secretariat
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