Supplementary Information on Use of Electricity and Measures to Reduce Electricity Consumption in Government Joint-user Office Buildings/Accommodation

Background

At the Finance Committee meeting on 24 January 2003, in response to members' questions in respect of FCR(2002-03)54, the Government Property Administrator (GPA) undertook to –

- (a) check whether there were still cases where computer servers were not installed in an enclosed area, thus necessitating the provision of 24-hour air-conditioning to the entire office premises where the computer servers were located;
- (b) explore the feasibility of installing individual electricity meter for each department in government joint-user office buildings;
- (c) consult the Electrical & Mechanical Services Department (EMSD) on measures to reduce electricity consumption in existing government buildings;
- (d) provide further information on energy saving measures currently implemented in existing government buildings and how far they were being adopted by the user departments; and
- (e) convey to EMSD the suggestion that renewable energy should be used on a wide scale instead of a few government buildings only.

Findings are set out below.

Computer servers not installed in an enclosed area

2. We have consulted users of office buildings under the Agency's purview and none has advised that there are computer servers not installed in an enclosed area.

Installing individual electricity meter for each user department

3. The Architectural Services Department (Arch SD) was consulted on the installation of check meters for individual user departments in joint-user office buildings. Its advice is that whilst such installation is technically feasible, it would involve rewiring which could be disruptive to the operation of the offices concerned. Rewiring would also need to be re-done on re-allocation of the premises. As a very rough ballpark, Arch SD estimated that a capital cost of around \$50m would be needed for rewiring 46 joint-user office buildings. In view of the significant capital cost, both upfront and on every re-allocation of space, we are considering in conjunction with the Financial Services and the Treasury Bureau whether installing individual electricity check meter for each department in government joint-user office buildings would be justified. We are also considering whether devolution of the electricity vote to users would help to control electricity expenditure.

Measures to reduce electricity consumption

4. In consultation with EMSD and the Building Management Committee of the respective building, we have since January this year introduced measures in government joint-user office buildings by phases to shorten the core air-conditioning hours and raise average room temperature from 23°C to 24°C. The arrangements have been put in place in 34 government joint-user office buildings. Plans are now in train to extend the arrangements to more buildings, where practicable. In parallel, consideration is being given to whether some of the lifts could be suspended from service during less busy office hours, in addition to the existing practice of suspending some of them during non-office hours where applicable.

Energy saving measures currently implemented

5. A summary of energy saving measures in respect of air-conditioning, lighting and electrical, lift and escalator installations in existing government joint-user office buildings/accommodation provided by EMSD is at **Annex**.

