

**For discussion  
on 26 November 2018**

## **Legislative Council Panel on Environmental Affairs**

### **To Take Forward Tasks in relation to the Promotion of Renewable Energy and Long Term Development of the Electricity Market – Manpower Arrangement for the Environment Bureau**

#### **PURPOSE**

This paper seeks Members' views on our proposal to make permanent one Administrative Officer Staff Grade C (AOSGC) (D2) (designated as PAS(ER)) supernumerary post in the Environment Bureau (ENB) to take forward tasks in relation to the promotion of renewable energy (RE) and long term development of the electricity market.

#### **JUSTIFICATION**

##### *Promoting the Development of RE and Revamping the Fuel Mix for Electricity Generation*

2. In December 2015, 195 countries including China adopted the first-ever universal, legally binding global deal to combat climate change in Paris (the Paris Agreement). The Paris Agreement, already came into force in November 2016, applies to Hong Kong as well. In light of this latest development, the Government announced in the 2017 Policy Address and the Hong Kong's Climate Action Plan 2030+ the carbon intensity reduction target for 2030, i.e. to reduce Hong Kong's carbon intensity by 65% - 70% by 2030 as compared with the 2005 level.

3. In addition, pursuant to the Paris Agreement, all Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies by 2020. As part of China as well as a responsible member of the global community, the Hong Kong Special Administrative Region needs to draw up our own long-term decarbonisation strategies up to 2050 by 2020. To this end, the Council for Sustainable Development (SDC) is preparing for launching a public

engagement (PE) exercise in the first half of next year. Through a bottom-up approach with active participation by stakeholders, the PE could help arouse public awareness of the impact of carbon emissions and gauge the views of the community in developing Hong Kong's long-term decarbonisation strategy.

4. As electricity generation accounts for about two-thirds of Hong Kong's carbon emissions, the most important vehicle to reduce carbon emissions will be changing local fuel mix for electricity generation. To achieve the carbon reduction target for 2030, we will replace the coal-fired generating plants due to retire gradually in the coming decade with more natural gas generation. However, burning natural gas will still continue to generate carbon emissions. If we are to achieve a more aggressive carbon reduction target beyond 2030, we would need to significantly increase the proportion of zero-carbon energy in the overall fuel mix for electricity generation. Promotion of the development of RE is thus one of the important ways to mitigate climate change.

5. We have already announced under the 2018 Policy Address that the Government will continue to take the lead to develop RE in a more systematic manner so as to reduce carbon emissions thereby mitigating climate change.

6. For the private sector, we have introduced the Feed-in Tariff (FiT) under the post-2018 Scheme of Control Agreements (SCAs) to provide incentives for individuals and non-Government bodies to encourage them to invest in RE. The two power companies have introduced/will introduce their FiT Schemes in October this year and January next year respectively and have been receiving applications for the schemes. The response from the community has been overwhelming with around 700 applications received by the two power companies in total by end October.

7. Apart from providing financial incentives, we will also provide further support and facilitation to individuals and organisations who/which wish to develop RE, including suitably relaxing the restrictions in relation to installation of photovoltaic (PV) systems at the rooftop of buildings, introducing legislative amendments to exempt individuals from the requirements to apply for business registration and file profits tax returns in respect of their participation in the FiT Scheme by installing RE systems at their residential premises, introducing a programme to assist schools (except government and profit-making schools) and non-governmental

welfare organisations in installing small-scale RE systems, revamping the HK RE Net and setting up an enquiry hotline, etc.

8. For the public sector, the Government has successfully installed small-scale floating PV systems at Shek Pik Reservoir and Plover Cove Reservoir, as well as the largest PV system in Hong Kong at the Siu Ho Wan Sewage Treatment Works. The Government will continue to take the lead in developing RE. We will continue to follow up and explore with different Government departments the feasibility of installing RE systems at the latter's premises. We have earmarked \$1 billion to support the development of small-scale RE projects by bureaux and departments. As for large-scale RE projects, we will maintain close liaison with the Water Services Department and the Environmental Protection Department to take forward installation of large-scale floating PV systems at suitable locations in reservoirs and installation of solar PV systems at suitable landfills.

