



An Roinn Tithíochta, Pleanála,  
Pobail agus Rialtais Áitiúil  
Department of Housing, Planning,  
Community and Local Government



Roinn Cumarsáide, Gníomhaithe  
ar son na hAeráide & Comhshaoil  
Department of Communications,  
Climate Action & Environment

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# Environmental Services Training Group

## LOCAL AUTHORITY ENVIRONMENT CONFERENCE 2018

Climate Change and the Environment A New Reality

Minella Hotel, Clonmel Wednesday 25<sup>th</sup> April 2018.

# Climate Change and the Environment

## A New Reality

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### **Public Lighting**

### **Delivering Cost Efficient Savings**

John G. McLaughlin

Director of Roads & Transportation

Donegal County Council



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# PUBLIC LIGHTS USE 50% of COUNCIL'S ENERGY BILL and LED RETROFIT WILL REDUCE ENERGY DEMAND IN HALF

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- ❑ 480,000 Street Lights
- ❑ 240 GWhr of Electricity per annum
- ❑ Public Lighting accounts for 50% of Local Authority energy use
- ❑ Ageing 1960's stock and technology
- ❑ 1+ billion asset value

# COUNTRY'S LIGHTS DATE FROM 1960's and NEED INVESTMENT TO SAVE ENERGY AND RUNNING COSTS

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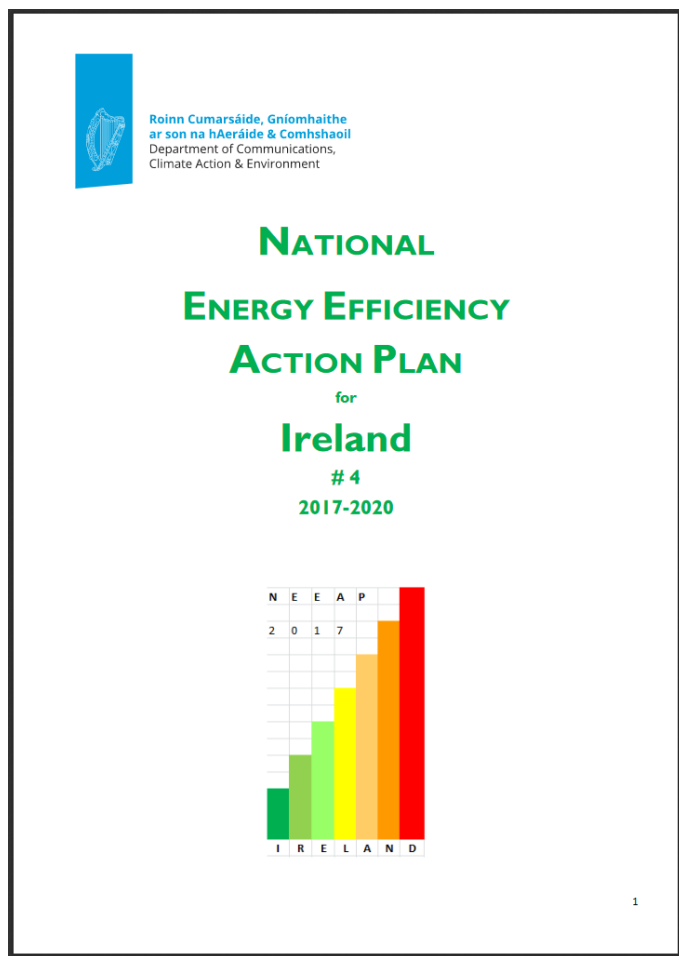
- ❑ €60 million pa total expenditure
- ❑ €33 million energy
- ❑ €23 million maintenance
- ❑ €4 million improvement

