



**RightLight**.govt.nz/roadlighting

# Efficient Road Lighting Resource

# The Electricity Commission

## About the Commission

- The Electricity Commission is a Crown Entity set up under the Electricity Act to oversee New Zealand's electricity industry and markets.
- The Commission is funded by a levy on all electricity used.
- In addition to its regulatory function, the Commission promotes and facilitates electricity efficiency and conservation, reflecting the [Government Policy Statement](#) (GPS) on Electricity Governance and the [Electricity Act 1992](#) (Act).
- The Commission works closely with EECA and runs complementary efficiency programmes.

## Commission Efficiency Programmes

- Programmes in the commercial, industrial and lighting sectors.
- Focused on peak load reduction to defer infrastructure investment.
- Cost of efficiency measures (0.8 c/kWh) significantly lower than marginal cost of new generation (8.5 c/kWh).
- Facilitate market-lead initiatives that have potential to become self-sustaining over time.
- Measurability of results is key.
- Significant savings to date - programmes have realised 463GWh electricity savings/year (52,000 homes or city size of Roturua).
- Reduction in demand at peak times is 203 MW to date.

## Efficient Lighting Strategy and the Commission's Efficient Lighting Programme

- The New Zealand Efficient Lighting Strategy (2008 – 2010) highlights the significant economic and environmental gains to be made through the adoption of more efficient lighting (including road lighting) technology.
- Efficient Lighting Programme has been developed using analysis from the KEMA Potentials Study and research/feedback from representatives of the lighting industry (through the Efficient Lighting Stakeholder Group and other lighting industry representatives).
- A number of lighting programmes have been run to deliver on this strategy to date including subsidies on efficient lighting products and initiatives to address information barriers.

# The Efficient Road Lighting Programme

## Situation

Significant opportunity for councils to increase the efficiency of road lighting, reduce electricity consumption and save money:

- **330,000 road lights** in New Zealand running for 4,000 hours/per year.
- **\$30 million** of electricity consumed per year.
- **73 Territorial Authorities** (City and District Councils) are responsible for a significant proportion of the road lighting infrastructure in New Zealand.
- **40% electricity savings** possible on the worst performing road lights.
- **Poor information** is a major barrier to the uptake of efficient road lighting technology in New Zealand.

## Efficient Road Lighting

- The “need to eliminate inefficient road lighting installations” is one of the six strategic goals identified in the New Zealand Efficient Lighting Strategy.
- Theme Audit of Road Lighting published by the New Zealand Transport Agency (NZTA) in 2007 identified a number of barriers.
- This report recommended that the NZTA, *Local Government New Zealand* and the Commission work together to address the issues and barriers identified.
- The Efficient Road Lighting initiative is part of the wider RightLight Efficient Lighting Programme that is set to deliver over 100GWh/annum in savings after three years – equating to over \$23m savings per annum.



## Road Lighting Working Group Established

- In 2008 the Commission formed a Road Lighting Working Group.
- Members included Lighting Council New Zealand, NZTA, the Energy Efficiency and Conservation Authority (EECA), road lighting consultants, *Local Government New Zealand* and several Councils.
- Collaborative approach instrumental in further defining the operational challenges/issues facing Councils and key barriers to the uptake of efficient road lighting.
- The Working Group also identified a number of possible initiatives to address the barriers.

## Efficient Road Lighting Barriers

- Poor access to reliable information on road lighting options and technologies.
- Split incentives between developers and Councils.
- Procurement/regulatory policies.
- Existing infrastructure.
- Funding/access to capital and a focus on up-front capital cost.
- Stockpiles of low-efficiency mercury vapour lamps
- Tariff structures & un-metered road lighting.

## Online Efficient Road Lighting Resource

- First initiative - collaborative development of a comprehensive online efficient road lighting resource (foundation for future programmes).
- Targets barriers relating to information, split incentives, procurement/regulatory policies and the focus on up-front capital cost.
- Objective is to increase the electricity efficiency of road lighting installations by educating Councils on the features and benefits of new, more efficient road lighting technologies.
- Resource will equip Councils with tools needed to assess existing infrastructure, improve the efficiency of existing networks and achieve best practice for all new developments.

## The Resource Includes ...

- **Calculators** to assist to assess performance of existing road lighting networks, identify optimal replacement technologies plus design/management options.
- **Information sheets** including resources to help identify lighting requirements for different road classifications, compare upgrade options and understand key lamp and luminaire technologies.
- **Infrastructure design standard** to help specify best-practice lighting design for new infrastructure to achieve the best long-term performance and value for money through efficient design solutions.
- **Case studies, templates** and **process diagrams** to help prepare road lighting business cases, run road lighting trials and project manage lighting projects.

## Key Outcomes

Key benefits of using the resource and installing efficient road lighting include:

- **Electricity cost savings** – 40% already realised for parts of some networks
- **Maintenance cost savings** through longer maintenance cycles
- **Appropriate lighting levels and visibility** which can lessen the need for additional security lighting
- **Greater safety** through improved vehicular/pedestrian visibility
- **Reduction in crime** (indicatively)
- **Flow on social and economic benefits.**

## Quality Assurance

Resource has been developed by road lighting experts – Christchurch City Council and road lighting consultants.

### Road Lighting Review Panel:

- Expert panel formed to overview development of the resource and provide quality assurance.
- Panel included representatives from New Zealand Institute of Highway Technology, NZTA, lighting consultants, several councils Local Government New Zealand and the Commission.
- Thorough testing and review process ensured all resources developed are practical, relevant and fit for purpose – strong endorsement.

## Roll-out

- Resource available online from Dec 2009 at [www.rightlight.govt.nz/roadlighting](http://www.rightlight.govt.nz/roadlighting)
- Training on using the tools and resources will be provided to Councils and related parties via a series of free one-day workshops around the country.
- Two initial workshops over-subscribed. Now four workshops in December 2009 (Christchurch - 2 and 3 December 2009 and Wellington - 8 and 9 December 2009).
- Briefing Government organisations underway.

## Next steps

- Workshops planned for Dunedin, Hamilton and Auckland from February 2010.
- Follow-up training/assistance planned to support use of resources.
- Investigating options to address issues of stockpiles of inefficient lamps and tariff structures that are a barrier to realising the benefits and efficiency gains.
- Ongoing monitoring, measurement and programme enhancements.