For discussion **EC(2000-01)2**
on 10 May 2000

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 42 - ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT
Subhead 001 Salaries

Members are invited to recommend to Finance Committee the creation of the following permanent post -

1 Chief Building Services Engineer
(D1) ($98,250 - $104,250)

PROBLEM

The Electrical and Mechanical Services Department (EMSD) needs dedicated professional support at the directorate level to promote the wider use of Water-cooled Air Conditioning Systems (WACS), explore opportunities for using renewable energy in buildings and examine regulatory controls for energy efficiency and conservation.

PROPOSAL

2. We propose to create a permanent directorate post of Chief Building Services Engineer (CBSE) (D1) to head a new Division under the Energy Efficiency Office (EEO) in EMSD.

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JUSTIFICATION

3. After considering the findings of a preliminary consultancy study conducted by the EEO, the Energy Efficiency and Conservation Subcommittee of the Energy Advisory Committee recommended that the programme for two implementation studies of WACS be accelerated so that they are conducted in parallel and are completed by the end of 2001. The first study, the Territorial WACS Study, will be a territory-wide study to identify existing districts in which WACS could be implemented and to draw up a detailed approach to implementation. This will provide the basis for formulating a master development plan and the control requirements for the phased implementation of WACS throughout Hong Kong. The second study programme, the District WACS Studies, will map out details of district cooling systems[1] in new development areas including the South East Kowloon Development.

4. We also plan, following the decision to lift the restriction on the use of mains water for air-conditioning, to conduct a pilot project in five areas[2] on using mains water for evaporative cooling towers. We will also set up technical and administrative measures to ensure the proper operation and maintenance of evaporative cooling towers to minimise the risk of the Legionnaires' Disease.

5. In addition to the work of WACS, we will also explore opportunities of using renewable energy in buildings and examine regulatory controls for energy efficiency and conservation. We plan to commission within this year a study to assess the potential applications and uses of renewable energy resources in Hong Kong with special reference to photovoltaic technologies suitable to provide small-scale electrical power generation. A pilot project will be carried out as part of the study including the use of photovoltaic panels and solar heating panels to meet part of the electrical and heating energy demands of government office buildings. With the publication of measures such as the Building Energy Codes and the implementation of the various Energy Efficiency Labelling Schemes, we are approaching the limits of what can be achieved using a voluntary approach. We believe it is time to study the introduction of energy efficiency and conservation legislation. This study will be carried out during 2000. The community, professional institutes and developers will be consulted in 2001 on any proposals that are developed for a statutory framework.

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1 A district cooling system uses a large centralised chiller plant for generating and distributing chilled water to buildings within a district. It is more energy efficient than other types of WACS.

2 The five areas are Wanchai South, Nathan Road near Waterloo Road, Tai Po Industrial Estate, Yuen Long Industrial Estate, and Pokfulam.

6. Work on WACS is currently undertaken by the Energy Efficiency Division of the EEO, which is responsible for investigating energy efficient equipment, developing energy efficiency labeling schemes, promoting and developing Building Energy Codes, developing the Hong Kong Energy End-use Database, conducting energy audits in public buildings, studying the feasibility of energy performance contracting, and implementing an energy efficiency registration scheme for buildings. The Director of Electrical and Mechanical Services (DEMS) considers that, having regard to the scope, volume and complexity of the work arising from the new initiatives in paragraphs 3 to 5, the existing management structure of the EEO is no longer satisfactory. The existing Chief Engineer of EEO is already fully occupied with existing energy efficiency responsibilities and will in addition, supervise the work arising from the new initiatives on energy consumption indicators and energy efficiency in transport. He would be unable to devote sufficient attention to the other new initiatives.

