

**For information**

**Legislative Council Panel on Environmental Affairs**

**Proposed Mandatory Energy Efficiency Labelling Scheme**

**PURPOSE**

This paper informs Members of the framework of the proposed mandatory energy efficiency labelling scheme (EELS) for specified electric appliances in Hong Kong.

**BACKGROUND**

**Hong Kong's Energy Consumption**

2. Total local energy consumption at end-use level in Hong Kong grew at an average rate of 1.4% per annum in the last decade. In 2004, the total electricity consumption in Hong Kong was 39 200 Gigawatt hours (GWh), of which about 28% were used by household appliances and office equipment.

**Voluntary Energy Efficiency Labelling Scheme**

3. Since 1995, the Electrical and Mechanical Services Department (EMSD) has been operating a voluntary EELS for household and office appliances and vehicles. The scheme aims to promote energy saving by informing potential customers of the energy performance level of the products. This scheme also intends to encourage product suppliers to make available more energy-efficient products to meet customers' demand.

4. There are two types of labels under the voluntary EELS, namely the "Grading Type" and the "Recognition Type" energy labels. Description and samples of these two types of energy labels are at

**Annex A.** To date, the scheme covers a total of 17 types of energy consuming products, a full list of which is at **Annex B.**

## **Energy Saving**

5. Significant energy saving can be achieved if the community is willing to switch to more energy efficient household and office appliances. Products with good energy performance will produce substantial energy saving. For example –

- (a) A “grade 1” energy-labelled room cooler of 9 000 British thermal units (Btu)/hr with cooling capacity for a 10 square metres bedroom could save 480 kWh electricity (equivalent to about \$430) per year<sup>1</sup> when compared to a “grade 5” room cooler with the same cooling capacity.
- (b) For a family of four, which uses various types of common electrical household appliances<sup>2</sup> with the best energy efficiency characteristics, the total annual saving could amount to \$2,150 when compared to the energy consumption of appliances with “grade 5” energy labels.

## **PROPOSED MANDATORY ENERGY EFFICIENCY LABELLING SCHEME**

6. Under the existing voluntary scheme, the market penetration rate of the scheme varies among products. Room coolers and refrigerators are the two products having the highest market penetration rates of 80% and 70% respectively. However, the market penetration rates of some other products, such as television sets and washing machines, remain at around 10%.

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<sup>1</sup> Assuming total running hours equal to 1 200 per year, and average tariff of \$0.9 per kWh.

<sup>2</sup> Assuming the group of electrical appliances in the family comprises of 1 refrigerator, 3 room coolers, 1 washing machine, 10 compact fluorescent lamps, 1 electric clothes dryer, 1 electric storage water heater, 1 electric rice cooker, 1 dehumidifier, 1 television set and 1 LCD monitor.

7. Whilst we will continue to promote the voluntary scheme to the public and the trades, we do not anticipate significant improvement in the market penetration rates for these products under the existing voluntary system. As part of the Government's ongoing efforts to promote the efficient use and conservation of energy, we believe that it is opportune to introduce a mandatory EELS to achieve the following objectives –

- (a) to increase public awareness on the importance of using energy efficient products;
- (b) to facilitate consumers to choose energy efficient products;
- (c) to provide additional incentive to product suppliers to market more energy-efficient products; and
- (d) to promote energy saving.

8. The useful role of a mandatory labelling scheme in energy efficiency and conservation and achieving sustainable development is well recognized internationally. As part of their long-term energy efficiency and conservation programme, over 40 overseas countries, including the United States, European Union, Australia, New Zealand, Canada and South Korea, have introduced mandatory EELS on various types of products (please see **Annex C**).

9. We propose that under the mandatory scheme, energy labels in prescribed formats indicating the energy efficiency grades of the concerned models are required to be shown on specified products to inform consumers of the energy performance of the products. The scheme will also help drive out products with poor energy performance in the long run.

10. The inclusion of energy consuming products into the mandatory EELS will be implemented in phases. We suggest to include the following three products in the initial phase of the mandatory EELS:

- (a) Refrigerators;
- (b) Room coolers; and
- (c) Compact fluorescent lamps.

As indicated in the table below, these three products together account for more than 70% of the electricity consumption in the residential sector. They are also the products that have been included since the early stages of the voluntary EELS and have the highest market penetration rates. Coupled with a suitable grace period, we believe the trades will be able to adapt to the scheme.

Product	% of residential electricity consumption	Market penetration of the voluntary EELS (by sales volume)
Room coolers	40%	80%
Compact fluorescent lamps	19%*	40%
Refrigerators	15%	70%

\*Note: the percentage includes lighting from all types of lamps, e.g. compact fluorescent lamps, incandescent lamps, etc.

11. In line with the existing voluntary EELS, suppliers of products covered by the mandatory EELS will be required to register the product models with EMSD prior to supplying them to the local market. Suppliers will be required to submit relevant energy performance information of the products for registration. A registration fee to recover the administration cost of vetting and approval of the submission will be levied. We will first review the results of the initial phase of the mandatory scheme, taking into account energy consumption reduction achievement and acceptance of the community and the trades, before considering whether the mandatory labelling scheme should be expanded to other products.