# FOUR MAIN DRIVERS OF CHANGE AND NEED FOR INVESTMENT

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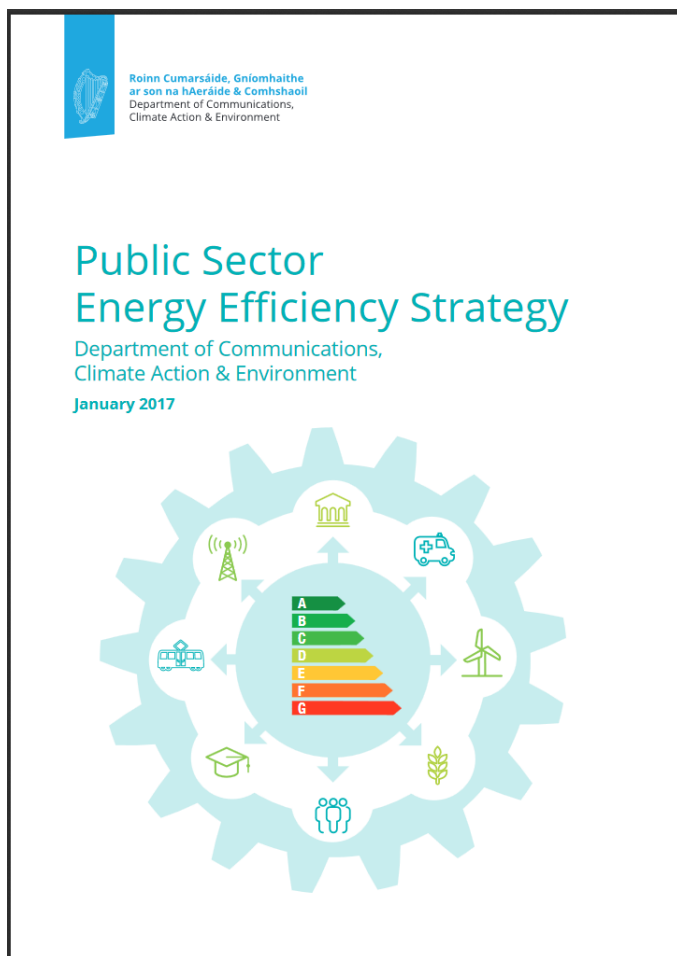
1. Government Energy Efficiency Targets
2. Demand for Cost Savings
3. Poor Condition of Asset needing Repair
4. Lack of Availability of SOX Replacement Bulbs

