

PLUS (Public Lighting Strategies for Sustainable Urban Spaces), financed by the EU's INTERREG IVC programme, capitalises on existing urban lighting best practices on energy efficiency in European cities. It aims to offer a set of recommendations leading to the improvement of cities' lighting strategies and action plans.

PLUS partners

- Lead Partner: Eindhoven (The Netherlands)
- Bassano del Grappa (Italy)
- Birmingham (UK)
- Burgos (Spain)
- Iasi (Romania)
- Leipzig (Germany)
- Lyon (France)
- Nice Côte d'Azur (France)
- Patras (Greece)
- Sofia (Bulgaria)
- Tallinn (Estonia)
- LUCI (Lighting Urban Community International)

Programme: INTERREG IV C
 Total budget: 1 689 508,00 Euros
 Duration: October 2010 to December 2012



During the conferences on sustainable lighting held these past few months, the discussion has unsurprisingly often focused on LEDs. The PLUS cities, with their experiments and sustainable lighting initiatives naturally have much to contribute, as was seen in discussions on sustainable lighting in Gothenburg and Lyon.

Now a new year has begun and PLUS partners have four more Deep Dives to look forward to. In the upcoming 3 months, partners will travel to Leipzig, Burgos, Sofia,



➤ Leipzig Deep Dive: showcasing the city's integrated approach to lighting

The City of Leipzig will welcome PLUS experts as host of the first PLUS Deep Dive of the new year from the 16th to 17th of January 2012. Leipzig's Deep Dive aims to cover three different aspects of lighting in the city: the planning of lighting and climate protection, the technical, ecological and financial aspects of the maintenance of public lighting, as well as assets management and control of the public lighting system. The event will also address how these topics are integrated



and finally Eindhoven to share their lighting strategies and learn new practices.

in the urban development process of the city in general, as explains Heike Besier, PLUS Project Manager and Deputy Leader Section Public Space Design, City of Leipzig, *"The city's best practice, the "Pilot project - Intelligent Lighting City Centre" will show the participants this integrated approach: optimizing energy use and the reduction of CO₂ emissions by using new technologies combined with a more comfortable lighting atmosphere in the streets to create a better urban identity."*

➤ PLUS goes beyond Europe at the LUCI AGM



PLUS had the opportunity to present its activities to roughly 150 participants from over 30 cities worldwide at the LUCI Annual General Meeting 2011 in Gothenburg last November, where PLUS Overall Project Manager, Rik Van Stiphout, presented the project's work during the LUCI Sustainable Lighting Commission meeting. This was accompanied by a presentation from Antoine Bouchet, Director of Public Lighting in Lyon, on the experimental LED projects that the city has

recently implemented, such as the Passerelle Saint Vincent with its 102 linear projectors of 6 LEDs of 3 W combined with 4 presence detectors for the main walkway of the bridge; several fountains and monuments of the city where LEDs are now used to highlight architectural details; and the largest square in Lyon, Place Bellecour, which is now surrounded by twelve 15 metre high poles equipped with 6 lanterns of 48 LEDs of 120W.

While satisfied with the outcome of these experiments, A. Bouchet considers that LEDs are still not adapted to every situation: *"Considering their characteristics and performances, LEDs certainly have a bright future in public lighting. However, investments in this technology -which is still in fast evolution- should be prioritized for installations where their specificities make a real difference in terms of energy efficiency and maintenance costs. It's the case for architectural lighting, the lighting of fountains, and more generally each time a good control of the lighting flux appears essential."*

The potential of LED technology then naturally became the focus point of the Commission discussion!

↘ Sofia Regional Lighting Forum

The City of Sofia organized its first Regional Lighting Forum on the 22nd of November 2011 gathering many representatives of state and local authorities.

In her opening speech, the Mayor of Sofia Municipality, Mrs. Fandakova stressed the importance of public lighting as an integrated element in every project of the Municipality. The city has identified public lighting as one of its priorities in the coming year, during which it will select a new operator for the public lighting system and establish new requirements for the construction of energy effective lighting and intelligent control systems.

The Deputy Mayor Mr. Lyubomir Hristov, emphasized the municipality's two major working directions: modernization of the existing lighting



by replacement with more energy effective alternatives, and street lighting construction in the newly built residential and business zones. PLUS partners will undoubtedly find out more during the Deep Dive in Sofia this February.



↘ Public consultation on EU Green paper "Lighting the Future"

On the 15th of December 2011, as part of the Digital Agenda for Europe, the European Commission adopted a Green Paper and launched a public consultation on the future of solid state lighting. In its Green Paper "Lighting the Future", the Commission proposes measures to speed up the deployment of this innovative and eco-friendly lighting technology and foster the global leadership position of the European lighting industry.

For European Commission Vice President Neelie Kroes "Expanding LED lighting is a 'no-brainer'. It means more money in your pocket, and

a healthier planet. Please give us your ideas on how to speed up its deployment and maximise the number of jobs and savings Europe can gain from expanding the use of LED lighting."

PLUS partners as well as any other European cities can contribute to the process by responding to the Green Paper consultation on the website http://ec.europa.eu/information_society/digital-agenda/actions/sslconsultation/index_en.htm, before 29 February 2012.

↘ Leipzig and Los Angeles present energy-saving projects at ForumLED



The City of Leipzig presented its project, "Intelligent Lighting City Centre" at the ForumLED Europe conference on the 7th of December 2011.

