

# New Zealand Efficient Lighting Strategy

2008 to 2010

Supported by



### Abbreviations used in this paper

<b>Act</b>	Electricity Act 1992
<b>CFL</b>	Compact Fluorescent Lamp
<b>Commission</b>	Electricity Commission
<b>EECA</b>	Energy Efficiency and Conservation Authority
<b>ELG</b>	Efficient Lighting Group
<b>GLS</b>	General Lighting Service
<b>GPS</b>	Government Policy Statement on Electricity Governance October 2006
<b>LCNZ</b>	Lighting Council New Zealand
<b>LESG</b>	Lighting Efficiency Stakeholder Group
<b>MEPS</b>	Minimum Energy Performance Standard
<b>NZEECS</b>	New Zealand Energy Efficiency and Conservation Strategy
<b>NZES</b>	New Zealand Energy Strategy
<b>Regulations</b>	Electricity Governance Regulations 2003
<b>Rules</b>	Electricity Governance Rules 2003
<b>SEVP</b>	Sustainable Energy Value Project

### Terms used in this paper

<b>Greenlight Australia</b>	The Australian Efficient Lighting Strategy
<b>Potentials Study</b>	New Zealand Electric Energy Efficiency Potentials Study – undertaken by KEMA Ltd for the Electricity Commission



*All photos courtesy of Modus Architectural Lighting*

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## Foreword by



**Hon David Parker**  
Minister of Energy



**Jeanette Fitzsimons**  
Government Spokesperson  
on Energy Efficiency and  
Conservation

As a nation we are facing some big challenges in terms of climate change, energy demand and energy prices. Accelerating the uptake of efficient technology is one of the cheapest and most effective ways in which we can respond to these defining issues.

Lighting technology is an exciting and rapidly changing area that is improving every day. With a clear pathway forward, there is enormous potential for energy savings and environmental benefits through embracing efficient, affordable technologies.

The Efficient Lighting Strategy provides that pathway, and its development is a good example of how industry and government can work together towards better outcomes for New Zealanders.

We would like to acknowledge the people who have contributed to this strategy, and the members of the Efficient Lighting Group who have pulled it together. Their hard work has resulted in a clear, integrated direction for reaching better lighting solutions for New Zealand.

**Hon David Parker**  
Minister of Energy

**Jeanette Fitzsimons**  
Government Spokesperson  
on Energy Efficiency and Conservation

# Introduction

The Efficient Lighting Strategy set out in this paper has been developed by the Efficient Lighting Group (ELG). The ELG was formed by the Electricity Commission (the Commission), the Energy Efficiency and Conservation Authority (EECA) and Lighting Council New Zealand (LCNZ) under a Terms of Reference that included the development of an ‘integrated lighting strategy’. The ELG comprises lighting industry experts, EECA representatives, lighting specialist advisors, Electricity Commission advisors, academic specialists and members of lighting and electrical associations.



Lighting New Zealand homes consumes 8%<sup>1</sup> of the total energy consumed in homes and lighting in businesses and public areas consumes over 14%<sup>2</sup> of the energy we produce for use in those buildings. We spend approximately \$660 million each year on electricity for lighting. It is estimated that 2.65<sup>3</sup> million tonnes of greenhouse gas emissions are generated annually to meet our lighting needs.

Significant gains can be made for the economy and the environment through the adoption of more efficient lighting<sup>4</sup>. Some of this will occur naturally as more efficient technology becomes available through markets and supply channels. However, to accelerate improvements in lighting efficiency it is necessary to initiate actions that stimulate and support existing supply chains and markets.

The approach the ELG has taken has been to develop a package which consists of:

The Strategy	Provides objectives and direction
A Decision-making Framework	Provides a basis for assessing opportunities to improve efficiency
A 3-Year Action Plan	Sets out what will be done, by whom and when

The intention of this package is to provide a long-term Efficient Lighting Strategy that will be implemented through specific programmes and actions making up a 3-Year Efficient Lighting Action Plan.

The ELG envisages that the Strategy and Framework will be enduring but will allow dynamic and responsive programmes and actions to be adopted and included in the 3-Year Efficient Lighting Action Plan.

The audience for this Strategy paper is intended to be wide. The principal audience is the sponsor organisations (the Commission, EECA and LCNZ). The Strategy has also been written to provide information and encourage discussion and input from a range of lighting industry stakeholders and lighting users.

1 BRANZ Study Report No. SR 155 (2006).

2 The Dynamics of Energy Efficiency Trends in New Zealand: A Compendium of Energy End-Use Analysis and Statistics. <http://eeeca.govt.nz/eeeca-library/eeeca-reports/report/dynamics-of-energy-efficiency-trends-in-nz-2000.pdf>

3 Calculation based on the EECA End-Use Database for total electricity used for lighting and electronics and the Electricity Emission Factor from the Climate Change Office August 2003 paper 'An Electricity Emission Factor' by Concept Consulting Limited.

