



Conurbant



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SUSTAINABLE ENERGY
WEEK 24 - 28 JUNE 2013

EU SUSTAINABLE ENERGY WEEK 24-28 JUNE 2013

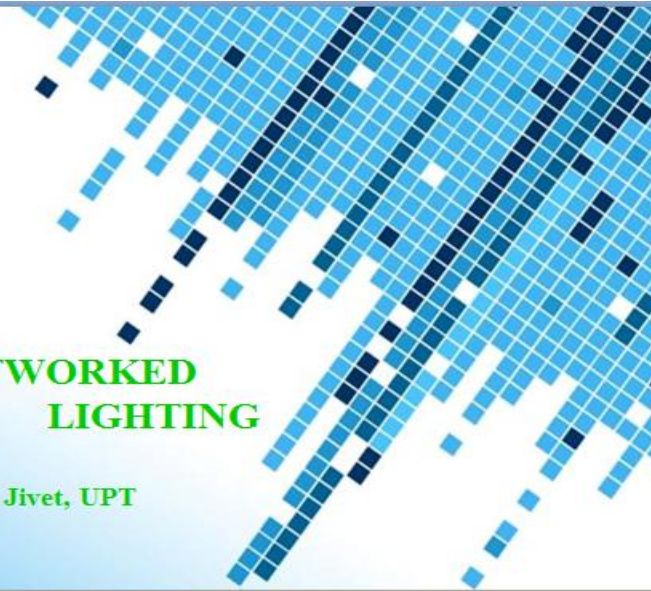
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19 June 2013

Energy

RECENT RESEARCH on NETWORKED INTEGRATED LIGHTING, INTELLIGENT and at REDUCED COST




RECENT RESEARCH on NETWORKED INTEGRATED LIGHTING, INTELLIGENT and at REDUCED COST




**INTELLIGENT NETWORKED
LIGHTING**

Lecture 2

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Lighting Savings System General Requirements

- EU Lighting Savings Directive
- Directive 2006/32/EC of 5.4.2006 - on energy end-use efficiency and energy services.
- 'In accordance with its general foregots member states shall adept and aim to achieve an overall national indicative energy savings target of 9 % for years 2008-2016.....'



Lighting Savings System LOCAL Wish List....

- Basic Functioning Parameters imposed by Standards ... ++ !
 - - Reliable Lighting with-ought Blackouts
 - - Lighting System Topology set for Sustainability
 - - Co-existing with current WiFi Urban Infrastructure
 - - Robustness in Hostile Weather Conditions
 - - Ease in Management by Local Authorities



Lighting Savings System General Requirements

LIGHTING OF CONFLICTS AREAS

Table 8.1. Lighting requirements for conflict areas

LIGHTING CLASS	\bar{E} (lx) over whole of used surface Minimum Maintained	$U_0(E)$ Uniformity of Illuminance Minimum
C0	50	0,40
C1	30	0,40
C2	20	0,40
C3	15	0,40
C4	10	0,40
C5	7,5	0,40

Lighting Savings System General Requirements

- CIE 115-1995 specifies fixed values for lighting parameters...
- 'Temporal variation of lighting class according to traffic density...'
- ...Where the Lighting Class of a road is varied to accord with changes in traffic density during the night to conserve energy (for example, the Lighting Class is lowered after rush hours.....).'
- European Committee for Standardization (CEN)
- ... standards... revised publication CIE 115:2008. Cf 3.1.4.3.



Basic Economic Analysis

Energy Savings:

- Assume a Lighting System Lights of 100 - 250 W
- Lights Dimmed - 12:00 - 04:00 - [12,5 % saved]!
- Savings expressed in Euro = 5 cents/day/light
- [15 Euro per/year/light]!
- ROI - Initial investment depreciation:
- Assuming a node cost of 50 Euro and central overheads
- Total depreciation of Initial Investment 3-4 Years!



Networked Controlled Lighting System



Adaptive lighting

- ❖ New standards opens up for adaptive lighting
 - ◆ Traffic volume
 - ◆ Traffic speed
 - ◆ Weather condition:
 - ❖ wet/dry road surface
 - ❖ asphalt / concrete
 - ◆ Snow?
- ❖ With dimming: Figures according to light output performance of the lamp





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E-street Initiative



On behalf of the E-Street project (www.e-streetlight.com)



And supported by:



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Intelligent street lighting project in Europe

Name Location Country	Number of luminaires	Installed wattages/type of lamp (i.e. 70/100W HPSL)	Technology: Power line (PLC) Radio (RF) Other (specify)	Regulation: Step less dimmable (SD) Reduced level at night (RLN)
Poznan, POLAND	1540	70/150/250 HPS	PLC RF	SD
Belfast, NORTHERN IRELAND	600			
Dublin, IRELAND	5000			
Brown, the NETHERLANDS	7000			
A2, the NETHERLANDS	1523	100/150 HPSL	PLC	SD
Drammen, NORWAY	71	100/150 HPSL	RF	SD
Oslo, NORWAY	7500	70/100/150 HPSL	PLC	SD
Gothenburg, SWEDEN	1125	70/100/150 NaH	PLC	SD



Recent EU Research and Pilot Projects 2011



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Intelligent Streetlighting Pilot project 2011 - Twilight BV
by TVILIGHT BV
15 days ago

Today's lighting challenges...
A lot of light pollution
Just a lot of CO2 emissions

Eén van de grootste uitdagingen met straatverlichting
is dat het de hele nacht brandt.

TVILIGHT BV, a spin-out company from Delft University of Technology.





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» Intelligent Networked Street Lighting
... a subject worth the ...
Interest!! »



-- Thank You!



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-- Thank You!