The use of renewable energy in government buildings

6. We have conveyed to EMSD Members' suggestion that renewable energy should be used on a wider scale.

Government Property Agency May 2003

Summary of Energy Saving Measures implemented in Government Joint-user Buildings

	Energy Saving Measures Building Name	Air Conditioning Installation					Lı	iminaire and Elec	ctrical Installation	Lift Installation			
		Time control to automatically switch off central A/C equipment during non-office hours (Footnote 1)	Individual zone control of A/C equipment (Footnote 2)	Water cooled central A/C system (Footnote 3)	Variable speed drive for A/C equipment (Footnote 4)	Electronic ballast / (Low loss ballast) (Footnote 5)	lamp (T8 tube or compact fluorescent lamp) (Footnote	Energy efficient lamp (T5 tube) (Footnote 7)	Time control to automatically switch off lighting during non- office hours (Footnote 8)	Power factor correction equipment (Footnote 9)	AC variable voltage variable frequency drive / (AC variable voltage drive) (Footnote 10)	Group control of lifts (Footnote 11)	Standby mode to shut off lifts after an idling period (Footnote 12)
1	ABERDEEN FISHERIES AND MARINE OFFICE		100%			95%	100%						
2	CANTON ROAD GOVERNMENT OFFICES BUILDING		30%	100%		20%	100%			100%	100%	100%	
3	CENTRAL GOVERNMENT PIER		100%			50%	100%			100%			
4	CHEUNG SHA WAN GOVERNMENT OFFICE	100%	100%		100%	100%	100%		100%	100%	100%	100%	100%
5	EASTERN LAW COURTS AND GOVERNMENT OFFICE		100%			7%	100%			100%	(100%)	100%	
6	HARBOUR BUILDING		100%			45%	55%	45%	50%	100%		100%	
7	HO MAN TIN GOVERNMENT OFFICES	80%	100%		80%	15%	90%			100%	(85%)	100%	
8	IMMIGRATION TOWER	100%	100%	100%		95%	95%	5%	100%	100%		100%	
9	KOWLOON EAST GOVERNMENT OFFICES	100%	100%			50%	100%				(100%)	100%	
10	KOWLOON GOVERNMENT OFFICES		100%	100%		70%	70%			100%	100%	100%	
11	KWAI HING GOVERNMENT OFFICES	100%	80%			100%	20%	80%			(75%)	100%	
12	KWUN TONG DISTRICT BRANCH OFFICES BUILDING	100%	30%			100%	100%			100%			
13	LAI CHI KOK GOVERNMENT OFFICES	100%	100%			10%	100%		100%			100%	
14	MIDDLE ROAD MULTI-STOREY CARPARK	100%	100%			90%	90%				100%	100%	
15	MONG KOK GOVERNMENT OFFICES	100%	100%		20%	40%	100%		20%	100%		100%	
16	MUI WO GOVERNMENT OFFICES		100%			33%	100%		5%	100%	100%		
17	MURRAY ROAD MULTI-STOREY CAR PARK BUILDING		50%	100%		10%	95%	5%	70%	100%			100%
18	NGAU TAU KOK GOVERNMENT OFFICES BUILDING		100%			90%	90%						
19	NORTH DISTRICT GOVERNMENT OFFICES BUILDING		50%			10%	100%			50%	(100%)		
20	NORTH POINT EX-FSD HQ. BUILDING		100%			100%	100%					100%	
21	NORTH POINT GOVERNMENT OFFICES	100%	100%	100%	100%	20% (80%)	100%		100%	100%	100%	100%	100%
22	OI KWAN COURT		50%		100%	98%	98%						
23	PUI CHING ROAD GOVERNMENT OFFICES		100%			100%	100%						
24	QUEENSWAY GOVERNMENT OFFICES	100%	50%	100%	20%	30%	70%	30%	8%	100%	(10%)	100%	
25	REVENUE TOWER	100%	50%	100%		98%	95%	5%	100%	100%		100%	
26	RUMSEY STREET MULTI-STOREY CAR PARK BUILDING		50%	100%		90%	90%			100%			