4 We could also consider the energy used to manufacture, transport and install the lighting equipment. This was seen by the ELG as too complex and difficult to calculate on an aggregated basis but could be possible on an individual equipment-type basis.

## Is our lighting inefficient?

New Zealand consumes an estimated 4,875 GWh (million units of electricity) every year for lighting. The production of electricity contributes to New Zealand's greenhouse gas emissions and inefficient use of electricity can lead to higher than necessary emissions. The energy used for lighting in New Zealand is considered to lead to the annual production of over 2.65 million tonnes of carbon dioxide emissions. Using lights at times of peak demand on the electricity system contributes to the need for increased infrastructure investment and causes increased energy losses on the distribution and transmission systems.

If we can improve the efficiency of our lighting, significant gains can be made for consumers and the environment. Some of this will occur naturally as more efficient technology becomes available. However, to accelerate improvements in lighting energy efficiency it is necessary to initiate actions that stimulate and support the uptake of more energy efficient lighting technology.

Efficiency is simply defined as:

$$\text{Efficiency (\%)} = \frac{\text{Output}}{\text{Input}} \times 100$$

In lighting, 'lamp efficiency' is generally referred to as 'efficacy', which takes into consideration the effectiveness of the conversion of input energy into useful light output. Efficacy can be defined as: The amount of light provided relative to the amount of energy used, measured in lumens per Watt once the lamp has reached operating brightness.

Energy inputs can be considered to be the electricity consumed (kWh)<sup>5</sup> and the system capacity required to meet the lighting energy demand (kW). These inputs can be measured or estimated relatively easily for individual lighting systems and can be estimated on an aggregated national or sector basis.

Establishing the outputs we receive from lighting systems is not straightforward. For example, the effectiveness of lamp or light fitting (luminaire) at providing light is heavily influenced by its position relative to the point where it is required. The quality of light in terms of the colour appearance of the light source and its effect on surrounding colours may be a factor. To determine the efficiency of an individual installation, a review of several components including the lighting design (i.e. the process for determining the type and quantity of luminaires) is required.

However, if we assume that the outputs are held constant we can calculate the potential gains in terms of increased efficiency created by an efficiency initiative. This can be done on a national or installation basis.

<sup>5</sup> We could also consider the energy used to manufacture, transport and install the lighting equipment. This was seen by the ELG as too complex and difficult to calculate on an aggregated basis but could be possible on an individual equipment-type basis.

Potential efficiency is defined as:

$$\text{Potential efficiency gains} = \text{Efficiency of the current lighting} - \text{Efficiency of the improved lighting}$$

Studies have shown that our lighting is inefficient<sup>6</sup>. In developing this Strategy the ELG considered studies and members' own knowledge and experience to construct its own view of the potential areas where the efficiency gains could be realised. The ELG's view differs in some areas from other studies.

Assuming an energy savings potential for lighting of 20% and an average household lighting energy consumption of 924 kWh we can calculate a potential average household energy saving of 184 kWh per year. Assuming 1.5 million New Zealand households<sup>7</sup> this provides an estimated national economic energy savings potential from residential lighting improvements of 277 GWh. Assuming an energy cost of 10 cents/unit<sup>8</sup> gives a total annual national potential cost saving of \$28 million. The reduced electricity use would also produce an estimated reduction in greenhouse gas emissions of 173,250 tonnes of CO<sub>2</sub><sup>9</sup>.

Lighting in the commercial sector can also be considered to be inefficient and has significant potential for improvement.

## Why is our lighting inefficient?

The following factors can be considered to contribute to inefficient lighting:

- Low-efficacy lamps
- Capital cost considerations outweigh whole-of-life costs
- Spilt incentives between the purchaser of the lighting technology and the energy payer
- Low appreciation of modern lighting technology
- Low-efficiency lamp control gear
- Poor-performing and/or inappropriate fittings (luminaires)
- Lack of light control
- Inefficient occupant behaviour
- Poor application design (lighting and building)
- Installers not following lighting plans and specifications in order to reduce initial cost

6 The KEMA's Efficiency Potentials Study provides a view of the potential that exists for efficiency gains in the residential, commercial and industrial sectors.

7 Statistics New Zealand [www.stats.govt.nz/products-and-services/new-zealand-in-profile-2006/Households](http://www.stats.govt.nz/products-and-services/new-zealand-in-profile-2006/Households)

8 This figure is the assumed value for the energy only component of a residential electricity price which will vary for individual consumers and regions.

