



Guide for Energy Label and Energy Saving of Office Equipment

機電工程署
EMSD



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Introduction

This guide aims to help consumers to choose energy efficient office equipment including multifunction devices, photocopiers, laser printers, fax machines, computers, LCD monitors and hot/cold bottled water dispensers. Various tips on using office equipment efficiently and economically are introduced in this booklet promote the green office concept.

This guide also provides the ways of reducing the standby power of the equipment, so that more comprehensive green office concept can be promoted.

Want more information about Energy Labels?

Please visit Electrical & Mechanical Services Department (EMSD) website to be familiarized with the technical and application requirements for ENERGY LABELS.

For further information, please contact the Energy Efficiency Office, EMSD Homepage: <http://www.emsd.gov.hk>
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Hot/Cold Bottled Water Dispensers

1.1 How to Choose Energy Efficient Hot/Cold Bottled Water Dispensers

- Select a bottled water dispenser with **ENERGY LABEL**. The power rating for bottled water dispensers with various functions shall meet the corresponding specifications as shown in Table 1.

Table 1: Maximum Allowable Power Rating

Product Category	Energy Consumption Under Test Conditions
Cold bottled units	< 0.16 kW - hours / day
Hot bottled units	< 0.75 kW - hours / day
Hot and cold bottled units	< 1.20 kW - hours / day

1.2 Tips of Using Bottled Water Dispensers

- Turn off the dispenser when you are not using it for a long time.
- Consider whether you can drink the bottle water without heating or cooling by the dispenser.
- Adjust the water temperature close to ambient temperature if it is possible.



Multifunction Devices

The advantages of multifunction device (MFD) include systems integration, ease of use, office space savings and often lower capital costs in comparison with buying several equipment items which perform the same range of functions. If you use any functions of a MFD relatively infrequently, it may cost more because you cannot turn that function off while the machine is on for other functions. Therefore, deliberate consideration of MFD's pros and cons is needed to choose suitable equipment according to customers' need.

2.1 How to Choose Energy Efficient Multifunction Devices

- Evaluate the likely recurrent financial and environmental impact of the MFD compared to individual pieces of equipment.
- Select a MFD with **ENERGY LABEL** issued by EMSD. It can reduce the annual electricity cost at inactive stage by about 50%.
- Choose a MFD having "Low Power" mode and "Sleep" mode, as in the following sequence:



Standby mode:

- the device has reached operation condition but not yet entered into "Low Power" mode
- the device is capable of making next hard copy output without time delay

Low Power mode:

- enter this mode within a specified period of time after the last hard copy output has been made no matter what is the input source
- power use is reduced when compared with those used in the "Standby" mode

Sleep mode:

- enter this mode within a specified period of time after the last hard copy output has been made or after it has entered the "Low Power" mode (if a "Low Power" mode is provided)
- hard copy output and acceptance of information may be delayed
- power use is further reduced (lowest power state)
- Select the MFD with **ENERGY LABEL**. The power rating of a MFD model at various MFD speeds for "Low Power" mode and "Sleep" mode operations shall meet the corresponding specifications as shown in Table 2.

Table 2: Maximum Allowable Power Rating for MFD

Multi-function Device Speed(ipm)	Low Power mode (Watt)	Sleep mode (Watt)
0 < ipm ≤ 10	NA	≤ 20
10 < ipm ≤ 20	NA	≤ 55
20 < ipm ≤ 44	3.00 x ipm + 40	≤ 60
44 < ipm ≤ 100	3.00 x ipm + 40	≤ 75
100 < ipm	3.00 x ipm + 40	≤ 80

*ipm= image per minute

The default time of a multifunction device model at various speeds for "Sleep" mode operation shall meet the corresponding specifications as shown in Table 3.

Table 3: Maximum Allowable Default Time for MFD

Multi-function Device Speed(ipm)	Low Power mode Default Time(minute)	Sleep mode Default Time(minute)
0 < ipm ≤ 10	NA	≤ 15
10 < ipm ≤ 20	NA	≤ 30
20 < ipm ≤ 44	≤ 15	≤ 60
44 < ipm ≤ 100	≤ 15	≤ 90
100 < ipm	≤ 15	≤ 120

2.2 Tips of Using Multifunction Devices Economically

- Refer to the sections – Tips of Using Photocopiers Economically, Tips of Using Laser Printers Economically, and Tips of Using Fax Machines Economically.