# GOVERNMENT COMMITS TO ENERGY REDUCTION TARGETS FOR COUNTRY



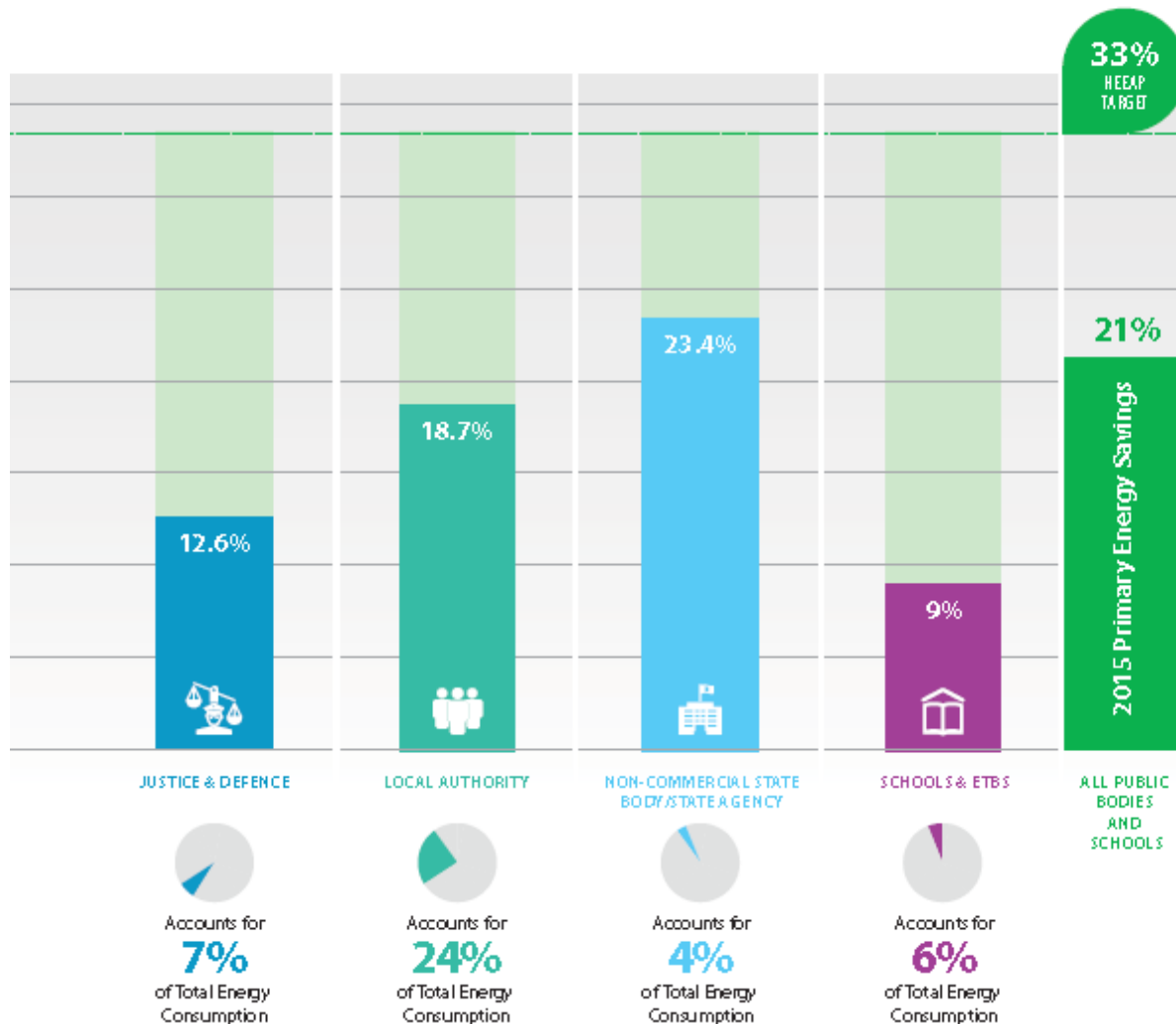
- ❑ NEEAP sets Government commitment to 20% reduction in energy by 2020
- ❑ Public Sector has more ambitious target of 33% reduction by 2020
- ❑ Big Energy Users in LAs
  - Public Lighting
  - Heating/ Air Conditioning
  - Vehicles Fuels
- ❑ About 20% savings to date

