

**For information
on 12 August 2011**

**Legislative Council
Panel on Environmental Affairs**

**Public Consultation on
the Restriction of Sale of Energy-inefficient Incandescent Light Bulbs**

PURPOSE

This paper informs Members that the Administration launched a three-month public consultation on the restriction of sale of energy-inefficient incandescent light bulbs (ILB) on 12 August 2011. The consultation document is at [Annex](#).

BACKGROUND

2. In the past decade, lighting on average accounted for around 15% of total electricity consumption in Hong Kong. Therefore, replacement of ILB by energy-efficient lighting products will achieve substantial saving in power consumption.

3. In the 2008-09 Policy Address, the Government committed to conducting a study on progressively replacing ILB by energy-efficient lighting products, and whether the sale of ILB should be restricted by legislation. The relevant consultancy study has been completed.

4. Currently, the use of energy-efficient lighting products has been widely promoted around the world to replace ILB. We have taken into account the overseas regulatory regimes and the supply of replacement options for ILB in Hong Kong etc., in formulating Government's proposal to restrict the supply of ILB in phases in the consultation document. The proposal seeks to reduce energy consumption and carbon dioxide emissions, thereby mitigating the impact of climate change.

Overseas regulatory regimes

5. According to the consultancy study, many countries and regions have implemented or planned for the phasing out of ILB. Some of them adopt mandatory measures, while others resort to voluntary measures to encourage and push for changes.

6. ILB can be classified into reflector and non-reflector types. Given the limited availability of substitutes for reflector type ILB, many countries and regions focus their regulatory efforts on phasing out non-reflector type ILB which are implemented in stages. Given the prevalence of general lighting service (GLS) lamps and the availability of energy-efficient substitutes, many countries opted to phase out GLS lamps first, to be followed by other types of ILB.

7. On the other hand, countries including Japan opted for a voluntary approach by coming into agreement with retailers and manufacturers to cease replenishing stocks and supply of ILB within a specified timeframe.

Replacement options

8. In considering whether sufficient and viable replacement options are available for ILB, due regards have to be given to their service life, colour rendering, colour temperature, lamp cap, efficacy, wattage range, lighting control, etc.. Taking into consideration these factors and the availability of substitutes in the market, we consider that non-reflector type ILB can by large be replaced by more energy-efficient types of lamps, such as compact fluorescent lamps and Light Emitting Diode (LED) lamps, etc.

PROPOSAL

9. We propose to restrict the supply of energy-inefficient non-reflector type ILB by phases through legislation. We propose that

the initial phase of the mandatory scheme (the Scheme) should cover 25 watt (W) or above non-reflector type ILB, which operates at a single phase electricity supply of nominal voltage of 220 volts (V), including GLS lamps, candle shape, fancy round and other decorative lamps, but excluding tungsten halogen lamps. For the aforesaid lamps, we propose –

- (a) to prohibit the supply of those lamps that cannot meet the minimum energy performance standards (MEPS); and
- (b) that the supply of those lamps that can meet the MEPS should be governed by a registration system.

10. We propose to make reference to overseas mandatory schemes in determining suitable MEPS to be adopted in Hong Kong.

11. The coverage of the initial phase of the Scheme is outlined above. We will conduct review in future to consider extending the Scheme to cover other types of lamps such as tungsten halogen lamps as appropriate.

Potential benefits

12. As most 25W or above non-reflector type ILB supplied in Hong Kong cannot meet the prevailing MEPS adopted overseas, the adoption of MEPS for the Scheme will effectively reduce the supply of such lamps in the local market, thereby achieving reduction in energy consumption and carbon dioxide emissions.

13. We estimate that the implementation of the Scheme can bring about a saving in electricity of up to 390 GWh per annum, which yields a potential annual saving of about \$390 million in electricity bills and a reduction of 273,000 tonnes of carbon dioxide emissions.

PUBLIC CONSULTATION

14. The public consultation will end on 11 November 2011. The consultation document and leaflet are available at the regional offices of the Environmental Protection Department, public libraries and the Public Enquiry Service Centres of the Home Affairs Department, and can be downloaded from the website of the Environment Bureau. The Government will also consult relevant advisory committees, professional bodies, major chambers of commerce and the lighting trade.