9. Looking ahead, we will need to continue formulating policies to enhance promotion of the development of RE in both the private and public sectors, including promoting further adoption of RE by different Government departments, reviewing the effectiveness of existing measures periodically (including reviewing the FiT rates with the power companies annually and reviewing the arrangements in respect of FiT and RE Certificates from time to time), and introducing new measures having regard to the overall development of RE to further support and facilitate different sectors in adopting RE so as to reduce carbon emissions to combat climate change.

10. Apart from promoting the development of RE proactively, we will also review our fuel mix for electricity generation holistically and substantially increase the proportion of zero-carbon energy thereof in order to further reduce carbon emissions. As mentioned in paragraph 3 above, the SDC will conduct a PE exercise to help formulate the Hong Kong's long-term decarbonisation strategy, including how to decarbonise the electricity generation sector. In respect of decarbonising the electricity generation sector, we need to provide relevant background information to the SDC and thoroughly gauge the view of different sectors of the community during the PE exercise, then taking into consideration our four energy policy objectives (i.e. safety, reliability, affordability and environmental protection), formulate the future fuel mix for electricity generation and follow up on the implementation of the fuel mix with relevant stakeholders (including the power companies) for an extended period of time in future in order to achieve the more aggressive carbon reduction target.

## *Future Development of the Electricity Market*

11. Having regard to the views received during the Public Consultation on the Future Fuel Mix for Electricity Generation in 2014 and the Public Consultation on the Future Development of the Electricity Market in 2015 (the Public Consultation), and taking into consideration the fact that there will not be a substantial new source of supply either from the Mainland or locally in the near term<sup>1</sup>, we maintained the existing regulatory arrangement for the power companies through SCAs and signed the post-2018 SCAs with the power companies in 2017. Under the post-2018 SCAs, we have reduced the permitted rate of return of the power companies, improved their fuel cost charging arrangement, revamped the incentives and penalties schemes in order to further encourage the power companies' performance in various aspects. We have also introduced different schemes and measures to promote energy efficiency and conservation as well as the development of RE. We need to continuously and closely monitor the implementation of the various schemes and measures under the post-2018 SCAs, liaise and review the relevant arrangements with the power companies from time to time, and refine the implementation details when necessary.

12. On preparing for opening up of the market, we are dedicated to undertaking the necessary preparatory work to pave the way for introducing potential new suppliers in future when the requisite market conditions are present in Hong Kong. In accordance with the post-2018 SCAs, the key preparatory work we will undertake with the power companies during that regulatory period (i.e. 2018/2019 to 2033)<sup>2</sup> include –

- (a) Grid Access – Allowing third party access to the existing power grids is a critical enabler for introducing new suppliers to the local market as construction of a parallel power grid would be

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<sup>1</sup> The majority of respondents to the Public Consultation on the Future Fuel Mix for Electricity Generation in 2014 supported local electricity generation by natural gas and expressed reservation about importing electricity from the Mainland at that stage. On new local supplies, given the very limited land supply in Hong Kong, the potential environmental impact of new generating units and the likely opposition from residents in the vicinity, it would be very difficult to identify a suitable location for the construction of new generating units by new suppliers. As such, it is very unlikely that there would be a new, sizable electricity supplier locally in the near term.

<sup>2</sup> The SCA signed with CLP Power Hong Kong Limited and Castle Peak Power Company Limited took effect on 1 October 2018 while the one with The Hongkong Electric Company, Limited and HK Electric Investments Limited will take effect on 1 January 2019. The term of both SCAs will last until 31 December 2033.

highly uneconomical. We will discuss with the power companies with a view to opening up their power grids for access by new players, preferably on a voluntary basis. We will also conduct a joint study with the power companies to work out the detailed arrangements for such grid access; and

- (b) Enhanced Interconnection – We will commission a study with the power companies to look into the detailed arrangements for strengthening the interconnection between the Mainland and Hong Kong, as well as that between the existing grids in Hong Kong.

