



Calum Edgar

**Street Lighting Team Leader
Dumfries & Galloway Council**

Dumfries and Galloway

- 6650 km² in area.
- 4,160 kilometres of roads.
- 151,000 people.
- 23,712 street lights.
- 80% of the existing lighting stock was low pressure sodium (SOX).



LED Spend2Save

2 Main Reasons

- Carbon Commitment (**GREEN AGENDA**)
- Cost Savings

3rd Reason / By Product

- Environmental Impact

Carbon Management Plan (CMP)

- Launched in 2008 it detailed how we planned to make carbon reductions in line with national targets.
- 20% by 2014 & 42% by 2020
- Used 2008/2009 as a baseline
- To be successful, carbon management needs to be embedded into the fibre of Council operations.
- In addition this is to be a dynamic document which will be monitored and updated regularly, reflecting the evolution of carbon management across our Council.
- CMP2 launched in 2012.

CMP2

- Found that street lighting tCO2 had actually gone up by 15%.
- Baseline figure is not pro rata.
- 2014 Target shelved.
- Now require a 50% reduction to meet 2020 target.
- Lighting stock going up every year will require further reductions.

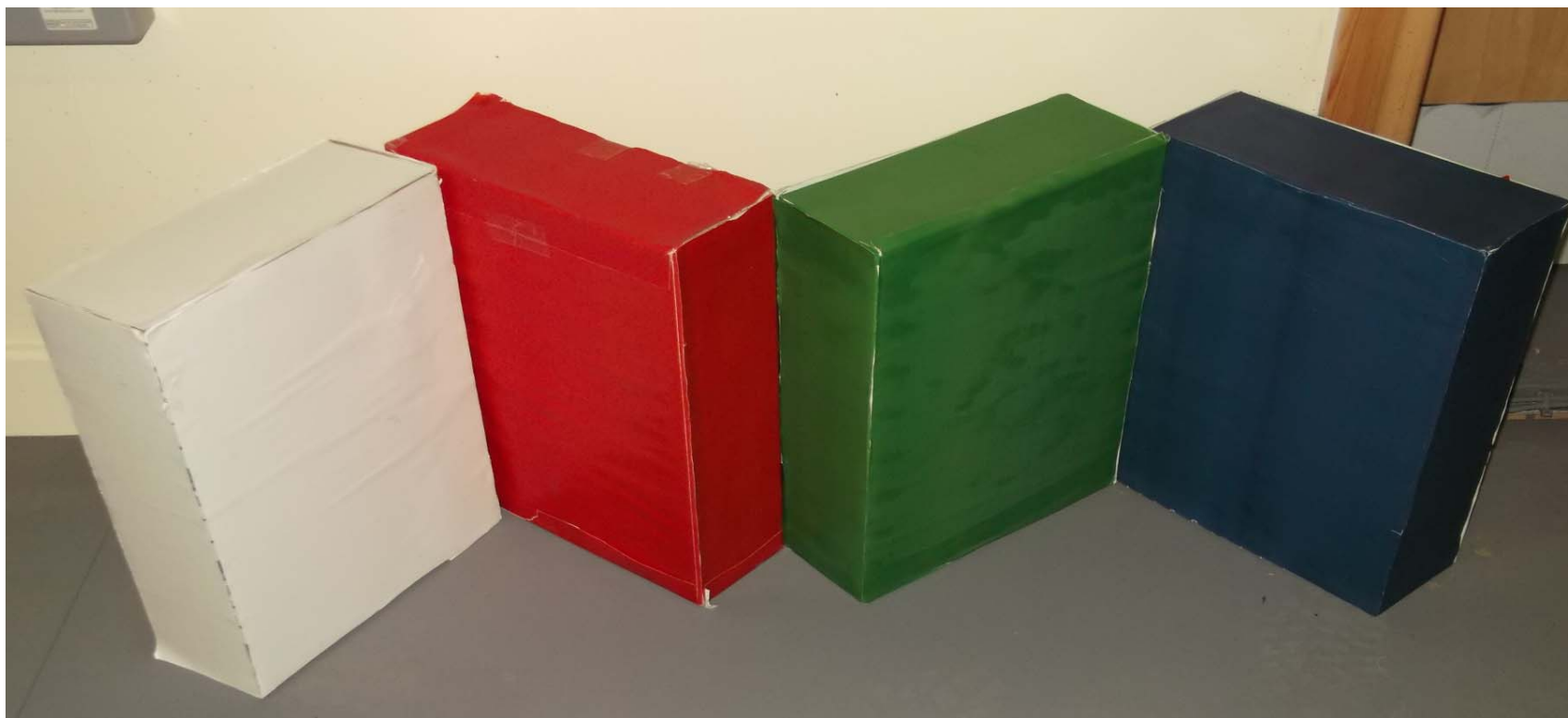
Vote Blue Go Green?