Environment Bureau
Electrical and Mechanical Services Department
August 2011

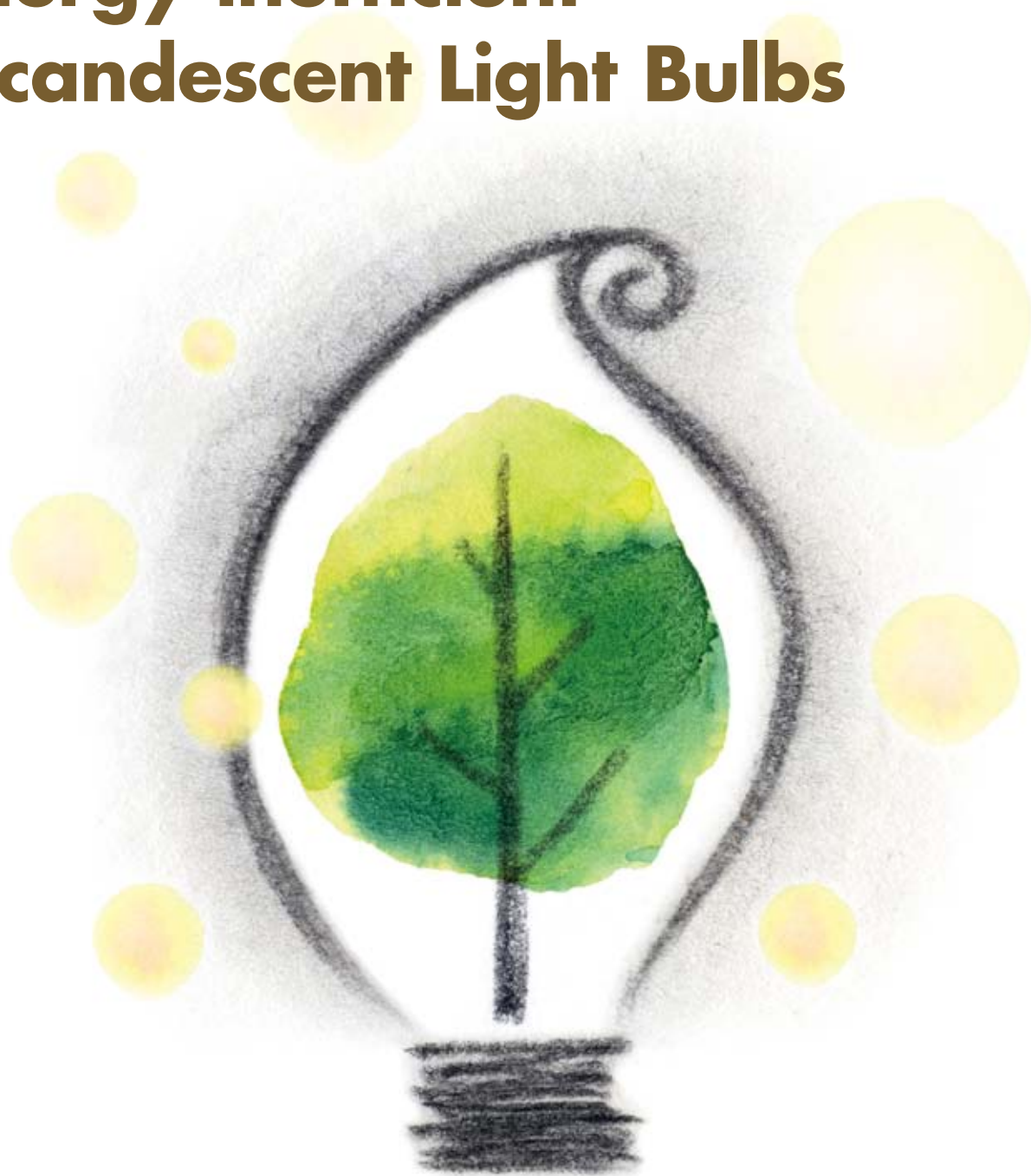


Environment Bureau

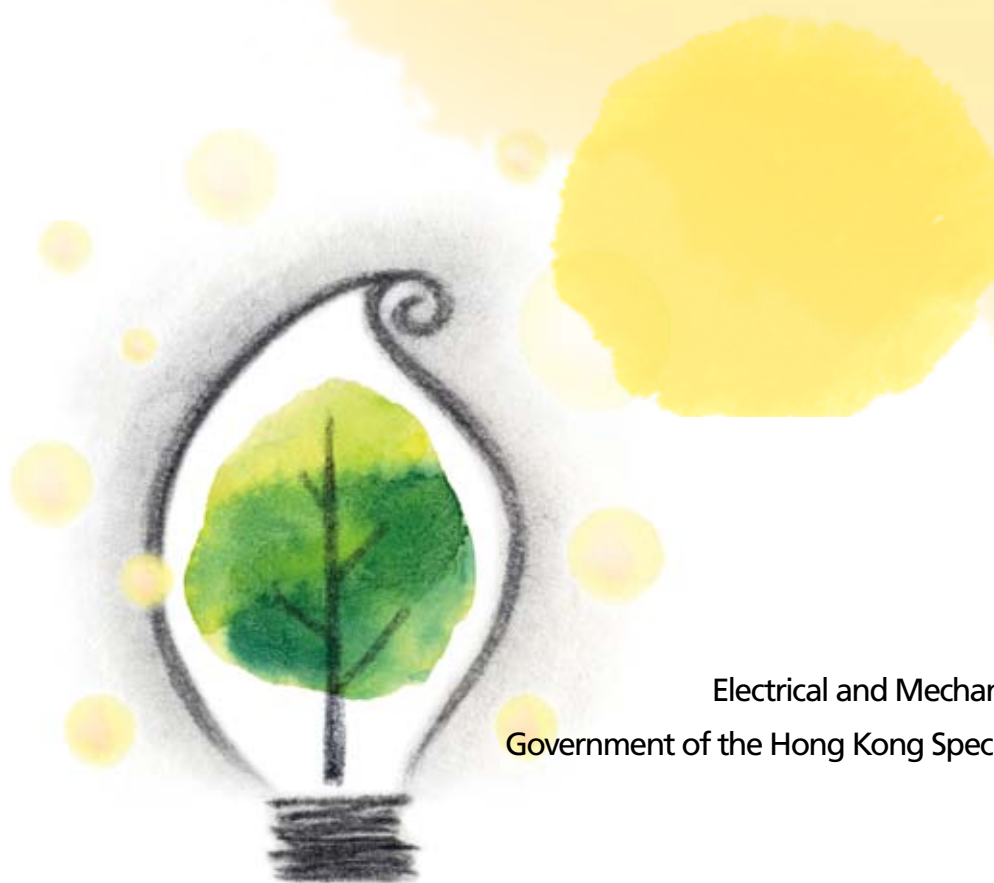
Electrical and Mechanical Services Department

Consultation Document

Restriction of Sale of Energy-inefficient Incandescent Light Bulbs



Consultation Document on Restriction of Sale of Energy-Inefficient Incandescent Light Bulbs



Environment Bureau
Electrical and Mechanical Services Department
Government of the Hong Kong Special Administration Region

August 2011

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Introduction

Lighting installation is an indispensable part of modern city life. How to light up our city in an energy-efficient way in line with the concept of sustainable development is a question that deserves much thought.