9 CO<sub>2</sub> reductions are based on the Electricity Emission Factor provided by the Ministry for the Environment [www.mfe.govt.nz/publications/climate/electricity-emissions-factor-reports/2004](http://www.mfe.govt.nz/publications/climate/electricity-emissions-factor-reports/2004)

Lamps are required to produce light; unfortunately, many of the lamps we use produce a significant quantity of heat as well as light. Lamps that do this are generally known as incandescent lamps, the most significant types being General Lighting Service (GLS) lamps.

An alternative in many applications to incandescent lamps is the use of discharge lighting which does not produce as much heat as incandescent but does need control gear to operate. The use of control gear can introduce inefficiencies. There is a wide variety of discharge lamps available and, over time, technology improvements have greatly increased the efficacy of these types of lamps.

Low-performance discharge lamp control gear has been installed in many buildings in New Zealand. In some cases the cost of efficient control gear is higher and the decision to install the low-cost option is based on initial capital cost rather than whole-of-life costs.

Light fittings, normally referred to as luminaires, that are used to house lamps and control light also affect the efficiency of our lighting systems. It is important that the correct luminaire is selected for a particular lighting requirement. In many cases it is the decorative effect rather than efficiency considerations that is the primary consideration when decisions are made on luminaire visual criteria.

Without appropriate controls, lights generally stay on even if there is no one in the room or if the level of daylight is adequate. Simple lighting controls include the ability to selectively switch lighting to enable unused areas to be switched off. Other more sophisticated controls include dimmer switches, occupancy and daylight sensors.

Inappropriate user behaviour when using lighting can be very wasteful and inefficient. Failing to switch off lights when they are not required or replacing incandescent lamps without considering Compact Fluorescent Lamps (CFLs) are examples of bad user behaviour.

The greatest efficiency gains from lighting can be made from the installation of a new system or replacing an old system. Lighting design must take into account many factors, including the safety and comfort of users. The aesthetics of a lighting design are also important as they contribute towards the total building performance. However, the lack of consideration of energy efficiency at the design and installation stage locks in inefficient systems for many years.



## What can be done to make lighting more efficient?

Opportunities to improve the efficiency of our lighting arise at different times depending on the cost and complexity of the actions we need to take. The age and condition of the existing installation are also factors that need to be considered.

There are actions that we can take immediately to reduce wasted energy. Alternatively, some actions are best taken when our lighting requires maintenance, such as when lamps need replacement. It is likely that the most important time to consider investing in efficiency is when new lighting is being installed or when existing lighting installations are being replaced or refurbished. Examples of opportunities that arise within the decision timeframes are provided in the table below.

<b>Things we can do immediately</b>
Replace high-use incandescent GLS lamps with CFLs or other energy efficient options.
Switch off lights that are not in use.
Reduce lighting when there is adequate daylight.
Read information on efficient lighting and make an efficient lighting plan. Complete an energy audit that includes lighting. Seek expert advice.
Replace old T12 fluorescent lamps and luminaires with modern T5 fluorescent luminaires <sup>10</sup> .
<b>Things we can do when lamps and/or luminaires need replacing or maintaining</b>
Consider if the lighting is really necessary and if the level of lighting can be reduced.
Replace incandescent GLS lamps with CFLs or other energy efficient technology.
Replace standard halogen lamps with high-efficacy halogens or CFLs.
Replace old T12 fluorescent lamps and luminaires.
Replace electromagnetic ballasts on fluorescent lighting with electronic units.
Consider fitting low-cost automatic controls (e.g. dimmers, daylight sensors and/or occupancy sensors).
Consider increasing local lighting levels at workbenches etc. and reducing background lighting levels (i.e. task/ambient lighting).
Replace inefficient Mercury Vapour luminaires with HP sodium, metal halide or high-wattage CFL lamps and luminaires.

<sup>10</sup> There were differing views amongst the ELG regarding the extent of the current levels of T12 fluorescent lamps still in use.

**Things to do when we are installing new lighting systems**

Seek advice from experienced and qualified lighting design professionals. Insist on best practice energy efficiency being a prime design feature of your lighting.

Ensure automatic controls are installed (e.g. dimmers, occupancy, proximity and daylight sensors).