# PUBLIC LIGHTING ENERGY REDUCTION CRITICAL TO ACHIEVE PUBLIC SECTOR TARGETS



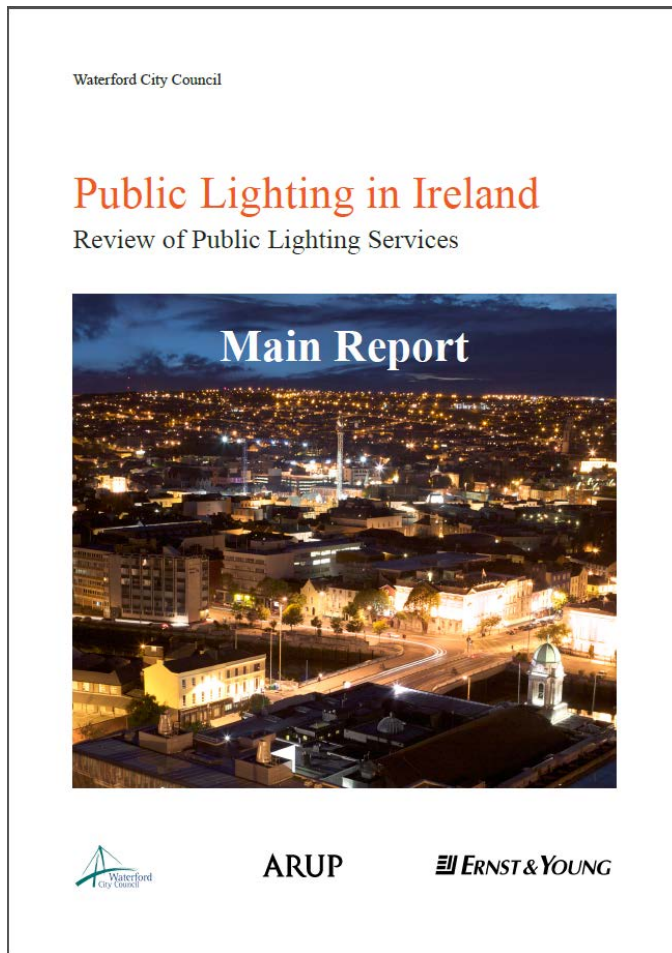
- ❑ Reduction in Public Lighting Energy critical for LAs to achieve 2020 Target (33%)
- ❑ International trend towards retrofitting with LEDs (Light Emitting Diodes)
- ❑ Currently about 9% LEDs in Ireland

# ALL PUBLIC BODIES MUST PLAY THEIR PART AND ARE MEASURED AND REPORTED ON





# LOCAL GOVERNMENT SECTOR CAME TOGETHER AND STARTED WORK IN 2012



- 2012 Waterford City Report on behalf of CCMA
- Highlights:
  - Create larger Asset Management Contracts
  - Coordinated Purchase of Energy
  - Create “Center of Excellence”
  - Adopt Energy Reduction Techniques

# 2015 SAW THE ESTABLISHMENT OF THE PUBLIC LIGHTING STEERING GROUP

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Cumann Lucht Bainistíochta Contae agus Cathrach  
County and City Management Association



Bonneagar Iompair Éireann  
Transport Infrastructure Ireland



An Roinn Iompair  
Turasóireachta agus Spóirt

Department of Transport,  
Tourism and Sport



Roinn Cumarsáide, Gníomhaithe  
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Department of Communications,  
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- ❑ Public Lighting Steering Group set up in 2015
- ❑ Reports to CCMA LUTS SubCommittee
- ❑ Primary Aim to oversee solution to public lighting issues in Ireland

# IN 2016 RMO PROVIDES DEDICATED TEAM TO PROGRESS NATIONAL UPGRADE PROJECT

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- ❑ RMO (Cork Office) Shared Service established in late 2016
- ❑ Dedicated Team to develop Business Plan and Cost Benefit Analysis
- ❑ 3 staff with access to Specialists
- ❑ Reports to PL Steering Group/LUTS/CCMA
- ❑ Business Case at Peer Review stage

# LEDs OFFER SUBSTANTIAL ENERGY REDUCTION AND A LONG LOW MAINTENANCE LIFE

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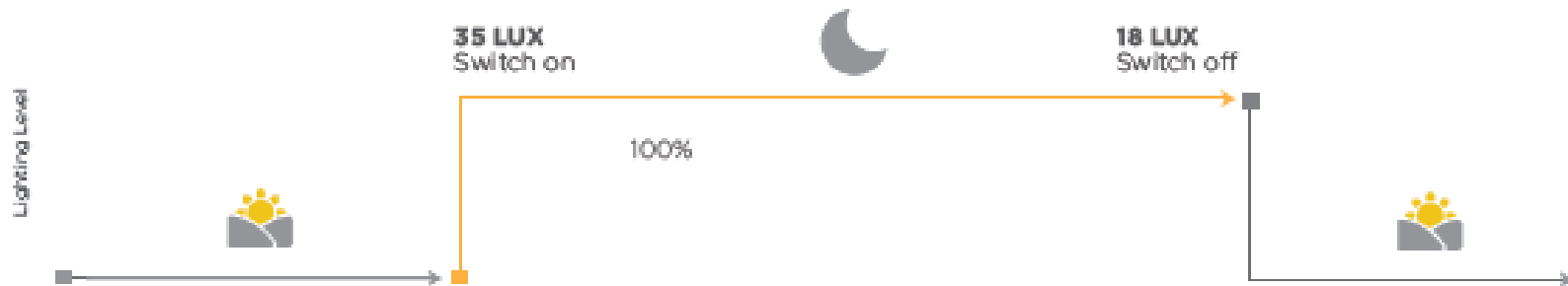