In the past century, incandescent light bulbs (ILB) have been used on a massive scale all over the world and is now still commonly found in Hong Kong. Despite its prevalence, ILB consume much electricity and many economies around the world have started to phase out ILB having regard to technological advancement and for environmental cause.

As energy-efficient alternatives to ILBs, e.g. compact fluorescent lamps (CFL), are commonly available in Hong Kong, we should pursue greener lighting for conserving energy and reducing greenhouse gas emissions.

This document outlines the Government's proposal on restricting the supply of energy-inefficient ILB. Your views will be most valuable to us in framing the way forward.

Section 1

Climate Change

- 1 Climate change has emerged as one of the most important challenges facing mankind. Governments all over the world have been endeavouring to reduce the emissions of greenhouse gas (GHG) by, inter alia, promoting energy efficiency and conservation. The Government is committed to contributing to international efforts to combat climate change. In fact, we have pledged under the Asia-Pacific Economic Cooperation Leaders' Declaration on Climate Change in 2007, to reduce energy intensity by at least 25% by 2030 using 2005 as the base year. In September 2010, the Environment Bureau issued the "Hong Kong's Climate Change Strategy and Action Agenda" consultation document. We proposed to adopt a carbon intensity reduction target of 50% - 60% by 2020 as compared with the 2005 level. A series of measures were proposed for reducing carbon emissions, including measures to maximize energy efficiency and to promote energy conservation.
- 2 Hong Kong is a service economy. Our principal source of GHG emissions is power generation, accounting for more than 60% of such emissions. Reducing energy consumption and enhancing energy efficiency is the primary focus of the Government's strategy to combat climate change.



How are temperatures in Hong Kong changing?

The climate change in Hong Kong can be attributed to both global warming and localized urbanization. The annual mean temperature data of Hong Kong Observatory Headquarters had an average rise of 0.12°C per decade from 1885 to 2010.

(Source: Hong Kong Observatory)

Section 2

Enhancing Energy Efficiency of Lighting Installations

- 3 Lighting installation is indispensable for modern city life. ILB which works by heating its tungsten filament is not energy-efficient as 90% of the electricity consumed will be lost as heat whereas only 10% is used for lighting.
- 4 In the past decade, lighting on average accounts for around 15% of total electricity consumption in Hong Kong. Therefore, replacement of ILB by energy-efficient lighting products will achieve substantial saving in power consumption. The use of more energy-efficient lighting products (e.g. CFL), which can save over 70% of electricity as compared to ILB, is widely promoted around the world as replacement for ILB to save energy.



What is the life expectancy of an ILB and how does it work?

ILB has a life expectancy of around 1,000 hours. Electricity is used to heat up the tungsten filament with high electrical resistance, until it gets so hot that it glows.