7. DEMS proposes to establish a new Division, the Energy Efficiency Division B, within the EEO, to undertake responsibility for all matters relating to WACS, renewable energy, and energy efficiency and conservation legislation. The new Division will be responsible for -

(a) preparing the study briefs for the territorial and district studies, managing the consultants selection process and managing the two studies to ensure that they are conducted efficiently and completed on time;

(b) implementing recommendations arising from these studies and, in particular, overseeing the preparation of a master development plan for the phased implementation of WACS throughout Hong Kong;

(c) formulating the regulatory framework for the wider use of WACS;

(d) co-ordinating the work of an inter-departmental task force to be established to plan and implement the pilot project for using mains water for WACS;

(e) providing technical advice to bureaux and departments, as well as to developers and professionals in the private sector, on air-conditioning and related building services systems involving WACS and WACS-related infrastructure;

(f) undertaking publicity work to promote the wider adoption of WACS and to provide information and technical advice;

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(g) monitoring local and overseas technical developments and encouraging the use of renewable energy in buildings; and

(h) preparing proposals for introducing energy efficiency and conservation legislation.

8. In view of the significant role of the new Division and the substantial engineering expertise required, we consider that it should be led by a building services engineer of appropriate experience and seniority. He will be the Government's main technical advisor on all matters relating to WACS, renewable energy and energy efficiency and conservation legislation. He will be required to assess the technical feasibility, environmental impact and economic benefits of WACS in different development projects and on the type of WACS appropriate to a particular development. He will be responsible for promoting, planning and provision of WACS-related infrastructure, including pipework and facilities for district cooling systems. He will represent DEMS in inter-departmental committees and explain the Government's policies to the public. Given the level of responsibility, the degree of independent decision-making, the level of professional expertise required of the officer and the ongoing nature of these tasks, we propose to create a permanent post of CBSE (D1), to be departmentally designated as CBSE/EE(B) to head the new Energy Efficiency Division B. The job description for the post is at Enclosure 1.

Encl. 1

9. The proposed organisation chart of the new Division is at Enclosure 2.

Encl. 2

FINANCIAL IMPLICATIONS

10. The additional notional annual salary cost of this proposal at mid-point is $1,213,200. The additional full annual average staff cost, including salary and staff on-costs, is $2,130,000.

11. In addition, the new initiatives to promote energy efficiency would require the creation of ten permanent non-directorate posts of three Senior Engineers, four Engineers, one Personal Secretary II and two Assistant Clerical Officers at additional notional annual mid-point salary cost of $5,651,700 and a full annual average staff cost of $9,892,000. In view of the Government's policy to contain the size of the civil service, we shall critically review the need for these additional posts funded in the 2000-01 Estimates.

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12. We have included sufficient provision in the 2000-01 Estimates to cover the cost of these additional posts. The proposal would have no impact on fees.

BACKGROUND INFORMATION

13. More efficient use of energy has both economic and environmental benefits. Reducing the energy required while providing for increasing standards of living can help Hong Kong to support increases in population and strengthen its competitive position whilst minimising the impact on the environment. Lowering energy consumption, and shifting to cleaner methods of energy production can help to lower emissions of air pollutants, particulates and greenhouse gases. Between 1988 and 1998, per capita energy[3] use has increased from 38,365 Megajoule (MJ) to 58,434 MJ. Energy requirements per unit of Gross Domestic Product (GDP) have also increased by 26% and overall energy use has increased from 215,919 Terajoule (TJ) to 390,747 TJ. Compared to 1988, consumption of electricity and automotive oil products in 1998 has increased by 66% and 70%[4] respectively.

14. There is growing public concern about deteriorating air quality. There is also concern at the need for additional electricity generation capacity. The Energy Advisory Committee concluded in 1996 that using the more energy efficient WACS could reduce the growth of Hong Kong's increasing electricity demand and defer the need for additional electricity generation capacity. They have advised the Administration to encourage replacing air-cooled air conditioning systems (AACS) with WACS.

15. EMSD is responsible for the operation and maintenance of air-conditioning installations in government and public buildings with their Trading Fund Services, and promotion of energy efficiency with their EEO under their Regulatory Services. In May 1997, the then Economic Services Branch, the then Works Branch and the then Planning, Environment and Lands Branch, supported in principle the concept of wider adoption of WACS in Hong Kong. EMSD commissioned in October 1998 a Preliminary Phase Consultancy Study for the Wider Use of WACS in non-domestic premises in Hong Kong. A Senior Building Services Engineer was redeployed to the EEO on part-time ad hoc basis to manage the study.