Photocopiers

3.1 How to Choose Energy Efficient Photocopiers

- Make sure a photocopier is equipped with accessories, in which the quoted power rating in "Low Power" mode includes the power consumed by accessories.
- Look for a photocopier with an "Energy Saving" button in addition to programmable power management features so that users can put the machine into "Low Power" mode as soon as they finish copying.
- Choose a photocopier with a 7-day timer switch that allows you to programme it to turn off when it is not needed at the end of each work day and over the weekends.
- Select a photocopier with **ENERGY LABEL** issued by EMSD. It can reduce the annual electricity cost at inactive stage by about 50%.
- Choose a photocopier having "Low Power" mode and "Off" mode with the following sequence:



Standby mode:

- the photocopier is not making copies
- the device has reached operating condition but not yet entered into any "Energy Saving" mode
- the device is capable of making next hard copy output without time delay

Low Power mode:

- enter this mode within a specified period of time after the last hard copy output was made
- lowest power state the photocopier can automatically enter within a certain period of inactivity

Off mode:

- the mode in which the photocopier is still connected to a power supply but has been shut off automatically
- Select a photocopier with **ENERGY LABEL**. The power rating of a base unit or photocopier model at various photocopier speeds for "Low Power" mode and "Off" mode operations shall be equal to or less than the corresponding maximum allowable values as indicated in Table 4.

Table 4: Maximum Allowable Power Rating

Copies per minutes (cpm)	Low Power mode (Watt)	Off mode (Watt)
0 < cpm ≤ 20	None	≤ 5
20 < cpm ≤ 44	(3.85 x cpm) + 5	≤ 15
44 < cpm	(3.85 x cpm) + 5	≤ 20

The default time of a base unit or copier model at various copier speeds for "Low Power" mode and "Off" mode operations shall be equal to or less than the corresponding maximum allowable values as indicated in Table 5.

Table 5: Maximum Allowable Default Time

Copies per minutes (cpm)	Low Power mode Default Time (minute)	Off mode Default Time (minute)
0 < cpm ≤ 20	NA	≤ 30
20 < cpm ≤ 44	≤ 15	≤ 60
44 < cpm	≤ 15	≤ 90

3.2 Tips of Using Photocopiers Economically

- Turn the photocopier off at the power point at the end of working day and during periods of inactivity.
- Set "Low Power" and "Off" mode default time to the lowest available settings that suit your purposes.
- Copy double-sided whenever practicable
- Start up the photocopier that consumes extra energy to get ready to operate. You can save energy by "batch copying", which involves saving up your copying tasks and doing them in one batch.

Laser Printers

Laser printers use similar technology of photocopiers, so their energy consumption is similar to that of small photocopiers. Inkjet or modern dot matrix printers can provide very high print quality but they are slower than laser printers. Whilst inkjet printers are often cheaper than laser printers, the cost of buying new link cartridges may make them more expensive in the long run. You can cut down the cost and their environmental impact by refilling the inkjet cartridges.

4.1 How to Choose Energy Efficient Laser Printers

- Ensure a laser printer has toner and check the documentation of the amount of toner and ink saved in this mode.
- Choose a laser printer that can print double-sided and consider installing a third paper tray for networked printers so that you can print drafts and internal documents on paper that is already printed on one side.
- Select a laser printer with **ENERGY LABEL** issued by EMSD. It can reduce the annual electricity cost at inactive stage by about 50%.
- Choose a laser printer having "Standby" mode and "Sleep" mode as following sequence:



Standby mode:

- the laser printer is not producing hard copy output
- power use is reduced compared with the mode when output is produced



Sleep mode:

- the printer is not producing hard copy output
- enter this mode within a specified time period after the last hard copy was produced

- power use is further reduced when compared with those used in the "Standby" mode

- Select a laser printer with **ENERGY LABEL**. The power rating for "Sleep" mode operation and the default time to "Sleep" mode for laser printer models at various printer speeds shall meet the corresponding specifications as shown in Tables 6

Table 6: Maximum Allowable Power Rating and Default Time to "Sleep" mode for B&W Laser Printers.