The aforementioned studies on grid access and enhancing interconnection will be very complex, concerning issues in relation to financial, technical, legal and regulatory arrangements, etc.. We will need to discuss with the power companies the scope and details of the studies before commencing them, and complete the studies and implement the relevant recommendations within the said regulatory period. As such, we expect heavy workload will be involved and a dedicated team will be required to take forward the relevant tasks.

13. In addition, under the post-2018 SCAs, we will conduct interim reviews with the power companies every five years to consider all matters under the SCAs. To prepare for the Mid-Term Review conducted in 2013 in respect of the previous set of SCAs, we engaged experts, academics, green groups and other stakeholders to solicit their suggestions / comments. We also consulted the Legislative Council (LegCo) Panel on Economic Development and the Energy Advisory Committee in respect of the review. Having regard to the views received and our experience in operating the SCAs, we put forward various proposals for modifying the SCAs to the two power companies, with a view to seeking improvements on the terms and conditions of the SCAs. The experience in 2013 demonstrates that, given the range of issues involved and their interconnectedness which called for analyses of various options from the financial, technical and regulatory perspectives, the negotiation process was very complex involving heavy workload. In addition, when an agreement on the relevant revised terms and conditions is reached with the power companies, we would need to prepare a new legal document to amend the SCAs to put them into effect. Taking into consideration the contents of the post-2018 SCAs and the power companies' important role in reducing carbon emissions, the interim reviews to be conducted under these SCAs every five years (i.e. in 2023 and 2028) may involve discussion with the power companies on introducing more relevant measures (such as those to

promote energy efficiency and conservation as well as the development of RE) hence we anticipate that the interim reviews will be much more complex and the workload involved will be much heavier than that during the aforementioned Mid-Term Review in 2013.

#### *Need for Continued Directorate Support*

14. The supernumerary post proposed to be regularised was created since 10 February 2014 to head a dedicated team in ENB to undertake a review of the electricity market and to conduct the Public Consultation in 2015 having regard to the review. The LegCo Finance Committee (FC) approved the extension of the PAS(ER) post for a period of three years on 29 April 2016 to take forward the outcome of the Public Consultation, including conducting negotiation with the power companies in respect of the post-2018 SCAs, preparing the new contractual agreements, and implementing the relevant arrangements.

15. Work in relation to the promotion of RE was previously taken up by the Energy Division (EGD) of the ENB. The division was headed by one AOSGC (D2) (designated as PAS(EG)) who oversees all energy policy matters in Hong Kong. While the work relating to the future development of the electricity market has been taken up by the dedicated team created, EGD has been responsible for the formulation and implementation of a number of policy initiatives in relation to energy efficiency and conservation, external lighting, electrical safety and gas safety, the supply of electricity, gas and oil, and related matters. Having regard to the increasingly complex work involved in the above policy areas which are not related to the future development of the electricity market (details in paragraphs 18 and 19) and the synergy required between the FiT Scheme implemented under the post-2018 SCAs and the other facilitation measures to promote the development of RE in the private sector (details in paragraphs 6 and 7), ENB has transferred the duties in relation to the formulation of the said facilitation measures for the launch of the FiT Scheme as well as the duties and responsibilities in relation to the promotion of RE to the post holder of PAS(ER) with effect from mid 2018.

16. Promotion of the development of RE and revamping of the fuel mix for electricity generation, as well as the work in relation to the development of the electricity market, have significant impact on whether we can achieve the target in relation to carbon reduction in order to mitigate climate change and the goal to open up the electricity market. In addition, the preparatory work to pave the way for introducing competition to the electricity market and the formulation of the future fuel mix for electricity

generation may entail significant implications to the power companies' long term operation. Based on our previous experience in negotiation with the power companies on the SCAs, discussion of issues concerning their long term operation will be a lengthy and intensive process. As such, the relevant team needs to be led by a directorate officer while ensuring that adequate manpower resources would be provided to undertake the highly-demanding and complicated tasks involved in order to effectively pursue the proposals to be put forward by the Government.