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[3] Based on Hong Kong Energy Statistics Annual Report 1998 Edition. Energy consumption, GDP and population figures are based on that reported by Census and Statistics Department.

[4] EMSD's preliminary projection based on Hong Kong Energy End-use Database and other relevant government data.

16. The study, completed in April 1999, established the viability of the WACS and concluded that, whilst further detailed assessments on location-specific impacts are required, there are overall economic and environmental benefits for air-conditioning with WACS. Compared to AACS, energy savings of up to 32% may be achieved for the most energy efficient district cooling systems. Detailed studies are required to examine the technical, financial, institutional and control requirements and to establish development priorities for the phased implementation of WACS throughout Hong Kong. The findings and recommendations of this study were endorsed by the Steering Group of the Study (July 1999), the Energy Efficiency & Conservation Sub-committee (October 1999) and the Energy Advisory Committee (October 1999).

17. The above initiatives were included in the 1999 Policy Objective Booklet.

CIVIL SERVICE BUREAU COMMENTS

18. The Administration has considered carefully other alternatives including redeployment bearing in mind the Government's commitment to contain the size of the civil service and the need for greater efficiency and effectiveness under the Enhanced Productivity Programme. We are satisfied that the proposal contained in this paper is functionally justified. The Civil Service Bureau considers the grading and ranking of the post appropriate having regard to the level and scope of responsibility and the professional input required.

ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE

19. The Standing Committee on Directorate Salaries and Conditions of Service has advised that the grading proposed for the post would be appropriate if the post were to be created.

Environment and Food Bureau
April 2000

Job Description for
Chief Building Services Engineer (D1)

Major Duties and Responsibilities

Reporting to the Assistant Director/Energy Efficiency, the CBSE will mainly have the following duties -

1. To provide professional advice and technical support on wider use of Water-cooled Air Conditioning System (WACS) in Hong Kong.

2. To formulate the Consultancy Studies policy and strategy.

3. To provide technical advice and support to the "Steering Group of Water-cooled Air Conditioning Systems in Hong Kong" and to represent the Department to serve as Chairman of the Steering Group.

4. To examine Studies report and to make recommendations.

5. To liaise with Environment and Food Bureau, Planning and Lands Bureau, Works Bureau, Economic Services Bureau, all concerned government departments and the Consultant on matters related to the Consultancy Study, in particular on planning, working procedures and policies of relevant policy bureaux and government departments.

6. To liaise and consult with private developers, planners and concerned organisations, etc. on the anticipated requirements, detailed technical and financial arrangements for the proposed infrastructure for various schemes of water-cooled air conditioning systems.

7. To liaise and agree with concerned professional institutions, e.g., Hong Kong Institute of Architects, Hong Kong Institute of Engineers and Hong Kong Institute of Surveyors, etc. on detailed technical requirements and procedural arrangements for implementation of the proposed schemes.

8. To attend meetings of Legislative Council, district councils and interested groups in order to convey government's objectives and to explain the rationale of the proposed schemes.

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9. To plan and formulate implementation policies and strategies, including financing schemes, technical instructions and working procedures, etc., for the proposed financial, technical and infrastructure arrangements for the water-cooled air conditioning systems in Hong Kong.

10. To formulate a framework to control the Legionnaires' Disease in evaporative cooling towers and to prevent market abuses for centralised cooling systems.

11. To organise various technical seminars and publicity for different targeted groups in order to convey government's objectives and to gain public support for the proposed schemes.