The project, which has increased the energy efficiency of Leipzig's inner ring road through an intelligent use of adaptive power control systems, also plans to replace the metal halide lamps in the city centre's historic lanterns with LEDs.

Co-organized and chaired by LUCI, this session entitled, "How to use LED in public lighting and for which results" also featured a presentation by the City of Los Angeles on its LED roadway conversion programme. This initiative, launched in 2009, aims to convert 140 000 streetlights to LED. The city also presented the lessons learned during the implementation of the programme, which has installed 54 469 LED fixtures on residential streets so far, leading to power savings of 5650 kW.

ForumLED, which is an international congress and exhibition focusing on LED innovations in Lyon, brought together key players and leading companies in the LED sector during the renowned Lyon Light Festival.

↘ LUCI Charter - new signatory cities

One of the PLUS project's reference documents, the LUCI Charter on Urban Lighting which serves as the base for PLUS self-assessment reports, continues to evolve, with two more signatory cities (Ghent and St Etienne) and new steps forward.

The LUCI Charter Commission, led by the City of Leipzig, will now start working with the University of Duisburg Essen on determining

appropriate indicators for a periodic evaluative survey of the lighting strategies of signatory cities. The Commission has a budget of 10 000 for this initiative, which will help LUCI move forward on one of the main engagements of the LUCI Charter - evaluating the cities on sustainable lighting policies.

↘ LED test street project - Tallinn (Estonia)

For the past year, the City of Tallinn has been implementing this LED test street project seeking more information on the viability of LED street lighting. Tarmo Sulg, Deputy Head of the Tallinn Municipal Engineering Services Department tells us more about this PLUS best practice...

“A common understanding on LED street lighting requirements”

■ What is the context of this project?

Most manufacturers say that LEDs provide enormous energy savings, so lots of people, including decision-makers, think that using LEDs in street lighting can resolve all of the city's energy problems. This is why Tallinn started a test project in May 2010 to clarify what is and is not possible today regarding LED outdoor lighting. The project gives LED manufacturers a chance to show their lamps in the city streets and to prove their suitability – on a technical and economic level.

■ What does it consist of?

We have installed 42 LED street lights and 2 luminaires with induction lamps on the test street with the help of 24 manufacturers. We have also installed 17 LED park lights and 6 induction lamps in a park. Every luminaire is represented by at least 2 units each and the lights must meet the requirements of the lighting class S2-S4 or CE2-CE5. Light output of the offered lights was between 12 W and 160 W. We have been monitoring how the lamps work over the year, and we also take certain measurements – energy consumption, power factor, THD (total harmonic distortion) and luminance between luminaires.

■ What have you observed so far?

We have observed that with higher colour temperature, luminous efficacy is higher and thus, efficiency of the luminaire is also higher. We also found that the cold light of most of the LED outdoor luminaires is good as regards to luminous efficacy and mesopic vision but that this solution is not appropriate for each site. Luminaires with warmer light are also needed and their luminous efficacy should be higher as well (which is currently not the case). Furthermore, currently applicable glare indices are not fit to assess the glare of LED luminaires. Another issue is that some LED-lamps are not of good quality as there are a lot of electronic components and the long life of the luminaire cannot be guaranteed. In fact, some of the LED lamps are already out-of-date as we can no longer buy spare parts.

Thus our opinion is that today there are no advantages of LED street lamps compared with gas (HPN, HPS) lamps. LED street lights do not necessarily lead to economies in energy and do not have a good luminous efficiency, i.e. LED lamps are not energy effective when they are required to achieve a comparable luminous efficiency (Lumen/watt). In our opinion, today LED lamps can be used for lighting parks and walkways but it is too early to change HPN lamps in streets to LED lamps.



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IDENTITY CHIP

Location: Tallinn (Estonia)

Stakeholders

Project initiator: Deniss Boroditš, Deputy Mayor, City of Tallinn

Manufacturers: Over 22 LED manufacturers: Silmani Elekter AS, Tale Sisustaja OÜ, Velled OÜ, LOIT OÜ, Arhillion OÜ, Ledline OÜ, BM Light OÜ, LED House OÜ, Keha3 OÜ, Fagerhult OÜ, Alter Electric OÜ, Hektor Light AS, Countech Engineering OÜ, RIA Stanteks OÜ, TP Baltic OÜ, LEDLUX OÜ, AMB Nordic OÜ, Festing OÜ, Noreltec Eesti AS, Electrum Trading AS, Moodne Valgustus AS, Viru Elekrikaubanduse AS, Tamrex Ohutuse OÜ

Installation: AS KH Energia - Konsult

Maintenance/ Measurements: Tallinn Technical University

Implementation

Project launch date: March 2010

Duration of the work: May 2010 – May 2011

Inauguration date: May 2010

Costs

Maintenance cost: 4 524€ (measurements 3 525€)

Total cost: on 1st of March - 11 040€

Researches, conclusions and polls are additional costs

Technical details

Luminaires:

LC-150WB1S2-SV - Archilede - Stilis 72

HLA00201 - DOGMA66llca - Starium Dragon 60+

JRA1-60 - GY750LD60 - LED AREA LIGHTER T3 132W

LED Street light LU4 - LED Branch - STELA WIDE 52 LED

IL- SL60-W-220A - YCC-70M - OCTA (P=60/20W)

LED Street light LU1 - LED-in OL 54 ST

Lamps: LED

Power (watts): Park luminaires 23-85W - Street lights 35-155W

Energy consumption: Electricity 2 991€

Estimated life expectancy: 50 000h