Printer Speed in Pages Per Minutes (ppm)	Sleep mode (Watt)	Default Time to Sleep mode (minute)
0 < ppm ≤ 10	≤ 5	≤ 5
10 < ppm ≤ 20	≤ 10	≤ 15
20 < ppm ≤ 30	≤ 15	≤ 30
30 < ppm ≤ 44	≤ 20	≤ 60
44 < ppm	≤ 40	≤ 60

Table 7: Maximum Allowable Power Rating and Default Time to "Sleep" mode for Colour Laser Printers

Printer Speed in Pages Per Minutes (ppm)	Sleep mode (Watt)	Default Time to Sleep mode (minute)
0 < ppm ≤ 10	≤ 20	≤ 30
10 < ppm ≤ 20	≤ 25	≤ 60
20 < ppm	≤ 40	≤ 60

4.2 Tips of Using Laser Printers Economically

Before printing, think about whether you really need a printed copy. Whenever possible, communicate via email instead. For those documents you do need to print, here are some energy and paper saving tips:

- Turn off the laser printer when you are not using it and at the end of the working day in order to reduce energy use
- Set sleep mode default times to the lowest available setting that is convenient to you
- Print double-sided whenever practicable
- Adjust your margins and type size to fit more on the page
- Use ink and toner saving settings
- Recycle or refill toner and ink cartridges

Fax Machines

5.1 How to Choose Energy Efficient Fax Machines

- Buy a machine that uses plain paper. If it is a laser or LED machine, make sure your warranty covers recycled paper. Otherwise, choose an inkjet machine.
- For a fax/printer machine, make sure that the model you choose is more energy-efficient than running two separate machines.
- Choose a fax machine with "Sleep" mode as following sequence:



Sleep mode:

- the fax machine is not producing hardcopy output or receiving hardcopy input
 - In the transition from "Sleep" mode to "Active" mode, there may be some delay in the production of hardcopy output. However there will not be any delay in the acceptance of information from a telephone line, a network or other input source
- Select a fax machine with **ENERGY LABEL**. The power rating for "Sleep" mode operation and the default time to "Sleep" mode for fax machines shall meet the requirements in Tables 8 and 9 when configured with network functionality.

Table 8: Energy Efficiency Requirements for Fax Machines

Product Speed in Pages Per Minutes (ppm)	Sleep mode Power Consumption	Default Time to Sleep mode
0 < ppm ≤ 10	7 Watt or less	5 minutes or less
10 < ppm	10 Watt or less	5 minutes or less

Table 9: Energy Efficiency Requirements for Printer/Fax Combinations

Product Speed in Pages Per Minutes (ppm)	Sleep mode Power Consumption	Default Time to Sleep mode
0 < ppm ≤ 10	7 Watt or less	5 minutes or less
10 < ppm ≤ 20	14 Watt or less	15 minutes or less
10 < ppm ≤ 30	21 Watt or less	30 minutes or less
10 < ppm ≤ 44	28 Watt or less	60 minutes or less
44 < ppm	50 Watt or less	60 minutes or less

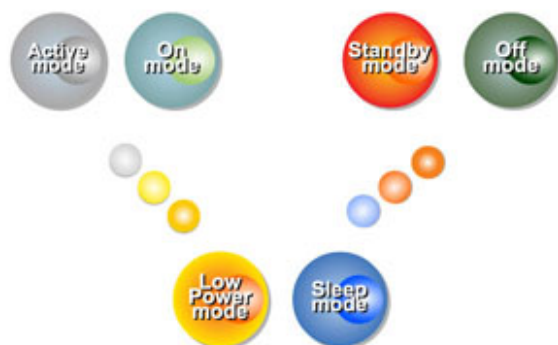
5.2 Tips of Using Fax Machines Economically

- Think about whether you can communicate via email instead before faxing something.
- Divert calls to one or a few units after working hours and turn the rest of the units off if you have many fax machines.
- Set "Sleep" mode default times to the lowest available setting.
- Use paper that is already printed on one side.
- Adjust your margins and type size to fit more on the page.
- Use ink and toner saving settings.
- Recycle and refill toner and ink cartridges.