17. The job description of the proposed AOSGC post is at **Annex A**. The post will be underpinned by a team of six non-directorate posts.

## **ALTERNATIVES CONSIDERED**

18. Under the current establishment, the EGD of ENB is headed by PAS(EG) to oversee all energy policy matters (except those in relation to the promotion of RE) in Hong Kong. EGD has been responsible for the formulation and implementation of a number of policy initiatives, including setting the Government's energy saving targets and formulation of strategies for achieving the target set in the implementation of the Energy Saving Plan for Hong Kong's Built Environment 2015 ~ 2025+; implementation of the Buildings Energy Efficiency Ordinance (Cap. 610) and coordinating the promotion of green building; implementation of the District Cooling System in the Kai Tak Development and other new development areas; reviewing the scope and the grading system of the Mandatory Energy Efficiency Labelling Scheme (MEELS); implementation of measures to address the issues of external lighting; overseeing the policies on electrical safety and gas safety; and handling issues relating to the supply of electricity, gas and oil including land matters. The job description of PAS(EG) is at **Annex B**.

19. Looking ahead, EGD will continue to promote energy efficiency and energy saving in new and existing buildings. For government buildings, the Government is leading by example by setting a five-year target of 5% saving in the electricity consumption of Government buildings from 2015-16 to 2019-20 under comparable operating conditions in 2013-14, and has earmarked about \$900 million to assist bureaux and departments to implement electricity saving projects. We are also developing the energy saving targets and implementation strategies for the next phase. We will endeavor to promote retro-commissioning (RCx) as a systematic and cost-effective energy saving method to enhance the operating energy efficiency of electrical equipment in existing buildings.

In the 2018 Policy Address, we have announced that we are gearing up to conduct RCx progressively in suitable major government buildings to improve their energy efficiency, and will continue to work with the private sector (e.g. the Hong Kong Green Building Council) to promote RCx. Promoting RCx can help government buildings save further energy. Meanwhile, we will encourage bureaux and departments to apply for green building certification for existing buildings under their management. On the regulatory front, we will continue to review the Building Energy Code (the Code) every three years to tighten the energy efficiency standards and promote energy conservation in the industry. The latest edition of the Code was gazetted in November 2018. In addition, both power companies will progressively replace their electromechanical meters with smart meters. By providing customers with their energy consumption information, smart meters facilitate energy saving and help Hong Kong develop into a smart city. The Government will discuss with the two power companies on providing more power consumption data and formulating the necessary strategies, having regard to relevant factors including the need to ensure protection of customers' privacy and compliance with legislation. The Steering Committee on the Promotion of Green Building (SCGB) led by the Secretary for the Environment was set up in 2013 to coordinate efforts by various bureaux and departments in promoting green building. The SCGB has expanded its scope of work and revamped into the Steering Committee on the Promotion of Green Building and Renewable Energy to take forward green buildings and renewable energy development in Hong Kong. In promoting energy conservation, the Government is preparing the Phase IV of the MEELS. To this end, we will need to conduct consultation and formulate standards and relevant legislation. In line with the Government's commitment to low-carbon development, apart from the existing and the proposed additional district cooling systems in the Kai Tak Development Area, we will consider the provision of district cooling systems in New Development Areas, e.g. Tung Chung New Town Extension (East) and Hung Shui Kiu New Development Areas. Regarding external lighting, the Government appointed the Working Group on External Lighting (WGEL) in August 2018 to review the effectiveness of the Charter on External Lighting. To commence the review, two consultancies will be engaged by the ENB to conduct an opinion survey to gauge the views of various sectors towards the current situation and regulation of external lighting, and to look into regulatory arrangements adopted by other economies and cities for external lighting installations. Having regard to the WGEL's review findings and recommendations, we will consider the next step, including whether legislation should be introduced to control nuisance caused by external lighting. EGD would be heavily involved in taking forward the above



initiatives (including research, engagement with stakeholders and formulation of proposed measures). The post of PAS(EG) is therefore fully stretched and cannot absorb further duties related to the promotion of renewable energy, the future development of the electricity market as well as the monitoring of the implementation of the SCAs and the interim reviews.