Only Two Risks

1. Reputation of the Council
2. CRC tax at £12 (& rising) per tonne

Getting the Councillors on Board



LED Trials

DUMFRIES & GALLOWAY COUNCIL STREET LIGHTING SECTION

‘LED TRIAL QUESTIONNAIRE’

Please answer all of the following questions by circling A, B or C

1. Do you think the new lighting is brighter?
A – YES (96%)
B – NO
C – MUCH THE SAME (4%)
2. Do you prefer the colour of the new light?
A – YES (89%)
B – NO (11%)
C – MUCH THE SAME
3. Is the dimming cycle apparent?
A – YES (28%)
B – NO (50%)
C – UNSURE (22%)
4. Does the new lighting make you feel more secure?
A – YES (40%)
B – NO (14%)
C – MUCH THE SAME (46%)
5. Do you think the new lighting is better?
A – YES (82%)
B – NO (18%)
C – MUCH THE SAME

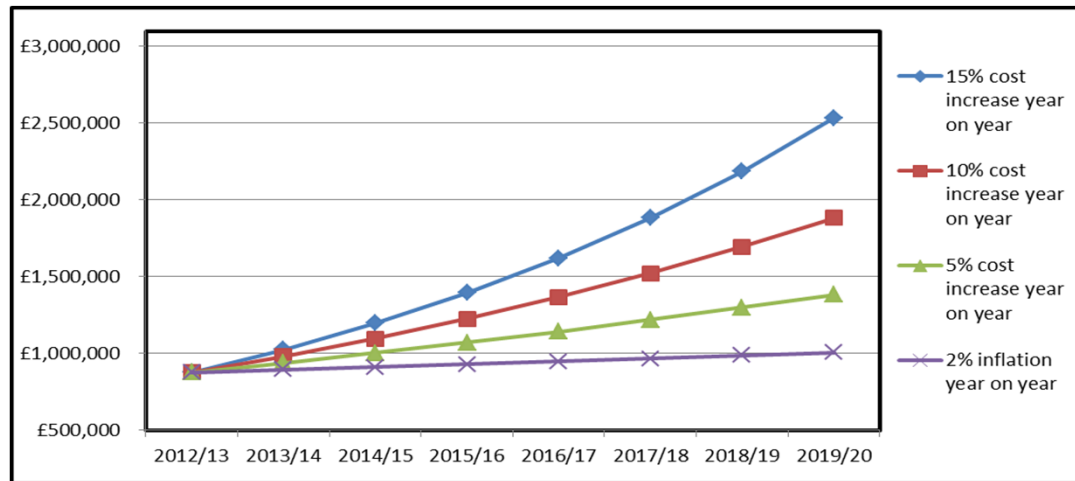
COMMENTS **OUT OF 52 HOUSES WE RECEIVED 28 RETURNS.**

The Cost of Street Lighting

- £890,000 per year on energy.
- £370,000 per year on maintenance.
- Energy going up average of 8% per year.
- Large geographical area meaning travel for over 1 hour to get to a village.
- No longer patrolling

The Committee Report

- Policy & Resources on the 4 December 2012
- Asked to agree prudential borrowing of £7.4M over 8 years.
- Put forward as a way of saving money first.
- Showed Councillor's likely outcome if we did nothing.