Computers and LCD Monitors

6.1 How to Choose Computers and LCD Monitors

- Consider buying a laptop since a laptop is much more energy and material-efficient than a desktop computer and monitor.
- Consider buying LCD-type flat screens for your desktop computers, as they are more energy and space-efficient than Cathode-ray Tube (CRT) monitor.
- Choose a LCD monitor with "Low Power" / "Sleep" mode and "Standby" / "Off" mode as following sequence:



Low Power / Sleep mode:

- a blank screen is shown
- power use is reduced when compared with those used in the "On" mode
- returns to "On" mode upon sensing a request from user

Standby mode / Off mode:

- the monitor is connected to the power supply but no image is produced and power is still being used
- power use is further reduced (lowest power-consuming state)
- waiting to be switched to "On" mode by a direct signal from user, e.g. user pushes power switch

- Select computer with **ENERGY LABEL**. The power rating for "Sleep" mode operation and the default time to "Sleep" mode for computers shall consume power in the "Sleep" mode according to Table 10.
- Select LCD monitor with **ENERGY LABEL**. The allowable power consumption for monitor models must not exceed the maximum active power consumption shown in Table 11. In addition, the power rating for monitors shall meet the "Sleep" mode and "Off" mode requirements according to Table 12.

Table 10: Energy Efficiency Specifications for Computers

Maximum Continuous Power Rating of Power Supply	Watt in Sleep mode
≤ 200W	≤ 15W
> 200W ≤ 300W	≤ 20W
> 300W ≤ 350W	≤ 25W
> 350W ≤ 400W	≤ 30W
> 400W	≤ 10% of maximum continuous output rating

- Computers that always maintain a level of power consumption of 15 Watt or less comply with the power consumption requirements and are not required to incorporate the "Sleep" mode described.

Table 11: LCD Monitor – "On" Mode Maximum Power Levels

Resolution	Total Pixels	Maximum Power Use(Watt)
640 x 480	307,200	23
800 x 600	480,000	23
1024 x 768	786,432	23
1080 x 768	983,040	23
1280 x 1024	1,310,720	37
1600 x 1024	1,638,400	46
1600 x 1200	1,920,000	54
1920 x 1200	2,304,000	65
1800 x 1440	2,592,000	73
2048 x 1440	2,949,120	83
2048 x 1536	3,145,728	88

Table 12: Energy Efficiency Criteria for "Sleep" and "Off" Modes of LCD monitors

Sleep mode	Sleep mode Default Time	Off mode/Standby Power Default Time (with Sleep mode exception)	Off mode Power
≤ 2 Watt	≤ 30 minutes	≤ 30 minutes	≤ 1 Watt

6.2 Tips of Using Computers and LCD Monitors Economically

- Switch them off outside working hours.
- Switch off your computer whenever you are away from your desk for an hour or more or for whatever shorter time you find convenient in order to reduce power consumption.
- Select products with low operating wattages. Desktop computers generally draw about 40 to 50 Watt when in use. Monitors usually use 50 to 100 Watt.
- Make sure that you enable the power-management feature on your computer for "Sleep" mode if your computer must be left on when you are not using it.
- Avoid using screen savers which do not save energy and can prevent your computer from "Sleeping".
- Reduce the brightness level of the screen to the lowest level you find comfortable.
- Avoid placing any computer and the associated LCD monitor in a humid, dusty or hot environment or under direct sunlight.
- Unplug equipment chargers and adapters from socket outlets when not in use.



Tips for Reducing Standby Power

7.1 Establish Company Wide Energy Efficiency Policy

- Show the support of top management in energy efficiency policy and measures
- Purchase equipment with ENERGY LABEL
- Purchase equipment with low standby power
- Purchase equipment with automatic "Low Power" mode or "Energy Saving" mode
- Get staff to understand and commit good energy saving practices by continuous training and communication, setting up of housekeeping practices such as assigning designated officers to inspect workplace, discussing sessions for identifying areas of improvement, etc

7.2 Equipment Setting and Staff training

- Inform staff of the power management features of office equipment
- Ask supplier to pre-set power management features and provide training to staff

7.3 Use of Office Equipment

(a) During office hours

- Switch computers to sleep or hibernation mode and switch off monitors, printers when leaving office for long time (e.g. during meetings, lunch time, etc)

(b) When leaving office

- Switch off individual equipment preferably at the power outlets
- Arrange the last-man-out to check and turn off all office equipment
- Keep the number of switched on equipment that has to perform its primary function during non-office hours to a minimal, such as forward all fax lines to one fax machines, group computer servers and switch off non-essential servers
- Where applicable, use 7-days timer to help in energy management for shared office equipment