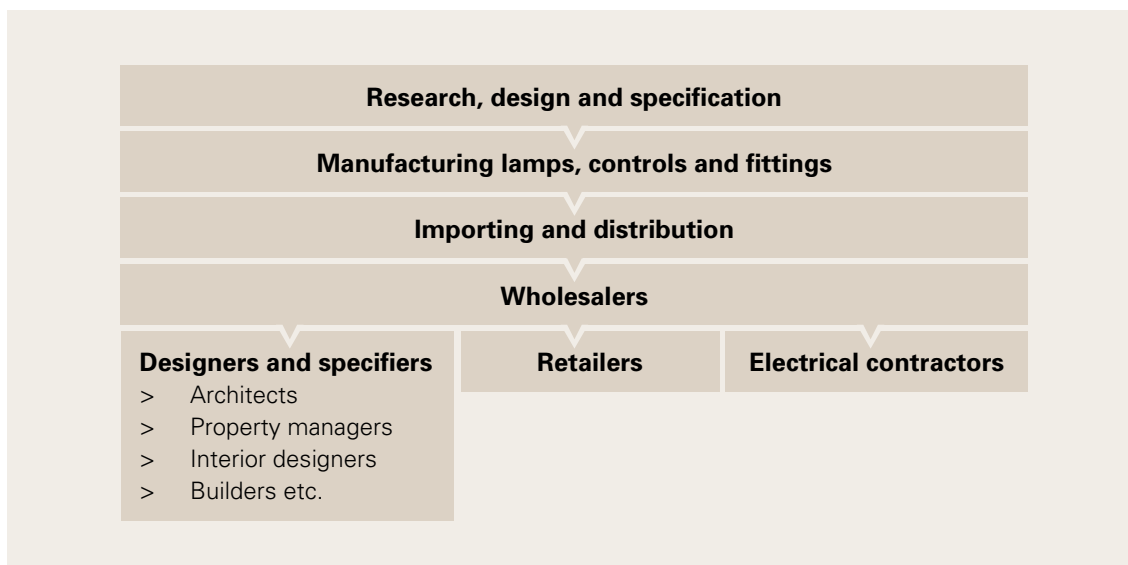
Regulation plays a significant role in the design and installation of lighting. The Building Code and Electrical Safety and Radio Frequency Interference Regulations are examples of regulation that has an influence over lighting installations. Reviews of the regulations and amendments are important actions that can contribute to increased lighting energy efficiency.

In many respects the decisions on the type of lighting are not in the hands of lighting users but made by manufacturers, suppliers and advisors along a complex supply chain. How efficient lighting decisions are made is covered in the following section.

## Making efficient lighting decisions

The delivery of light where we need it, when we need it, depends on a complex supply chain. At the start of the chain are the research, design and specification of lighting hardware (lamps, luminaires and controls) people. This is followed by the manufacture and assembly of lighting components. Transport and distribution chains support the wholesale and retail functions of the lighting market. Lighting designers and installers influence the types of lighting systems that we use.

A very simplified lighting supply chain is set out in the diagram below.



The lighting market is highly competitive. The development of new and improved products is an important activity and the management of inventory and market demand is an ongoing challenge for most organisations in the supply chain.

Individual activities along the supply chain are not necessarily undertaken by a single type of company. For example, in many cases research and design is undertaken by wholesalers and distributors who select the types of lamps and luminaires they want to take to the market. There are many companies that are wholesalers, distributors and retailers. Yet there are also many companies that specialise in only a narrow aspect of the supply chain.

There are many lighting application designers and specifiers. Lighting users may interface directly with these professionals, but in many cases the contact is indirect. For example, property developers or managers may determine the type and level of lighting that is installed with occupants having little or no say.

The way individuals buy lighting equipment has changed considerably in recent years. Local general hardware stores have been replaced by mega stores and supermarkets. Specialist lighting distributors have increased, providing access to a wide range of luminaires.

The complex supply chain can pose significant barriers for the swift adoption of efficient lighting technologies and practices. It is the identification and removal of these barriers that this Strategy must address. To achieve this it is necessary to consider what level of efficiency gains will naturally occur through the lighting market and if interventions can deliver efficiency above these naturally occurring levels.

## Naturally occurring potential for efficiency

As noted above in the discussion on the supply chain, the lighting industry is competitive and improvements in product design, manufacture and services occur naturally as a part of normal market forces. When lighting installations reach the end of their lives they are replaced by systems that comply with more stringent modern regulatory requirements and higher customer expectations. At the most basic level, consumers are becoming more informed and are increasingly making decisions to fit energy efficient lamps and luminaires.

It is important that this Efficient Lighting Strategy takes into account the naturally occurring potential. Programmes and actions that flow from the implementation of the Strategy should minimise distortion of the market and not reduce the gains that would occur naturally.

***Naturally occurring potential** refers to the amount of savings estimated to occur as a result of normal market forces; that is, in the absence of any utility or governmental intervention.*

## Strengthening efficiency through intervention

Where naturally occurring potential is constrained by barriers in the market, interventions can be made that act directly to minimise the barrier or act indirectly to enable the barrier to be bypassed or scaled. A range of potential interventions is provided in the table below.