- ❑ Example of 55W SOX using 85W replaced with 35W LED Saves 60% Energy
- ❑ Old bulbs last 3 – 4 Years while LEDs last up to 20 Years
- ❑ Technology Improving and Price coming down each year

# ADJUSTMENTS TO BURN PROFILE OFFER POTENTIAL FOR GREATER ENERGY REDUCTIONS

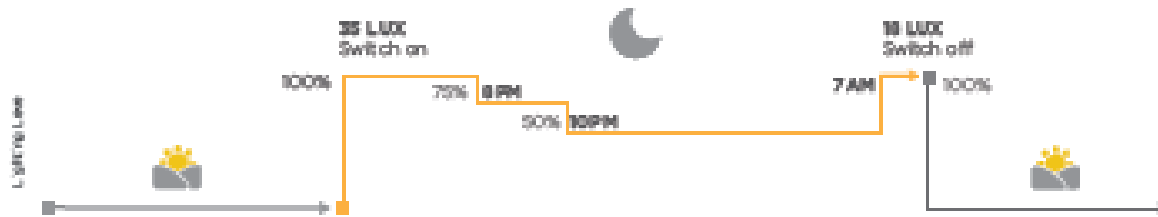
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## PROFILE 1

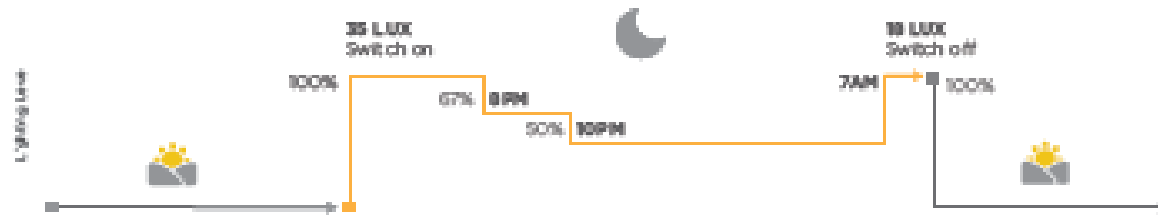


- ❑ Traditional Dusk to Dawn Profile

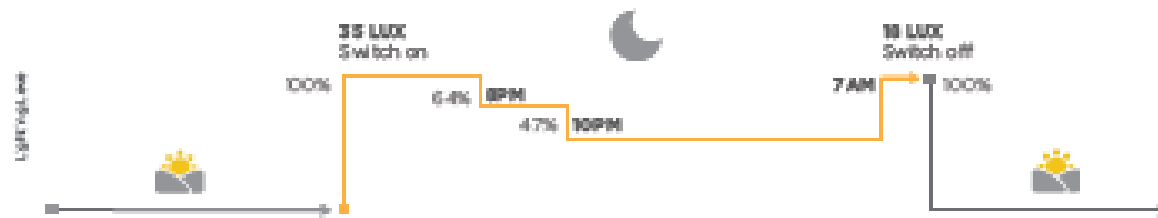
## PROFILE 4A



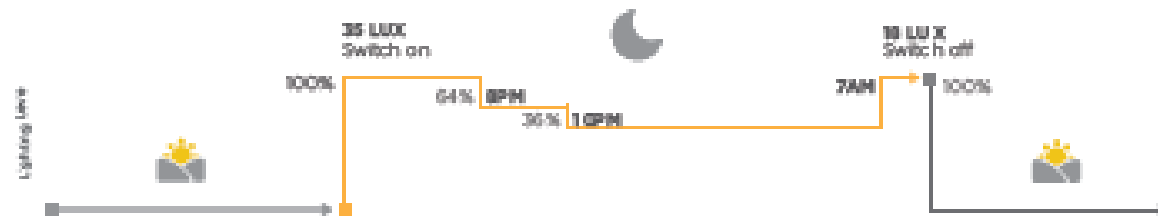
## PROFILE 4B



## PROFILE 4C



## PROFILE 4D

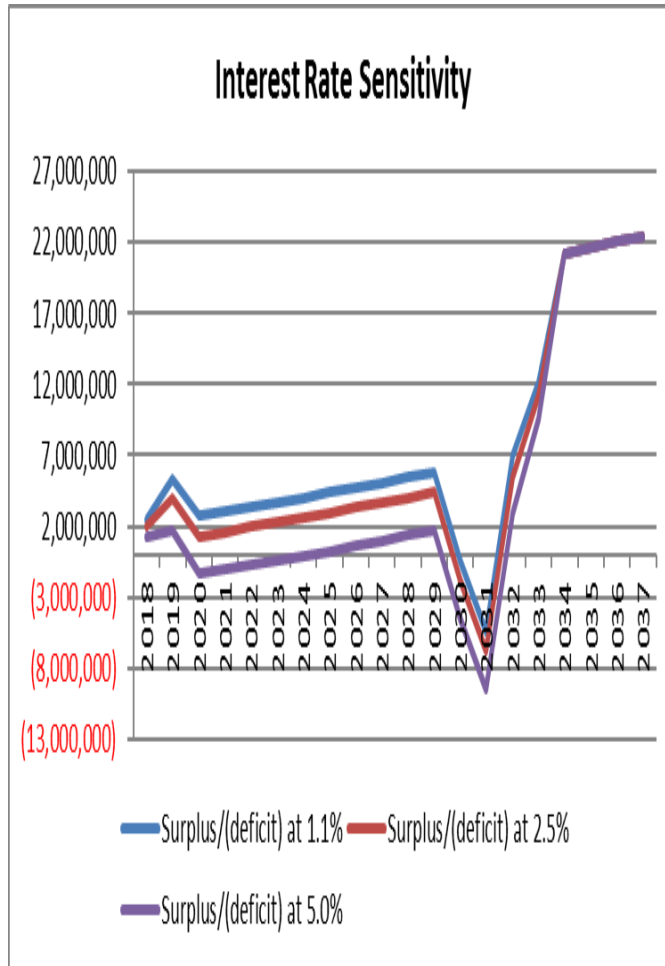


Period of operation on

□ Variations with Trimming and Dimming Requires:

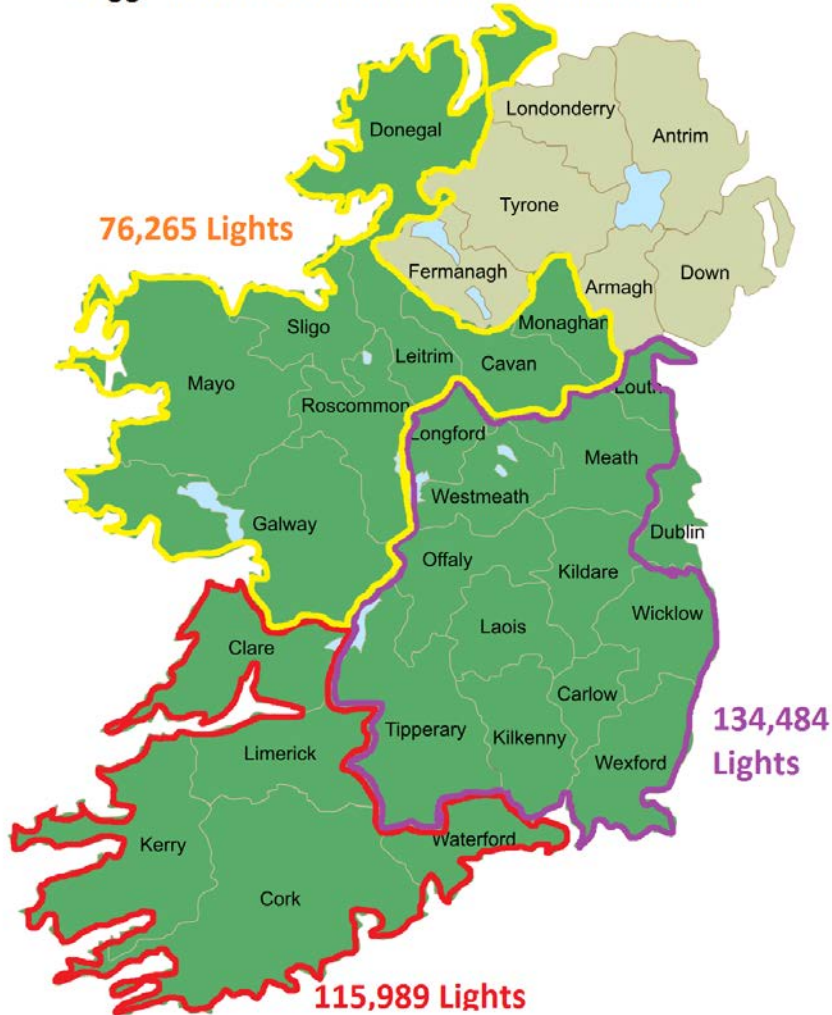
- Investment
- Standards
- CMS System

# OPTIONS UNDER CONSIDERATION FAVOUR DESIGN&BUILD FOR LED<sub>s</sub> WITH SOME CAPITAL UPGRADE ALLOWANCES



- ❑ Energy Performance Contracts (EPC/ESCOs)
- ❑ Direct Procurement from Framework Contracts
- ❑ Traditional Client Designed project
- ❑ Maintenance Contractor installation of LEDs
- ❑ Design & Build

## Suggested LED Retrofit Contract Structure



## REGIONS UNDER CONSIDERATION

- ❑ 320,000 lights (excluding Dublin LAs)
- ❑ Regions to achieve critical mass and economy of scale
- ❑ Concept of lead Local Authority
- ❑ Section 85 Process
- ❑ Technical Issues with ESB Networks



# SCALE OF CONTRACT AND PROGRAMME WILL BRING CHALLENGES

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- ❑ 320,000 bulbs to change over 2 to 3 years (€200 million estimate)
- ❑ 2,000 per week for 3 years
- ❑ Supply, Delivery and Scheduling Issues
- ❑ Rusting Housing, Brackets and Poles to be addressed
- ❑ Isolation Boxes/Switches on ESB Poles
- ❑ Funded by Low Interest HFA 20 Year Loan

# LEDs ON LEFT TEND OFFER BETTER COLOUR RENDITION TO THE OLDER ORANGE GLOW FROM SOX/SON LIGHTING

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# DONEGAL EXAMPLE SHOWS PROGRESS AND WORK SIMILAR TO OTHER RURAL COUNTIES



- ❑ 17,500 public lights with 7 GWhr energy per year
- ❑ 33% Reduction is 2.3GWhr
- ❑ Currently 1,830 lights upgraded with 0.6GWhr reduction (25% of target met)
- ❑ SOX Replacements (9,000 bulbs)
- ❑ Blend of Funding
  - Previous Loan (€500,000)
  - TII Special Grants
  - Own Resources
  - New €13 million Loan
- ❑ Elected Council Buy-In