12. We estimate that with the implementation of the proposed mandatory EELS for the three specified products, an additional electricity saving of 150 GWh per year could be achieved. This amount is equivalent to the annual electricity consumption of 105 000 units of room coolers<sup>3</sup>, or a monetary saving of \$135 million in electricity bill per year. It also corresponds to an annual reduction of carbon dioxide emission of 105 000 tonnes.

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<sup>3</sup> Assuming each of these room coolers has a cooling capacity of 9,000 Btu/hr with an average energy efficiency performance, and runs 1,200 hours per year.

## **WAY FORWARD**

13. We plan to embark on a three-month public consultation exercise in end July 2005 on the proposed mandatory EELS. During the public consultation period, we will consult stakeholders and expect to draw more ideas and practical implementation proposals from consumers, suppliers and manufacturers. We will report to the Environmental Affairs Panel the outcome of our public consultation exercise.

14. Members are invited to note the proposal as set out in paragraphs 6-13 of the paper.

**Environmental Protection Department**  
**June 2005**

## Description and Samples of Energy Labels under the Voluntary Energy Efficiency Labelling System

### “Grading Type” energy label

The “Grading Type” energy label classifies the energy performance of a product type into five grades. A product with a “grade 1” label means that it is the most energy efficient in the market. Whilst a “grade 3” label signifies the product itself is in the average class in respect of energy efficiency, a “grade 4” or “grade 5” label denotes that the product’s energy efficiency performance is below the average in the market.

<b>ENERGY LABEL</b> 能源標籤	
<b>Brand 牌子</b>	ABC 某某牌
<b>Model 型號</b>	HK1234
<b>Annual Energy Consumption* kWh/yr</b> 每年耗電量 * 每年24小時 <small>Actual consumption depends on where the appliance is located and how it is used. Based on 1200 hrs/yr operation.            實際耗電量視乎冷氣機的位置及使用方式。預設值每年耗電量為1200小時。</small>	<b>1200</b>
<b>Energy Efficiency Grade*</b> 能源效益級別 <small>Among the five grades, Grade 1 is the most energy efficient.            在五級中，第一級最為省電。</small>	<b>1</b>
<b>Room Cooler Category*</b> 冷氣機類別 <b>Cooling Capacity (kW)</b> 製冷量 <b>Refrigerant</b> 製冷劑	<b>1</b> <b>2.5</b> <b>HFC 123</b>
<b>EEL Registration Number</b> 能源標籤登記號碼	<b>C 96-0001</b>
<small>* The data are provided according to the Hong Kong Energy Efficiency Labeling Scheme for Room Coolers administered by the Electrical and Mechanical Services Department (EMSD), Government of the Hong Kong Special Administrative Region. The registration record can be found at the EMSD website at <a href="http://www.emsd.gov.hk">www.emsd.gov.hk</a>.</small>	
<small>資料根據香港特別行政區政府機電工程署推行的香港冷氣機能源效益標籤計劃的規定列出。有關註冊記錄可查閱網址 <a href="http://www.emsd.gov.hk">www.emsd.gov.hk</a>。</small>	
機電工程署 <b>EMSD</b>	

Sample of “Grading Type” energy label

## “Recognition Type” energy label

The “Recognition Type” energy label is used to distinguish or recognize the products that have met certain level of energy efficiency and performance requirement.



Sample of “Recognition Type” energy label

**Products under the Voluntary Energy Efficiency Labelling Scheme**

**Household Appliances**

- Refrigerators
- Room coolers
- Washing machines
- Electric clothes dryers
- Compact fluorescent lamps
- Electric storage water heaters
- Electric rice cookers
- Dehumidifiers
- Television sets
- Electronic ballasts
- Domestic gas instantaneous water heaters

**Office Equipment**

- Photocopiers
- Multifunction devices
- Laser printers
- Computers
- LCD monitors

**Vehicles**

- Petrol passenger cars

### Examples of Electric Appliances Regulated under Mandatory EELS in Overseas Countries

Countries	Electric Appliances regulated under mandatory EELS
Australia	Air conditioners, clothes dryers, clothes washers, dishwashers, and refrigerators and freezers
Canada	Air conditioners, clothes dryers, clothes washers, dishwashers, electric ovens, integrated washer-dryers, and refrigerators and freezers,
Mainland China	Refrigerators, and room coolers
South Korea	Air conditioners, ballasts for fluorescent lamps, clothes washers, compact fluorescent lamps, dishwashers, fluorescent lamps, incandescent bulbs, kim-chi fridges, refrigerators and freezers, rice cookers, and water dispensers
Britain	Air conditioners, clothes washers, clothes dryers, integrated washer-dryers, dishwashers, electric ovens, lamps, and refrigerators and freezers,
United States	Air conditioners, ballast, boilers, clothes washers, dishwashers, furnaces, heat pumps, lamps, refrigerator and freezers, and water heaters