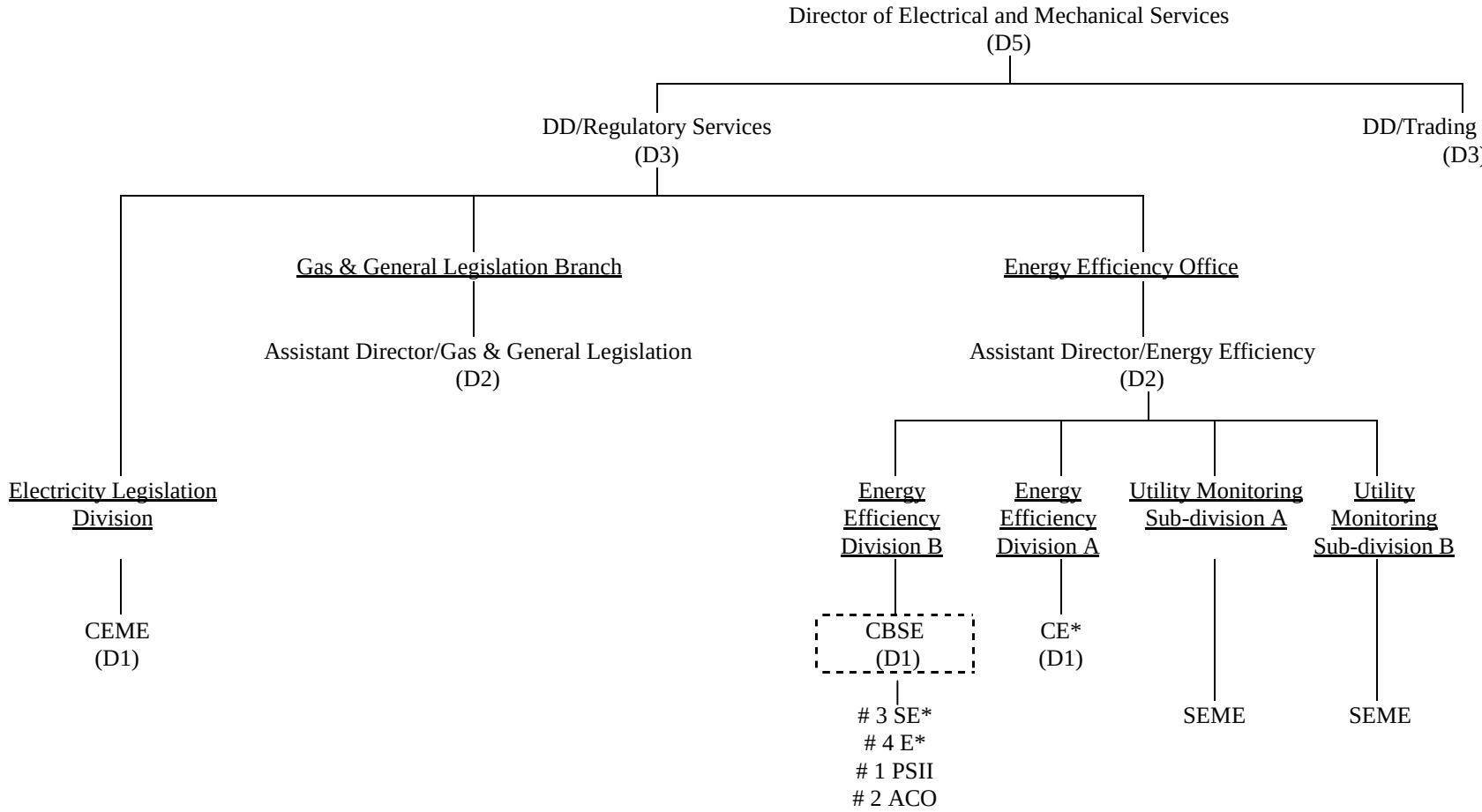
12. To co-ordinate the promotion and implementation of renewable energy;

13. To provide professional advice and technical support on the regulatory controls on energy efficiency and conservation.

14. Other duties as assigned by Assistant Director/Energy Efficiency.

Enclosure 2 to EC(2000-01)2

Proposed Organisation Chart of Energy Efficiency Office



Legend

DD	Deputy Director	SEME	Senior Electrical and Mechanical Engineer	⬚	Permanent Directorate post proposed to be created
CEME	Chief Electrical and Mechanical Engineer	SE	Senior Engineer	#	Non-directorate posts proposed to be created in Financial Year of 2000-2001
CBSE	Chief Building Services Engineer	E	Engineer		
CE	Chief Engineer	PS II	Personal Secretary II	*	Multi-disciplinary posts.
		ACO	Assistant Clerical Officer		