The Committee Report

- Explained why changeover period is 8 years.
- Showed how long the payback period would be.
- Explained how LED lanterns had a 20 year life.
- Showed how much money it would save the council over the lifetime of the lantern.
- Showed how much Carbon Dioxide it would reduce regions output by.
- Unanimously agreed/passed by Members.

Choosing the correct LED lanterns

- Put D&G's typical road and column setup into Lighting Reality software.
- Virtually trialled over 25 lanterns.

Class: P4 Calculation Grid: BS5489 2013 Illuminance Road Surface: R2 Q0: 0.07 No. of Lanes: 2 Total Width: 9.75
Configuration: Single Sided Right

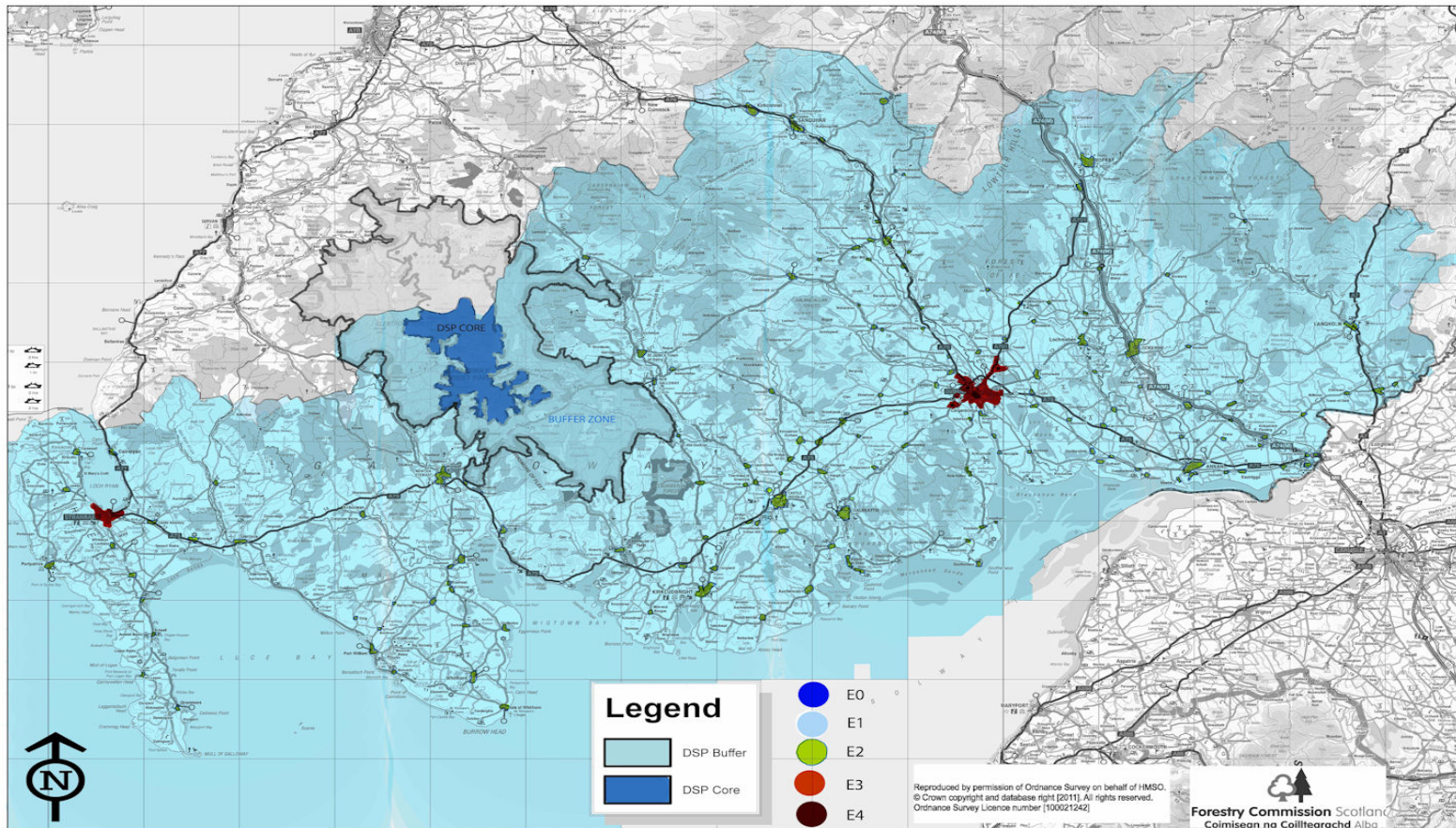
No.	Luminaire	Lamp	spratio	Flux	MF	Spacing	Height	Tilt	Eav	Emin	Emax	Emin/Emax	Emin/Eav