<b>Programmes</b>	
Pilot and demonstration schemes	New technology and practices are demonstrated in real-life situations. Financial and other support is provided by government agencies.
Product endorsement and marketing support	Efficient lighting products are provided with endorsements from government and consumer agencies. Through these actions the brand and profile of the product are increased along with the level of public confidence in the product.
Financial incentives and price subsidies	<p>Incentives can take many forms and may be directly applied to a product's retail price or used to provide incentives to parties along the supply chain (e.g. incentives to electrical contractors).</p> <p>One potential barrier to efficient lighting is the naturally occurring incentive on property owners to provide inefficient (i.e. lowest capital cost) lighting to their tenants. A scheme could be developed to overcome this barrier.</p>
Energy management schemes	Many commercial and industrial buildings can benefit through a focus on energy management. Assistance with the implementation and operation of such schemes can be provided by government agencies.
Information and education programmes	Sources of information on efficient lighting products and practices can be made more readily available and accessible through databases, leaflets and web pages etc. Education programmes can be developed for designers, specifiers, installers and operators of lighting systems. Sales training at both the retail and wholesale levels can assist in accurate information being supplied to lighting equipment purchasers. Targeted information programmes like those aimed at the retail and wholesale sectors could also be run in schools and colleges.
Research and development grants	Ideas for new products and practices may need to be researched and developed to a viable stage. Government agencies can assist in providing financial and other types of support.

<b>Actions</b>	
Product labelling	Information on the energy performance of lighting products can be provided to consumers at the point of sale. Energy rating labels (to allow comparison between products) and the ENERGY STAR mark (to indicate highly energy-efficient products) are examples of such schemes.
Performance standards	Minimum Energy Performance Standards (MEPS) are established by governments in international agreements. Once established for a product they act to restrict the sale of products to only those that meet the minimum standard. EECA works on behalf of the government to assist in the development of MEPS. The current programme for MEPS relevant to lighting is attached as an appendix to the paper.
Changes to Building Code	Lighting is an integral component of a building. The design, materials and standard of building structure can directly impact on the efficiency of the lighting installation. The tightening of Building Code requirements regarding lighting system design and installation has the potential to reduce energy wastage in new buildings.
Testing standards	Claims made for product performance can be, at best, confusing and, at worst, misleading to consumers. The accuracy and consistency of performance information is important to enable comparison of alternative options. The standardisation of testing requirements is important so that accuracy of information is assured.
Accreditation	Accreditation of lighting designers, specifiers and installers can assist purchasers in obtaining suitably experienced and qualified professionals. Accreditation schemes could also cover lighting installations that achieve a specified level of performance. A process for the accreditation of buildings that have achieved a required standard of energy efficiency and environmental performance is under development in the NZGBC Green Star programme. As at September 2007 the first programme is operational, the Green Star Office Design Programme. Other programmes, such as Education Design, Retail Design etc. are planned.
Awards	Awards for the achievement of high standards or innovation in efficient lighting can encourage and reward efficient behaviour. EECA's 'Energy Wise' Award is an example of such a scheme. Another example is the IES Energy Efficient Lighting Award.

In the above table the potential interventions have been categorised into 'Programmes' and 'Actions'. This classification has been done to highlight the difference between programmes that are run for a limited period and actions that are undertaken to support the long-term objectives. The 3-Year Efficient Lighting Action Plan is also based on this classification structure.