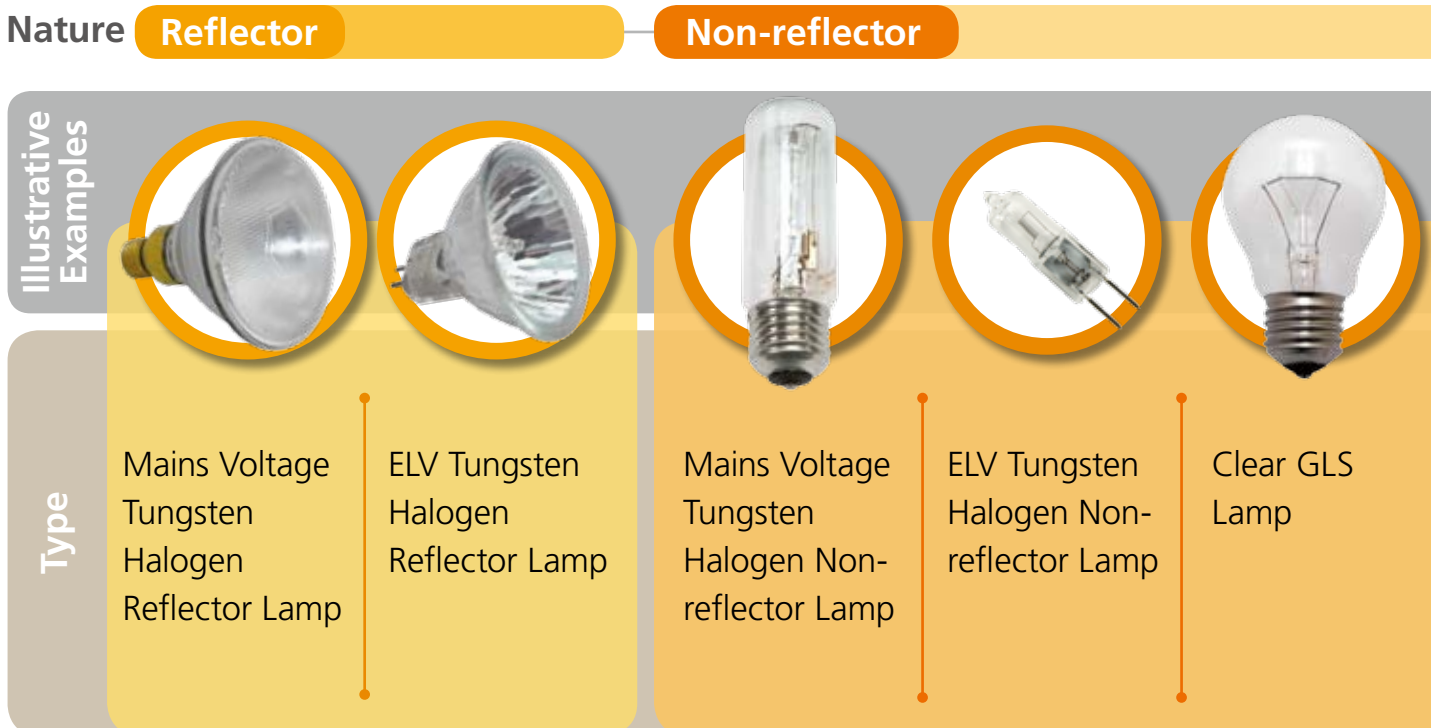
Section 3

Classification of Incandescent Light Bulbs

5 ILB typically utilizes a tungsten filament as the light source. There are many types of ILB, which can employ any combination of the following attributes-

- (a) mains voltage or extra low voltage (ELV) ^{Note 1} ;
- (b) reflector type or non-reflector type; and
- (c) filled with inert gas or halogen gas mixture ^{Note 2}.

Common Types of ILB



Note 1 Mains voltage refers to a single phase electricity supply of nominal voltage of 220V in Hong Kong. ELV lamp refers to a lamp which operates at the nominal voltage of 5 volts to 24 volts (inclusive), and is typically of 12 volts.

Note 2 Those ILBs which utilize halogen gas mixture fill are called tungsten halogen lamps. Tungsten halogen lamp is comparatively more energy-efficient than ILB filled with inert gas.

Section 3 – Classification of Incandescent Light Bulbs

6 Reflector type ILB is of either mains voltage or ELV. Non-reflector type ILB also has mains voltage or ELV and can be further classified into–

(a) **General Lighting Service (GLS)** ^{Note 3} lamps;

(b) **candle shape, fancy round and other decorative lamps** ^{Note 4} ;
and

(c) **tungsten halogen lamps** ^{Note 5} .



Frosted GLS
Lamp



Candle Shape, Fancy Round and Other Decorative Lamps



Note 3 GLS lamps include pear, tubular, mushroom-shape incandescent lamps which are with clear, frosted or equivalently-coated finishes or white finishes. GLS lamps are typically filled with inert gas.

Note 4 Candle shape, fancy round and other decorative lamps are typically filled with inert gas.

Note 5 Non-reflector type ILB of any shape that utilize halogen gas mixture fill are classified as non-reflector type tungsten halogen lamps.

Section 4

Overseas Regulatory Regimes

- 7 Many countries and regions have implemented or planned for the phasing out of ILB. Some of them adopt mandatory measures to achieve the policy goal of phasing out ILB, while others resort to voluntary measures to encourage and push for changes.
- 8 Given the limited availability of substitutes for reflector type ILB, many countries and regions focus their regulatory efforts on phasing out non-reflector type ILB. It is also noted that many phasing-out programmes are to be implemented in stages. Given the prevalence of GLS lamps and the availability of energy-efficient substitutes, many countries opted to phase out GLS lamps first, to be followed by other types of ILB.
- 9 A common approach of these phasing out programmes is to mandate the minimum energy performance standards (MEPS) for lamps. That means, lamps that fail to meet the MEPS will be phased out from the market by being banned from import and supply. Australia, Canada, South Korea, United States, and member countries of the European Union have adopted this approach.
- 10 On the other hand, countries including Japan opt for voluntary approach by reaching agreements with retailers and manufacturers to cease replenishing stocks and supply of ILB within a specified timeframe. Details of the overseas regulatory regimes are set out at **Annex A**.

Section 5

Electricity Consumption of Incandescent Light Bulbs

- 11 The Government commissioned a survey on the lighting installations of local commercial and residential buildings in 2008. The estimated annual electricity consumption of non-reflector type ILB (i.e. GLS lamps, candle shape, fancy round and other decorative lamps, and tungsten halogen lamps) is about 900 GWh which amounts to more than 2% of electricity consumption in Hong Kong. Replacing non-reflector type ILB by energy-efficient alternatives would not only help improve energy efficiency and save energy, but also reduce waste since more energy-efficient lamps generally have a longer lifespan than ILB.



How much energy can be saved by replacing ILB with CFL?

CFL saves around 75% of electricity compared to ILB and on average last up to 6 to 8 times longer or more. A household of four people could save up to \$440 in electricity bill each year by replacing ILB by energy-efficient CFL.

Section 6

Replacement Options

12 In considering viable replacement options for ILB, due regards have to be given to considerations including service life, colour rendering, colour temperature, lamp cap, efficacy, wattage range, lighting control etc.. Taking into consideration these factors and the availability of substitutes in the market, we consider that non-reflector type ILB can by large be replaced by more energy-efficient types of lamps, such as CFL etc..

13 Furthermore, Light Emitting Diode (LED) lighting technology is rapidly developing in recent years, and has potential to be an energy-efficient alternative form of lighting. LED for general lighting purposes is a new technology that is still evolving. In order to promote the application and development of LED lighting technology in Hong Kong, the Government launched a voluntary Energy Efficiency Labelling Scheme for LED lamp in June 2011 after consulting the trade.