## DONEGAL EXAMPLE CONTINUED

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- ❑ Annual Energy €1 million
- ❑ Annual Maintenance/Repairs €700,000
- ❑ Improvement/Upgrades €750,000
- ❑ Total Bill of €2.45 million
  
- ❑ Energy Savings with LEDs €400,000 to €600,000
- ❑ Maintenance Cost Savings €200,000 to €300,000



## **REPLACEMENT LED LIGHTING in ARDARA**

(Designed to light Street and  
Footpaths only – Not to  
Light up Buildings or Sky)

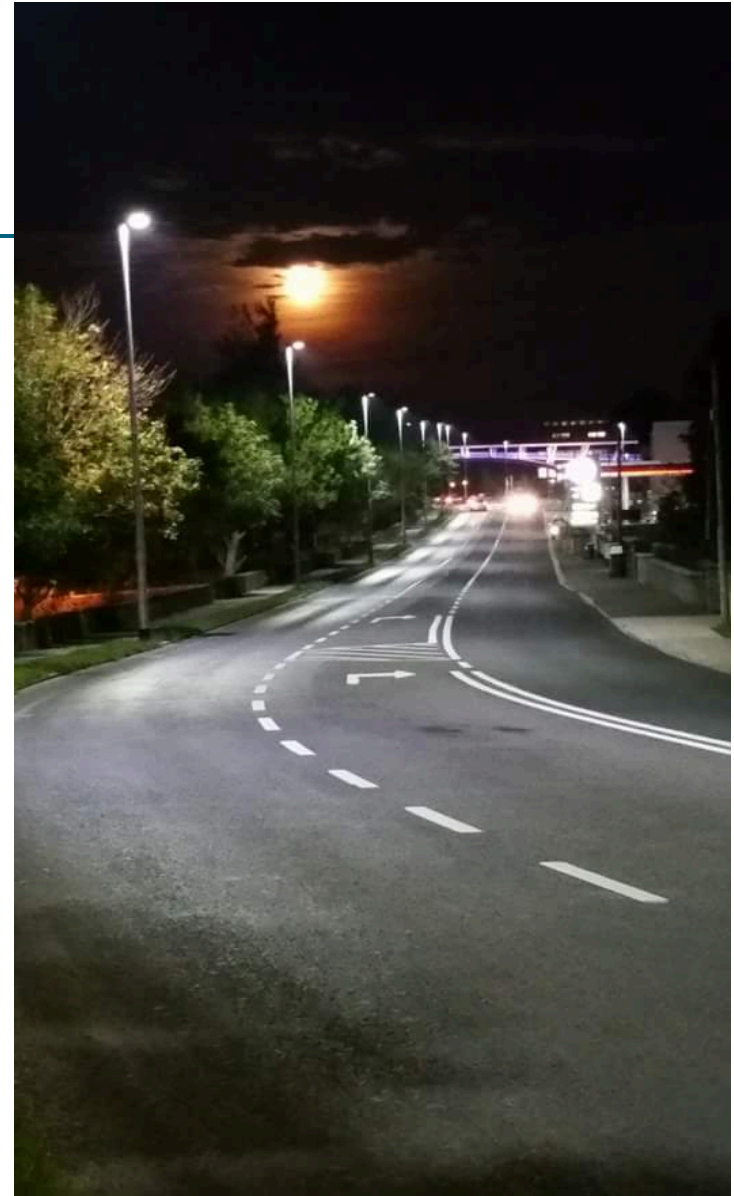
# LED LIGHTING UPGRADE ON MOUNTCHARLES BYPASS 2017

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# UPGRADED PUBLIC LIGHTING in BALLYSHANNON

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# KILKENNY COUNTY COUNCIL SPECIAL PROJECT

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- ❑ Carlow Kilkenny Energy Agency and KCC with Assistance from SEAI
- ❑ Total Project Cost €592,000
- ❑ Grant of €200,000
- ❑ Expected Annual Electricity Saving of €100,000
- ❑ 6 year Pay Back Period