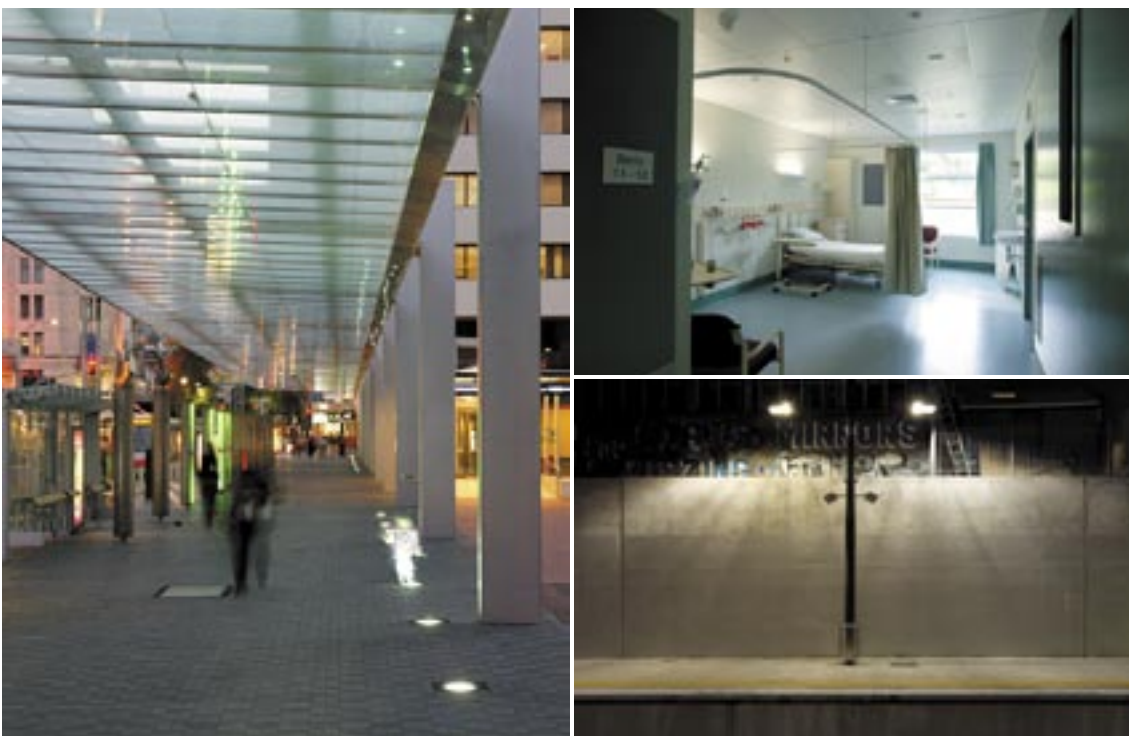
## Why have a strategy?

The BRANZ research and the KEMA Efficiency Potentials Study, along with information provided by EECA, LCNZ and international experience provide strong indications that New Zealand's lighting systems are not as efficient as could be economically achieved. The ELG developed its own view on the areas of highest potential for efficiency gains. Significant reductions in wasted energy and energy infrastructure use can be made. It is expected that the New Zealand Energy Efficiency and Conservation Strategy (NZECS) will target in the order of a 20% reduction in lighting energy consumption by 2015.

Naturally occurring efficiency gains will be realised through existing and new supply chains and markets. Some barriers may exist that prevent the full potential to be delivered through the market alone. Interventions by government, government agencies, utilities or industry associations can minimise the effect of barriers and speed up the implementation of efficient lighting products, systems and practice. Interventions must avoid duplication and distortion of naturally occurring efficiency gains.

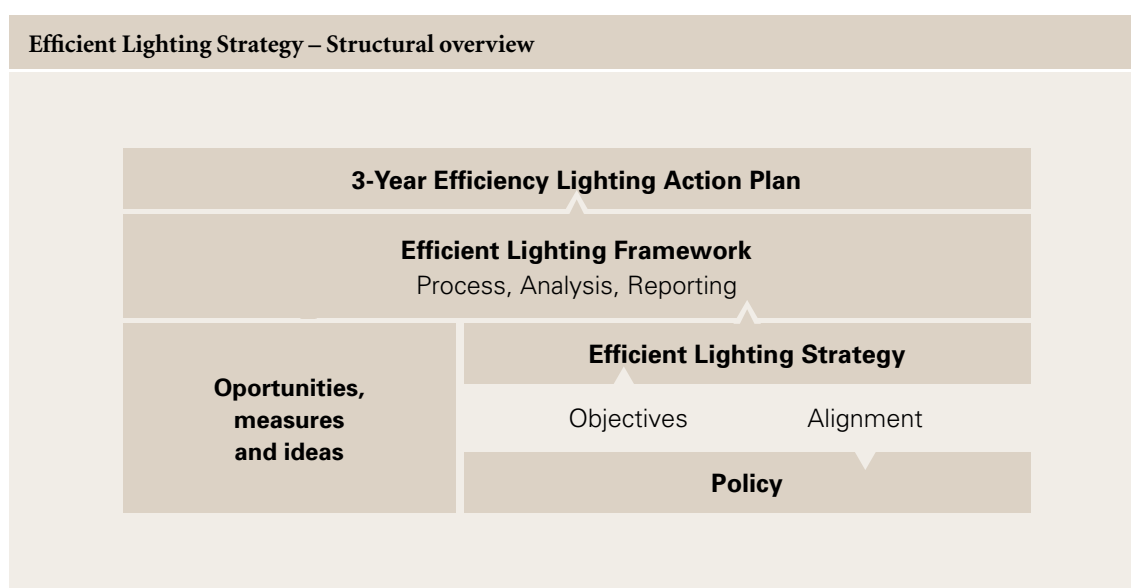
The discussion in the preceding sections of this paper has highlighted the complexity of the lighting supply chain and the competitive forces that are present in the market. The full potential for efficient lighting can only be realised by an approach that integrates the various components and organisations in the supply chain and promotes co-operation with and support for interventions.