Section 7

Concerns about Compact Fluorescent Lamps

- 14 Although CFL is more energy-efficient, the public may have concerns on the compatibility, quality and the disposal of CFL.

Compatibility of Lighting Fixtures

- 15 There may be worries on whether replacement of ILB by CFL requires corresponding replacement of lighting fixtures. In fact, with the improvement of CFL technology, CFL is now available in many sizes and shapes for replacing non-reflector type ILB. In general, replacement of ILB by CFL does not require replacement of lighting fixtures.

Quality of CFL

- 16 CFL was first commercialized in the early 1980s, yet some CFLs are still reported to be of inferior quality and have a shorter lifespan than that claimed by the manufacturers. Since the Energy Efficiency (Labelling of Products) Ordinance came into full implementation in November 2009, all CFLs sold in the market have to bear an energy label that reflects its energy performance. Any CFLs with a tested lifespan shorter than 6,000 hours or have lumen maintenance^{Note 6} less than 78% would be classified as Grade 5 (i.e. the lowest grade), regardless of their energy performance. Consumers can now look out for the energy label on CFL when making purchase decisions.

Mercury Content of CFL

- 17 Mercury is present in CFL in a small amount. The Government is fully aware of the disposal issue of CFL and is working to strengthen the Fluorescent Lamp Recycling Programme. Currently, there are more than 860 housing estates in Hong Kong providing recycling facilities for CFL and fluorescent tubes, and around 130 public collection points have been set up. In fact, the Government has also expanded the capacity of the treatment facility at the Chemical Waste Treatment Centre for the treatment of spent CFL.

Note 6 Lumen maintenance refers to the luminous flux of a lamp at a given time in the rated average life of a lamp, including the initial operating hours, divided by the initial value of the luminous flux of the lamp and expressed as a percentage of the initial luminous flux. Given the initial luminous flux are the same, lamps with higher lumen maintenance will be brighter than those lumen maintenance after a certain period of time.

Section 8

Issues to be Considered

- 18 The following questions will have to be considered regarding the introduction of restriction on the supply^{Note 7} of ILB.
- 19 It is clear that enhancing energy efficiency in lighting installations is a cost-effective means to address the ever-growing concerns for climate change. Nonetheless, some may argue that if CFL and other more energy-efficient lighting installations can bring substantial saving in electricity bills, the Government should let the market force to phase out energy-inefficient ILB. On the other hand, there are views that the general public may not possess the expertise to differentiate energy-inefficient ILB from energy-efficient alternatives, and the Government should consider restricting the supply of energy-inefficient ILB by mandatory scheme, such as legislation.



Question 1:

Should Hong Kong restrict the supply of energy-inefficient ILB by mandatory scheme, voluntary measures or leaving it to market forces?

Section 8 – Issues to be Considered

- 20 The most direct means to achieve maximum saving in electricity and reduce carbon emissions is to restrict the supply of ILB. As certain types of ILB may have no or limited number of substitutes available at present, we should consider the coverage of the restriction.



Question 2:

What types of ILB should be restricted if a mandatory scheme is introduced to restrict the supply of ILB?

Section 8 – Issues to be Considered

- 21 The MEPS approach is widely adopted in other countries to phase out ILB that do not meet the standard. If this approach is adopted in Hong Kong, we would need to decide on the relevant MEPS. As Hong Kong is a small economy, it is highly unlikely for manufacturers to tailor-make lamps for meeting a specific Hong Kong standard. As such, it may be more viable for Hong Kong to make reference to the prevailing international standards for local adoption.



Question 3:

Should Hong Kong adopt the MEPS approach in phasing out ILB?

Section 9

The Proposal

22 Energy conservation is essential for reducing air pollution and greenhouse gas emissions, and the Government has spared no efforts in promoting energy conservation. Taking into consideration issues set out in Section 8, we envisage it difficult for voluntary measures or market forces alone to achieve the desired effect in a short run for phasing out ILB. With reference to overseas experience and local circumstances, we **propose** to restrict the supply of energy-inefficient non-reflector type ILB by phases through legislation. This is in line with the international practice on the restriction of ILB supply^{Note 7}. However, we need to allow sufficient lead time for the lighting industry and associated supply chain to prepare for the market change. Key implementation details are elaborated in the following paragraphs.

Coverage

23 We **propose** that the initial phase of the mandatory scheme (the Scheme) should cover 25 watt (W) or above non-reflector type ILB, which operates at a single phase electricity supply of nominal voltage of 220 volts (V), including GLS lamps, candle shape, fancy round and other decorative lamps, but excluding tungsten halogen lamps. Among these lamps, we **propose** –

- (a) to prohibit the supply of those lamps that cannot meet the MEPS; and
- (b) that the supply of those lamps that can meet the MEPS should be governed by a registration system.

24 The coverage above is proposed for the initial phase of the Scheme. Other types of lamps such as tungsten halogen lamps may be covered under the Scheme over time, following the review of the results of the initial phase.

Section 9 – The Proposal

MEPS Requirements

25 We propose to make reference to overseas mandatory schemes (see **Annex A**) in determining suitable MEPS to be adopted in Hong Kong.

26 As most 25 W or above non-reflector type ILB, including GLS lamps, candle shape, fancy round and other decorative lamps, but excluding tungsten halogen lamps, supplied in Hong Kong cannot meet the prevailing MEPS adopted overseas, the adoption of MEPS for the Scheme will effectively reduce the supply of such lamps in the local market, thereby achieve a substantial environmental gain (see paragraph 36 below).