20. We have also considered the possibility of redeploying other directorate officers in ENB to undertake the necessary tasks but found it not feasible. The Financial Monitoring Division and the Electricity Team, headed respectively by an Assistant Director of Accounting Services (D2) and a Chief Electrical and Mechanical Engineer (D1), have already been fully engaged with the ongoing tasks of monitoring the power companies in the financial and technical aspects. In addition to their regular duties, they will also continue to provide support to the necessary preparatory work in relation to introducing competition to the electricity market and formulating the future fuel mix for electricity generation. The Sustainable Development Division of ENB, headed by an AOSGC, is responsible for handling policy matters relating to sustainable development (including policy matters on Government sustainability assessment system) and providing secretariat support to the SDC. The latter includes supporting the SDC's territory-wide PE process on key sustainability issues (including the upcoming PE exercise on Hong Kong's long-term decarbonisation strategy), and arranging publicity and education programmes relating to sustainable development. All these ongoing work requires full-time attention of the directorate officers in ENB, and they cannot be redeployed to undertake duties of the proposed PAS(ER) post. The existing and proposed organisation charts of ENB showing the post of AOSGC proposed to be regularised is at **Annex C**.

## **FINANCIAL IMPLICATIONS**

21. The proposed regularisation of the one supernumerary directorate post will bring about an additional notional annual salary cost at mid-point of \$2,179,800. Subject to the FC's approval of regularisation of the above directorate post, we will include sufficient provision in the draft Estimates of 2019-20 and subsequent years to meet the cost of the proposal.

## **ADVICE SOUGHT**

22. Members are invited to comment on the proposal.

**Environment Bureau  
November 2018**

**Job Description**  
**Principal Assistant Secretary for the Environment**  
**(Electricity Reviews)**

**Rank** : Administrative Officer Staff Grade C (D2)

**Responsible to** : Deputy Secretary for the Environment

**Main Duty and Responsibilities –**

- (a) To formulate strategies and measures to promote the development of renewable energy and to monitor and review from time to time the implementation of these measures.
- (b) To formulate the future fuel mix for electricity generation having regard to relevant considerations, including the energy policy objectives, public views, etc., and follow up with the power companies and relevant stakeholders on the relevant arrangements.
- (c) To monitor the implementation of the post-2018 Scheme of Control Agreements and to conduct the relevant interim reviews.
- (d) To undertake tasks in relation to the development of the electricity market, including discussing with the power companies and undertaking the necessary preparatory work to pave the way for introducing competition (including conducting the studies on grid access and enhancing interconnection).