Adoption of this Efficient Lighting Strategy will provide direction, co-ordination and co-operation across a wide range of programmes and actions that will ultimately deliver major improvements in the performance of our lighting systems.



## The Efficient Lighting Strategy

The Efficient Lighting Strategy developed by the ELG is set out in the following sections. The ELG has recommended to the group's sponsors that the Strategy is considered for adoption and used as the platform to develop and implement programmes and actions that deliver efficient lighting outcomes.



The approach has three basic components:

- > a Strategy that sets out principles, objectives and goals
- > a Framework for evaluating efficiency opportunities against the Strategy
- > a 3-Year Efficient Lighting Action Plan that includes programmes and actions that deliver the strategic objectives.

The principal objective of the Strategy is to:

*Strengthen naturally occurring, market delivered efficiency through interventions that remove barriers to technologically and economically viable efficient lighting opportunities.*

The strategic objectives are to achieve targeted:

- > reductions in energy consumed (GWh) to provide lighting (relative to the base case)
- > reductions in coincident peak demand (MW) contribution from lighting (efficient use of system capacity)
- > reductions in the emission of greenhouse gases due to the use of electricity for lighting.

The Strategy will realise the economic and environmental benefits of energy efficient lighting through (but not limited to):

- > a 20% reduction in lighting energy consumption over business as usual (BaU) by 2015
- > a reduction in the use of inefficient lighting
- > long-term behavioural changes of consumers towards the adoption of efficient lighting
- > quicker adoption of new efficient lighting technologies to achieve benefits sooner
- > reduction in the use of non-environmentally friendly lighting technologies
- > better 'product stewardship' (from manufacture to disposal)
- > maintained or improved quality of lighting for consumers.

These objectives will be achieved through the application of specific programmes and actions set out in the 3-Year Efficient Lighting Action Plan.

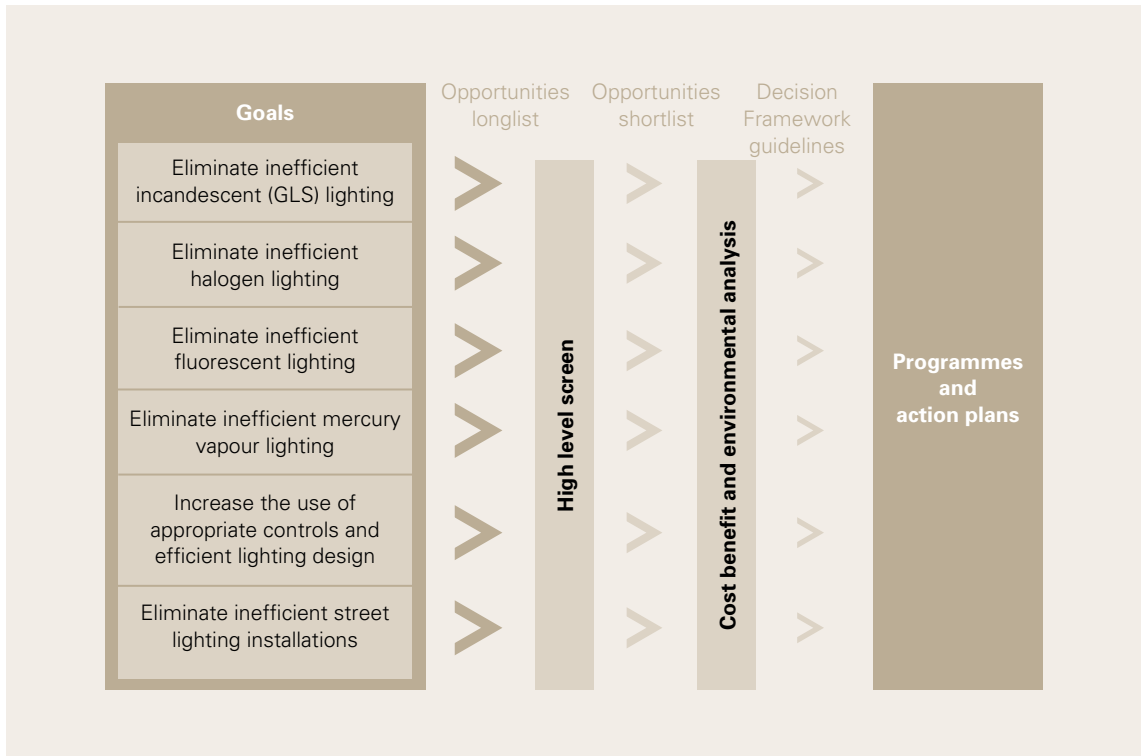
Six specific strategic goals have been set for the initial 3-Year Efficient Lighting Action Plan. These goals were developed by the ELG taking into account the broad stakeholder experience of ELG members.