Registration System

27 For ILB covered under the Scheme that can meet the MEPS under the Scheme (see paragraph 23 above), we propose that any person or company who supplies such lamps for local use should ensure that such lamp models have been duly registered with the Electrical and Mechanical Services Department (EMSD) and the person or company should also be a registered supplier for supplying such lamp models.

28 A registration fee to recover the administrative cost of vetting and approval of the registration will be levied. A list of registered ILB models and names of the registered suppliers will be posted on the EMSD website. To ensure that information contained in the EMSD's registry is up-to-date, manufacturers or importers of the registered lamps will be required to provide EMSD with a set of up-to-date information on lamps they supply and update their status as registered suppliers at least once every five years. Such suppliers may need to produce a copy of the certificate of the registered ILB upon checking by EMSD.

Section 9 – The Proposal

29 An appeal mechanism will be put in place to allow applicants to appeal against the decision of EMSD in respect of product registration.

Test Reports

30 To ensure that the products can meet the MEPS requirements as claimed, EMSD will accept the energy efficiency performance test reports issued by the following organizations for product registration –

- (a) laboratories which have been accredited by the Hong Kong Accreditation Service (HKAS) under the Hong Kong Laboratory Accreditation Scheme, or a scheme with which HKAS has entered into a mutual recognition agreement; or
- (b) laboratories which have been assessed by internationally recognized certification bodies, and the tests concerned have been evaluated and endorsed by the certification bodies.

31 We propose that the Scheme will accept testing standards that have already been recognized and adopted by other countries, such as the International Organization for Standardization, International Electrotechnical Commission or other equivalent testing standards for the ILB.

Registration Information Requirement on ILB

32 For ILB models which have been registered for supply in Hong Kong, the registration information should be visibly displayed on the packaging of lamps and publicity material such as catalogue and website.

Section 9 – The Proposal

Transitional Arrangement

33 Subject to the comments received during the public consultation, we suggest providing for a grace period of 12 months to allow sufficient time for local manufacturers, importers and retailers to make adjustment to the market change.

Enforcement

34 EMSD will be the enforcement agent for the Scheme. Random checks will be carried out to ensure that the energy-inefficient ILB that have been phased out under the Scheme are not supplied in Hong Kong unless registered under the registration system outlined in paragraphs 27 and 28 above.

Inclusion of Other Types of ILB and Future Uplifting of the MEPS

35 We will review the need to extend the Scheme to other types of lamps and consider the need to uplift the MEPS over time with a view to –

- (a) addressing the community aspiration for energy-efficient lighting installations;
- (b) taking advantage of the latest energy-efficient lamp technologies; and
- (c) uplifting the MEPS with reference to the development in other parts of the world.

Section 9 – The Proposal

Potential Benefits

36 We estimate that the implementation of the Scheme can bring about an electricity saving of up to 390 GWh per annum^{Note 8} for the community as a whole, amounting to over 6% of the electricity consumption for lighting, which yields a potential annual saving of HK\$390 million^{Note 9} in electricity bills and a reduction of 273,000 tonnes of carbon dioxide emissions.

Sustainability Assessment

37 A sustainability assessment indicates that the proposed Scheme should contribute positively to energy conservation, reduction in carbon dioxide emissions, and alleviation of air pollution. The proposal will also help moderate the growing trend of energy consumption. It is in line with the sustainability principle of improving the efficiency in the consumption of natural resources, avoiding environmental problems for the present and future generations, enhancing environmental quality, and providing a living environment which promotes and protects the physical health of the people of Hong Kong.

Way Forward

38 We will, on top of this public consultation exercise, proactively initiate discussions with stakeholders, including green groups, retailers and importers of lighting installations. We will formulate the way forward after taking into account the views and comments received from the community and stakeholders during the public consultation, and the development of lighting products.

Note 8 Calculation based on the number of installed ILBs in a lighting survey conducted in 2008.

Note 9 Assuming an average tariff of HK\$1.0 per kWh.

Section 9 – The Proposal

Your Views

- 39 We invite your views and comments on the proposed Scheme for restricting the supply of energy-inefficient ILB. A list of key consultation points is set out at **Annex B**. Please send in your comments on or before **11 November 2011** by mail, email or facsimile to the following –



Address : Energy Division
Environment Bureau
46/F, Revenue Tower
Wan Chai
Hong Kong

Email address : bulbs_consult@enb.gov.hk

Facsimile : (852) 2147 5834

Website : www.enb.gov.hk/bulbs_consult.html

- 40 Please note that the Government would wish, either in discussion with others or in any subsequent report, whether privately or publicly, to be able to refer to and attribute views submitted in response to this consultation document. Any request to treat all or part of a response in confidence will be respected. If no such request is made, it will be assumed that the response is not intended to be confidential.