**Job Description**  
**Principal Assistant Secretary for the Environment**  
**(Energy)**

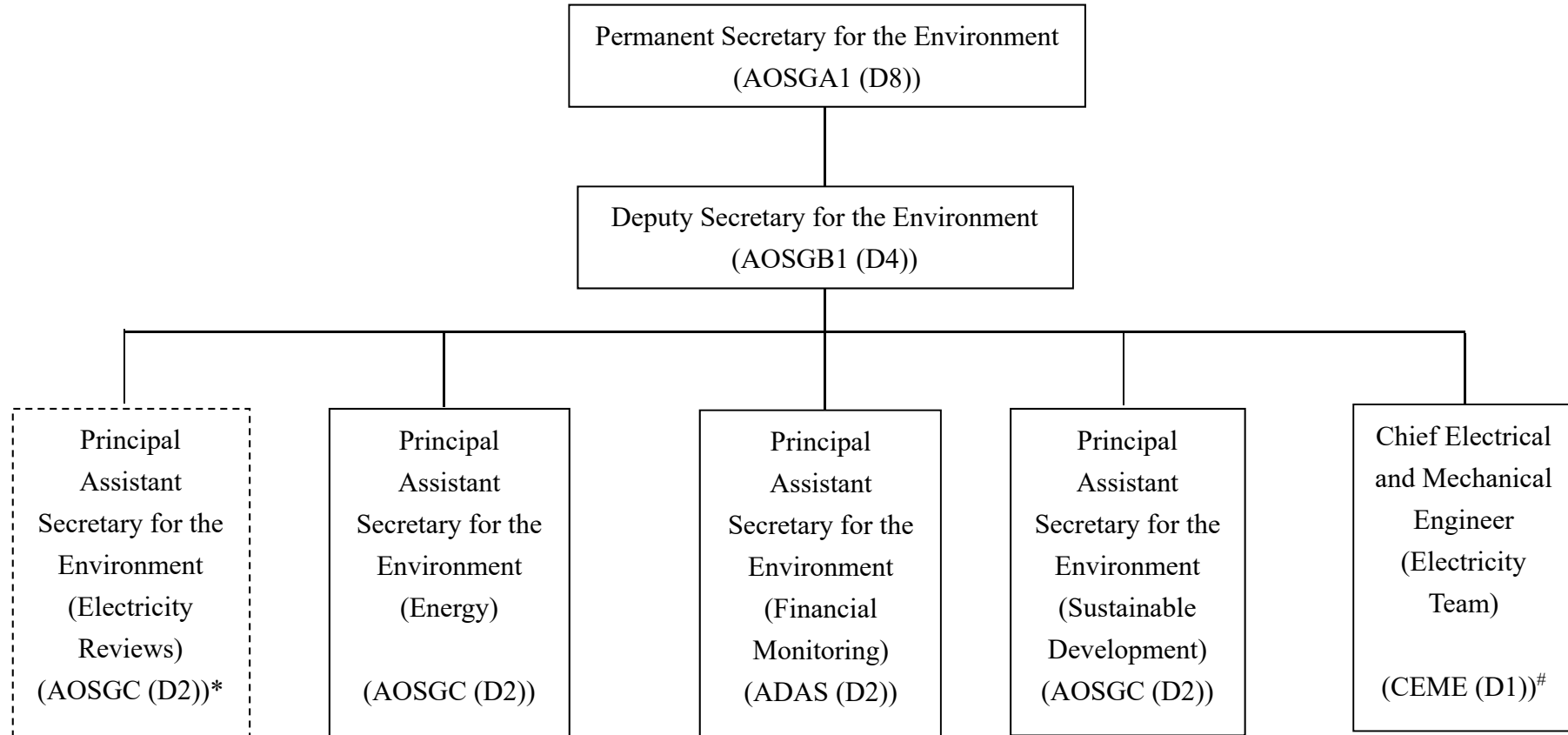
**Rank :** Administrative Officer Staff Grade C (D2)

**Responsible to :** Deputy Secretary for the Environment

**Main Duty and Responsibilities –**

- (a) To take forward policies and initiatives relating to energy efficiency and energy saving, including opening electricity data, the implementation of the Mandatory Energy Efficiency Labelling Scheme and related public education activities.
- (b) To set the Government's energy saving targets, formulate strategies in achieving the targets and monitor the implementation progress;
- (c) To develop measures to enhance building energy efficiency, including promotion of retro-commissioning, co-ordination of the Government's efforts in promoting green buildings and implementation of relevant initiatives as well as supporting the Steering Committee on the Promotion of Green Building and Renewable Energy etc.;
- (d) To handle policy matters in tackling light nuisance and energy wastage arising from external lighting, including supporting the Working Group on External Lighting in reviewing the effectiveness of the Charter on External Lighting and related follow-up work;
- (e) Policy matters relating to electricity supply and electrical safety; and
- (f) Policy matters relating to gas and oil supply and gas safety.

**Existing and Proposed Organisation Chart of ENB**



\* This supernumerary post will lapse on 29 April 2019 and is proposed to be regularised.

# This post was created under Head 42 - Electrical and Mechanical Services Department.

In addition, a Principal Assistant Secretary is on loan to the Environmental Protection Department.