1	Axia_24LED_Neut_Wh_5080_31314F	24LED_Neut_WH	0.00	3.12	0.90	32.00	5.00	5.00	5.57	1.61	22.02	0.07	0.29
2	30W DLK M1_5000	30W DLK M1_5000	0.00	3.15	0.90	32.00	5.00	5.00	6.56	1.84	21.96	0.08	0.28
3	MiniLuma R5	12-30 DS-CW 1 1100-7850 CW LED	0.00	3.80	0.90	32.00	5.00	5.00	6.37	1.93	22.51	0.09	0.30
4	BGS451 WSO	ECO35-2S/830	0.00	3.48	0.90	32.00	5.00	5.00	5.72	1.45	23.65	0.06	0.25
5	Oxane - 39W - 24 x Neutral White 4000K LEDs 500mA - Street EX	LED	0.00	2.84	0.90	32.00	5.00	5.00	6.42	2.39	16.76	0.14	0.37
6	ATB0 20A LED E53 XXXXX R3	20 LED 4K 37 W ARRAY	0.00	2.91	0.90	32.00	5.00	5.00	5.36	1.66	16.43	0.10	0.31
7	QB2B1055.4A + QB2M	55W SOX	0.00	7.80	0.80	32.00	5.00	5.00	5.43	1.60	24.26	0.07	0.30