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

Countries with Mandatory Schemes

Australia

1. The phasing-out scheme of Australia covers almost all types of ILB including GLS lamps, candle shape, fancy round and decorative lamps, mains voltage and ELV halogen lamps as well as some reflector type lamps.
2. The Australian scheme has been implemented by phases between 2009 and 2012. Details are summarised in table A1 below –

Table A1: Phasing-out Scheme of Australia

Types of Lamps	Enforcement Date for Sale
<ul style="list-style-type: none"> • Tungsten filament incandescent General Lighting Service (GLS) light bulbs[#] • Extra low voltage (ELV) halogen non-reflectors 	November 2009
<ul style="list-style-type: none"> • >40W candle shape, fancy round and decorative lamps • ELV halogen reflectors 	October 2010
<ul style="list-style-type: none"> • Mains voltage halogen non-reflectors * 	January 2011
<ul style="list-style-type: none"> • Mains voltage reflector lamps, including halogen lamps • >25W candle shape, fancy round and decorative lamps 	October 2012
<ul style="list-style-type: none"> • Pilot lamps of 25W and below 	To be determined depending on the availability of replacement products

[#] Australian Customs Service had instituted an import restriction on tungsten filament incandescent GLS light bulbs in February 2009, but decided to start by only using sales restrictions on other types of lamps

* The schedule had been changed by a Regulatory Ruling issued in September 2010

3. The MEPS requirements are defined by the following formula –

$$\text{Initial efficacy} \geq 2.8 \times \ln^{\text{Note 10}} (\text{initial lumens}) - 4.0$$

Note 10 "ln" represents natural logarithm. The MEPS for a reference lamp generating 900 lumens is at 15 lumens/watt (900 lumens is approximately the amount of light emitted by the common 60 watt tungsten filament lamp). There is a sliding scale of other lamp sizes, with progressively lower MEPS for lamps providing less than 900 lumens and progressively higher MEPS for lamps providing more than 900 lumens.

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

The United States and Canada

4. Both the United States and Canada implement the phasing-out exercise of ILB by setting the MEPS but still allow halogen lamps of higher efficiency to be sold. The timeframe for application of the MEPS in United States is from 2012 to 2014, whereas that for Canada is 2012. In parallel, these two countries have also set regulatory requirements for CFL after the implementation of the MEPS for ILB to avoid replacement of ILB by poor quality CFL. Details of the two schemes are summarised in Tables A2 and A3 respectively.

Table A2: Phasing-out Scheme of the United States

GLS Lumen Output (lumens)	Maximum Wattage	Effective Date
1,490 - 2,600	72 W	January 2012
1,050 - 1,489	53 W	January 2013
750 - 1,049	43 W	January 2014
310 - 749	29 W	January 2014

Table A3: Phasing-out Scheme of Canada ^{Note 11}

GLS Lumen Output (lumens)	Minimum Efficacy Requirement (lumens/watt)	Effective Date
1,050 - 2,600	$\geq 4.0357 \times$	January 2012
250 - 1,049	$\ln (\text{lumen output}) - 7.1345$	December 2012

Note 11 In April 2011, the Canadian government proposed to postpone the effective dates of the phasing-out scheme to January 2014 and December 2014.

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

The European Union

5. The European Union (EU) has proposed to phase out with effect from September 2009 non-reflector type ILB by 2012 and further tightening the requirement on some non-reflector type tungsten halogen lamps in 2016.
6. European Commission adopted a regulation in March 2009 to phase out all non-reflector type ILB from September 2009 onwards.

Table A4: Phasing-out Scheme of the European Union

Types of Lamps	Effective Date
<ul style="list-style-type: none"> • Clear lamps equivalent to 100W incandescent lamps or above must be of minimum Class C EU Lamp Label. • All non-clear lamps for all wattage must be of minimum Class A 	September 2009
<ul style="list-style-type: none"> • Clear lamps equivalent to 75W incandescent lamps or above must be minimum Class C 	September 2010
<ul style="list-style-type: none"> • Clear lamps equivalent to 60W incandescent lamps or above must be of minimum Class C 	September 2011
<ul style="list-style-type: none"> • All remaining clear incandescent lamps must be of minimum Class C (i.e. 40W and 25W) 	September 2012
<ul style="list-style-type: none"> • Additional functional requirements for lamps 	September 2013
<ul style="list-style-type: none"> • Raising the minimum efficiency level to Class B for clear lamps (i.e. to phase out Class C halogen lamps except special cap halogen lamps) 	September 2016

7. In general, non-clear lamps had been replaced by CFLs (or equivalent) by September 2009. For clear lamps, they had been replaced by high performance halogen/xenon (or equivalent) progressively from September 2009 onwards. Details are summarised in Table A4 above.

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

South Korea

8. The target energy performance standards (TEPS) and the MEPS are currently applied to non-reflector GLS lamps at 220V of rated power of 25W-150W. The application of the MEPS aims to expel inefficient lamps from the market, while the introduction of TEPS is to encourage manufacturers to produce products of higher energy efficiency.
9. With effect from 1 January 2009, manufacturers and importers are mandated to produce and sell GLS lamps that meet the MEPS. Lamps that are imported into or sold in South Korea have to attain the TEPS by 31 December 2012.
10. The TEPS is planned for adoption as the MEPS in 2013 to accelerate the improvement of the efficiency of GLS lamps. Details are summarised in Table A5.

Table A5: Details of the TEPS and the MEPS in South Korea

P (rated lamp power)	TEPS (lumens/watt) Till 31 December 2012	MEPS (lumens/watt) From 1 January 2009
$25W \leq P < 40W$	10.9	8.3
$40W \leq P < 70W$	15.0	11.4
$70W \leq P < 150W$	17.4	13.2

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

Countries with both Mandatory and Voluntary Schemes

UK

11. The UK government has reached voluntary agreement with retailers and manufacturers to stop the sale and supply of certain kinds of ILB by 2011. These include 40W and above GLS lamps and 60W golfball shape and candle shape lamps.
12. The UK government has also adopted a regulation in 2009 to phase out the non-reflector type ILB following the issue of directive by the European Commission.