1. Eliminate inefficient incandescent (GLS) lighting
2. Eliminate inefficient halogen lighting
3. Eliminate inefficient fluorescent lighting
4. Eliminate inefficient mercury vapour lighting
5. Increase the use of appropriate controls and efficient lighting design
6. Eliminate inefficient street lighting installations

The strategic goals will be achieved by the implementation of specific programmes and actions. These programmes and actions are set out in the 3-Year Efficient Lighting Action Plan. The process through which the 3-Year Efficient Lighting Action Plan is developed is shown in the following diagram.



The 3-Year Efficient Lighting Action Plan is established by the identification, analysis and evaluation of opportunities for efficient lighting programmes and actions through a Decision-Making Framework. This process is shown in the following diagram.



## Targets and reporting

Specific measurable targets will be developed from a bottom up (e.g. individual opportunity/programme/action) level. Information obtained from the Potentials Study will be used to establish the base case (BaU) for each opportunity and the target benefits that are expected to be obtained from implementing the opportunities through specific programmes and actions. The components of the cost benefit analysis undertaken for each opportunity will be used to set targets for each opportunity or programme selected for implementation.

Individual opportunity/programme targets will be aggregated to provide high-level targets for totals by sector.

Progress monitoring of each individual programme and action will take place. Reporting of achievements against the strategic objectives and strategic goals will be completed on an individual programme/action and an aggregated national basis.

## Exit plans

Programmes included in the 3-Year Efficient Lighting Action Plan will be required to have an Exit Plan. The intention of the Exit Plan is to identify the point at which the programme will be terminated and the conditions that will allow this to take place. For example, programmes may be terminated at a time when the naturally occurring potential is sufficient to satisfy the principal objective. Alternatively, a programme could include the introduction schedule for MEPS which would eliminate the need for continuance of other components of the programme.

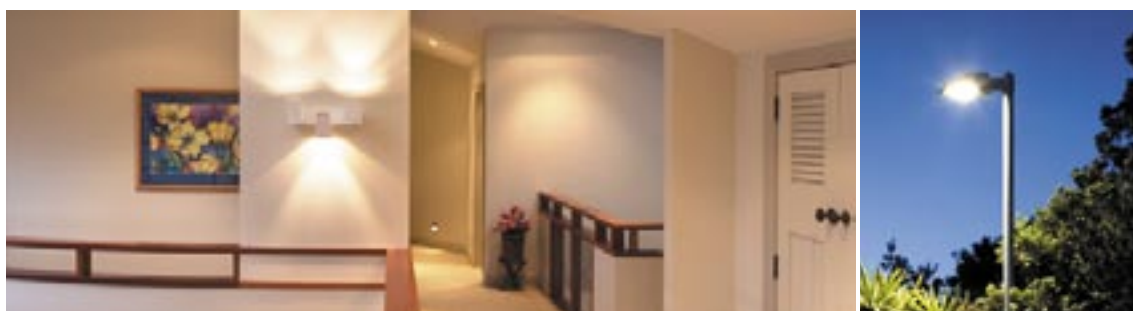
## Concluding comments

The complexity and diversity of the lighting market and its supply chains require consideration of a co-ordinated strategic approach to deliver improved lighting efficiency. The ELG has developed an Efficient Lighting Strategy that:

- > establishes direction and sets objectives
- > sets out a framework that provides consistent, transparent and appropriate evaluation of opportunities
- > establishes a 3-Year Efficient Lighting Action Plan that considers and aligns with other home-based and international programmes and initiatives.

# Appendix 1: Minimum Energy Performance Standard (MEPS) workplan

Appliance or Equipment Type	Existing or New Product	Potential Program Type	Development Date	Target Implementation Date (if program found to be feasible)
GLS and ELV halogen non-reflector	New	MEPS	Complete	2009
Compact Fluorescent Lamps	New	MEPS	Complete	2009
Decorative lamps (>40W)				
Mains voltage halogen non-reflector		MEPS	Complete	2010
ELV halogen reflector				
Mains voltage reflector lamps				
Decorative lamps (>25W)		MEPS	Complete	2012
Main road Lighting	New	Standards development (Voluntary)	Ongoing	TBA
High Intensity Discharge Lamps & Ballasts	New	TBA	2009	TBA
Luminaires	New	TBA	2008	TBA
ELV Halogen transformers / converters	New	Stage 1 MEPS	Complete	2010



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