	Energy Saving	Air		Lı	minaire and Elec	etrical Installation	Lift Installation						
	Building Name	Time control to automatically switch off central A/C equipment during non-office hours (Footnote 1)	Individual zone control of A/C equipment (Footnote 2)	Water cooled central A/C system (Footnote 3)	Variable speed drive for A/C equipment (Footnote 4)	Electronic ballast / (Low loss ballast) (Footnote 5)	lamp (T8 tube or compact fluorescent lamp) (Footnote	Energy efficient lamp (T5 tube) (Footnote 7)	Time control to automatically switch off lighting during non- office hours (Footnote 8)	Power factor correction equipment (Footnote 9)	AC variable voltage variable frequency drive / (AC variable voltage drive) (Footnote 10)	Group control of lifts (Footnote 11)	Standby mode to shut off lifts after an idling period (Footnote 12)
27	SAI KUNG GOVERNMENT OFFICES		100%			60%	100%			100%	(100%)	100%	
28	SHA TIN GOVERNMENT OFFICES	100%	100%		100%	100%	100%		100%	100%	100%	100%	100%
29	SHAM SHUI PO GOVERNMENT OFFICE		100%			40%	100%						
30	SOUTHORN CENTRE	100%	50%		5%	95%	90%	5%		100%	(15%)	100%	
31	TA KWU LING RURAL CENTRE GOVERNMENT BUILDING		100%				100%						
32	TAI HING GOVERNMENT OFFICES	100%	100%			30%	70%	30%		100%	(100%)	100%	
33	TAI PO GOVERNMENT OFFICES BUILDING	100%	100%			95%	95%		10%	100%	100%	100%	
34	TO KWA WAN GOVERNMENT OFFICES	100%	100%			100%	100%			100%		100%	
35	TRADE AND INDUSTRY DEPARTMENT TOWER	100%	100%			45%	80%	20%	20%	100%	(25%)	100%	
36	TSUEN WAN GOVERNMENT OFFICES	100%	100%		10%	5%	100%		10%	100%	(100%)	100%	
37	TSUEN WAN MULTI-STOREY CARPARK BUILDING	100%	100%			70%	100%				(100%)	100%	
38	TUEN MUN GOVERNMENT OFFICES	100%	100%	100%		85%	100%			100%		100%	
39	TUEN MUN GOVERNMENT STORAGE CENTRE	100%	100%			100%	100%			100%			
40	WANCHAI TOWER	100%	50%	100%	50%	25%	100%		100%	100%	(50%)	100%	
41	WANG CHEONG BUILDING	100%	100%			10%	100%		10%			100%	
42	WESTERN DISTRICT MAGISTRACY BUILDING		50%			100%	100%		5%	100%		100%	
43	WU CHUNG HOUSE	10%	30%			80%	95%	5%				100%	
44	YAU MA TEI CARPARK BUILDING	100%	100%			40%	40%	10%			(50%)	100%	
45	YUEN LONG DISTRICT OFFICES BUILDING	100%	100%			100%	100%			100%	100%		
46	YUEN LONG GOVERNMENT OFFICES	100%	100%		10%	33%	100%			100%		100%	
47	ASIAN HOUSE		50%			60%	60%						
48	EMPIRE CENTRE		30%										
49	NAN FUNG COMMERCIAL CENTRE		30%										
50	NEW JADE GARDEN		50%										
51	SAI YING PUN POST OFFICE BUILDING		30%			100%	100%		100%		100%		
52	SCENEWAY PLAZA		30%										

Footnotes for Energy Saving Measures :

Air Conditioning Installation

(1) Time control to automatically switch off central A/C equipment during non-office hours

Use timer control to switch off central A/C equipment automatically during non-office hours to save energy.

(2) Individual zone control of A/C equipment

Use individual zone control for regulating the supply air volume rate and temperature according to temperature demand within the zone to save energy.

(3) Water cooled central A/C system

Adopt higher energy efficient water cooled central A/C system to replace air-cooled central A/C system.

(4) Variable speed drive for A/C equipment Adopt variable speed drives for air handling units (fans) and water pumps to reduce energy consumption by regulating fan/moter speed according to load demand.

Luminaire and Electrical Installation

(5) Electronic ballast / (Low loss ballast)

Replace conventional electromagnetic ballasts with energy efficient low loss ballasts or electronic ballasts.

(6) Energy efficient lamp (T8 tube or compact fluorescent lamp)

Replace tungsten lamps and fat tubes (T12 fluorescent lamps) with energy efficient compact fluorescent lamps and thin tubes (T8 fluorescent lamps).

(7) Energy efficient lamp (T5 tube)

Replace T8 fluorescent lamps with highly energy efficient T5 fluorescent lamps.

(8) Time control to automatically switch off lighting during non-office hours

Use timer control to switch off lighting automatically during non-office hours to save energy.

(9) Power factor correction equipment

Install capacitor bank to improve the power factor of electrical system to reduce the maximum demand.

Lift Installation

(10) AC variable voltage variable frequency drive / (AC variable voltage drive)

Replace old motor drive system with energy efficient AC variable voltage variable frequency or AC variable voltage motor drive systems.

(11) Group control of lifts

Adopt group control to fully utilize the lifts to achieve an energy efficient system.

(12) Standby mode to shut off lifts after an idling period

Switch off the lighting and ventilation fan inside the lift car when the lift is in standby/idle mode to save energy