Annex A

Overseas Regulatory Regimes in Phasing Out Incandescent Light Bulbs

Countries with Voluntary Schemes

Japan

13. The Japanese government has secured the cooperation of stakeholders in the lamp industry to promote the manufacturing and use of energy-efficient lamps in the country. In December 2006, Japan Electric Lamp Manufacturers Association had already announced four energy saving lamp replacements proposals to be adopted by the manufacturers –
 - (a) GLS lamps by CFL with integral ballast (CFLi);
 - (b) tungsten halogen lamps by CFLs and ceramic metal halide lamps;
 - (c) fluorescent lamps by high frequency operation lamps; and
 - (d) high pressure mercury lamps by metal halide and high pressure sodium lamps.

14. In April 2008, the Ministry of Economy, Trade and Industry announced a policy to replace GLS lamps by CFLi by 2012. Since then, some of the lamp manufacturers have announced their target date of full replacement of GLS lamps by CFLi by 2010.

Annex B

List of Key Consultation Points

The Government would like to gauge views from the public on the following issues –

1. Should Hong Kong restrict the supply of energy-inefficient ILB by mandatory scheme, voluntary measures or leaving it to market forces?
2. What types of ILB should be restricted if a mandatory scheme is introduced to restrict the supply of ILB?
3. Should Hong Kong adopt the MEPS approach in phasing out ILB?



Environment Bureau
Electrical and Mechanical Services Department

Response Form

Part I (Note)

This is a corporate response (representing the views of a group or an organization) or

individual response (representing the views of an individual)

by _____
(name of person or organization)

at _____ and _____
(telephone) (email)

Note: The Government would wish, either in discussion with others or in any subsequent report, whether privately or publicly, to be able to refer to and attribute views submitted in this response. Any request to treat all or part of a response in confidence will be respected, but if no such request is made, it will be assumed that the response is not intended to be confidential.

Part II

My/Our views on the following issues are set out below :

1. On whether Hong Kong should restrict the supply of energy-inefficient incandescent light bulbs (ILB) by mandatory scheme, voluntary measures or leaving it to market forces, I/we opt for :

mandatory scheme

voluntary measures

leaving it to market forces

other means, please specify _____

2. The types of ILB that should be restricted if a mandatory scheme is introduced to restrict the supply of ILB include :

3. Should Hong Kong adopt the minimum energy performance standards (MEPS) approach in phasing out ILB?

Yes

Reasons : _____

No

Reasons : _____

Public Consultation on the Restriction of
Sale of Energy-inefficient Incandescent Light Bulbs

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Your Views Count

ILB is commonly used in our daily lives. We invite your views and comments on the proposal for restricting the supply of energy-inefficient ILB, in particular on the following questions-

- **Should Hong Kong restrict the supply of energy-inefficient ILB by mandatory scheme, voluntary measures or leaving it to market forces?**
- **What types of ILB should be restricted if a mandatory scheme is introduced to restrict the supply of ILB?**
- **Should Hong Kong adopt the MEPS approach in phasing out ILB?**

Please send us your comments on or before **11 November 2011** by mail, email or facsimile to the following –



Address : Energy Division
Environment Bureau
46/F, Revenue Tower
Wan Chai, Hong Kong

Email address : bulbs_consult@enb.gov.hk

Facsimile : (852) 2147 5834

Website : www.enb.gov.hk/bulbs_consult.html



Environment Bureau
Electrical and Mechanical Services Department

**Deadline:
11 November 2011**

Email address : bulbs_consult@enb.gov.hk
Website: www.enb.gov.hk/bulbs_consult.html

Public Consultation on the Restriction of Sale of Energy-inefficient Incandescent Light Bulbs



Current Electricity Consumption of Lighting Installations

- In the past decade, lighting on average accounts for around 15% of the total electricity consumption in Hong Kong.
- Non-reflector type incandescent light bulbs (ILB) in commercial and residential buildings consume about 900 GWh per annum, which amounts to more than 2% of electricity consumption in Hong Kong.
- Though prevalent, ILB which works by heating its tungsten filament is not energy-efficient as 90% of the electricity consumed will be lost as heat whereas only 10% is used for lighting.
- Replacement of ILB by energy-efficient substitutes will achieve substantial saving in power consumption.

Improving Energy Efficiency by Phasing Out Incandescent Light Bulbs

- In view of the lower energy efficiency of ILB, many overseas countries and economies have implemented or plan to implement schemes to phase out ILB.
- At the same time, more energy-efficient substitutes, e.g. compact fluorescent lamps (CFL), are widely promoted around the world as replacement for ILB. CFL can save over 70% of electricity as compared to ILB.
- Energy efficiency in Hong Kong may be improved by replacing ILB by energy-efficient lighting alternatives.

The Proposal

- We **propose** to restrict the supply of ILB in phases by mandatory scheme.
- We **propose** that the initial phase should cover 25 watt or above non-reflector type ILB which operates at a single phase electricity supply of nominal voltage of 220V, including-



- Among these lamps, we **propose**
 - (a) to prohibit the supply of those lamps that cannot meet the minimum energy performance standard (MEPS); and
 - (b) that the supply of those lamps that can meet the MEPS should be governed by a registration system.
- As most 25 watt or above of these lamps supplied in Hong Kong cannot meet the prevailing MEPS adopted overseas, the adoption of MEPS for the scheme will effectively reduce the supply of such lamps in the local market, thereby achieving a substantial environmental gain.

Environmental and Economic Gains

- Implementation of the initial phase of the mandatory scheme can bring about an estimated electricity saving of up to 390 GWh per annum, amounting to over 6% of the electricity consumption for lighting.
- It also yields a potential annual saving of \$390 million in electricity bills and a reduction of 273,000 tonnes of carbon dioxide emissions.