- Chose a top 7 based on output, uniformity, wattage, price and guarantees.
- All 7 performed better than existing SOX lanterns.
- Ordered 500 of each.

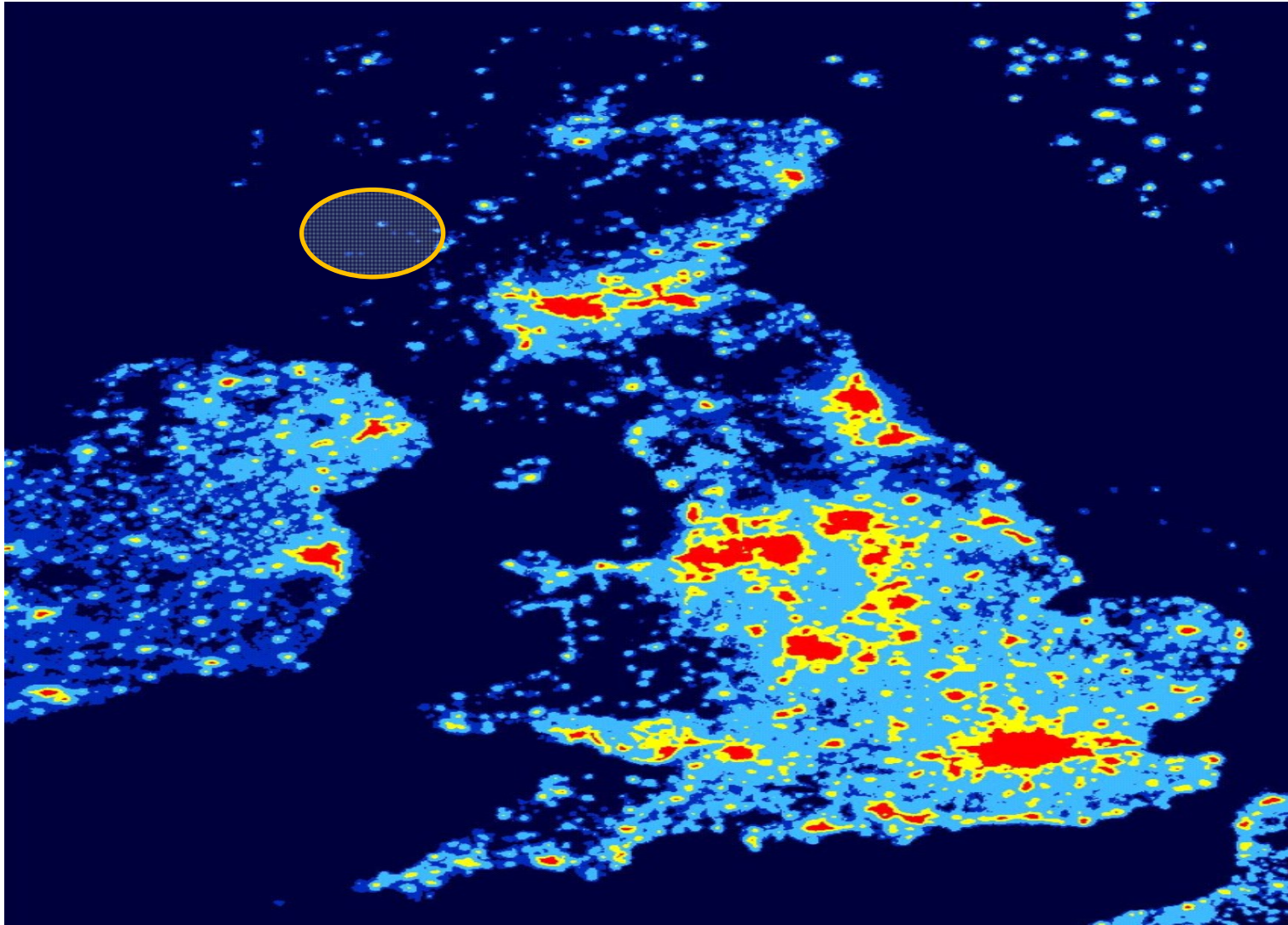
One Year On

- Changed 3500 lanterns to LED's
- Only had 1 failure so far.
- Average energy saving of 60%.
- No maintenance saving just yet.
- Price of LED lanterns down by 20 - 25%.
- Fantastic feedback from the public.

Environmental Impact



D&G Environmental Zone Map



UK light pollution at night.

Galloway Dark Sky Park



- UK's First Dark Sky Park.
- Europe's First Gold Tier Park.
- Changeover to LED's enabling us to try and make the whole of D&G a Dark Sky Reserve.
- Moffat latest town to become a Dark Sky Community.
- Supplementary guidance to planners given through an External Lighting Management Plan.



Galloway Dark Sky Park.



Galloway Dark Sky Park



Galloway Dark Sky Park

Dumfries
& Galloway



06 NOV 2013

Dept. for Street Lighting
Dumfries & Galloway Council
25th October 2013

Dear Sir/Madam,

I would like to thank you very much for replacing the intrusive light bulbs with softer white ones.

After living on William Street for 3½ years with the street light shining an unnatural glow into my front bedroom it is such a welcome relief to go to bed with only a subtle light sneaking into my room. It has made such a difference to my quality of sleep that I felt I had to write to let you know. I have noticed street light bulbs being replaced elsewhere in town and I hope that others will benefit from the change from orange to white light as I have done.

Once again thank you most sincerely.

Yours faithfully,

~~Cheryl Carruth~~
~~Cheryl Carruth (M)~~



21-05-13

Dear Lighting Section,

Thank you for the new street lighting in Moffat. It's great, no more yellow glow, no more intrusive light in the house, now we can (on the rare cloud-free occasions) see the stars, now we can see the colors of the cars at night.

My congratulations and thanks to all responsible - you have enhanced our lives

~~Alan Brydon~~

**Thank You For
Listening!**