Newsletter

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Dynamic Light

Dynamic Light—Towards Dynamic, Intelligent and Energy Efficient Urban Lighting

WHAT IS DYNAMIC LIGHTING?

Lighting is described as "dynamic" when it changes during the course of time in one or more than one respect, e.g. in terms of illuminance, light colour or direction of light (changes occurring either separately or simultaneously). This includes coloured dynamic lighting generated by LEDs or fluorescent lamps for RGB colour mixing. The luminaires can vary the intensity, colour and distribution of light. Dynamism is monitored by appropriately programmed control systems. The programmable light control system changes the intensity, distribution and colour of the light over time. [licht.de]

THE CHALLENGE

Public lighting causes ca. 6% of the global CO2-emissions. Many conventional lighting fixtures need to be changed to energy efficient lights. However, public authorities lack a strategic approach to convert their lighting infrastructure. Dynamic lighting has the potential for high energy efficiency. The current challenges of dynamic lighting are a missing legal framework for dynamic dimming of lights and higher initial costs compared to standard LED lights. Therefore municipalities hesitate to invest in dynamic lighting. But the uprising topic of light pollution and a necessary improvement of quality of public lighting brings dynamic lighting on the agenda, which can contribute to both: increase of energy efficiency and quality of stay in city areas.

DYNAMIC LIGHT PROJECT

The project demonstrates the how-to-do of a whole process of how a city can get an energy efficient lighting, starting from the idea, analysis, GIS data mining, strategy development, financial models, procurement rules, implementation and evaluation. This goes hand in hand with pilot demonstration investments to increase the acceptance of energy-efficient lighting among end users and town planners by improving the quality of dynamic light and adapting it to social needs.

The project will explore different public lighting situations that are typical for European municipalities. The core idea is that the technical aspect of lighting needs to be better connected to urban planning aspects in order to adapt it to technological possibilities. Especially innovative is that dynamic light shall be applied to optimize the lighting design of public spaces, reduce light sources and light intensity in order to lower light pollution and energy consumption. The project will develop parameters for dynamic light (brightness, colour, light scattering, glare) that meet the social needs (safety, visual identity, attractive city areas, reduction of light pollution). It will test its performance at different urban area types to adjust the technological standards and regulations to dynamic lighting to better utilize the so far unused potentials of it. The project will lay the foundations for more controllable and higher quality lighting solutions with enhanced visual performance and improved ambience and safety of urban environments across Europe.

The project will increase the capacities of public authorities through knowledge transfer about benefits of dynamic lighting and how to apply it in practice. The developed master plans, financial guidelines and trainings will facilitate investments in intelligent and energy efficient lighting solutions in a long-term perspective. The integration of dynamic lighting into standards, norms and procurement rules will be initiated through the project activities.

SUMMARY OF TOPICS

PROJECT OUTPUTS

- Strategy to promote dynamic lighting in accordance with social demands & state-of-the-art technology
- Strategies with action plans for city lighting & reduction of light pollution incl. dynamic lighting
- Strategy to facilitate the integration of dynamic lighting into EN 13201 and related regulations
- Strategy to facilitate the integration of dynamic lighting from a legal perspective
- Manual on dynamic lighting and social needs
- Manual on transferable technical solution
- GIS-based databases for municipalities as models to facilitate strategic planning of dynamic lighting
- Guideline for urban planners on the integration of dynamic lighting into public lighting systems
- Guideline on finding the suitable financial model for public lighting investments
- Course curricula and training material on planning & implementing innovative lighting solutions
- Handbook about interpretation of EN 13201 and room for implementation of dynamic lighting
- Pilot actions demonstrating effects of dynamic light on energy efficiency and user acceptance
- Trainings for municipal staff, urban & light planners
- Dynamic smart lighting investment in Mantova
- Test pilots Town of Čakovec, Glienicke/ Nordbahn, Gorenjska region (3 local communities Bled, Jezersko, Tržič), Graz and Cesena

The project outputs will serve as transferable models to reach out the municipalities outside the partnership by supporting the inclusion of dynamic lighting in procurement rules, climate action plans and urban planning strategies. The general practice of non-strategic replacement of light sources will change towards energy efficient, demand-oriented strategic light design planning and better public light management.

MAIN OBJECTIVE

The main objective of the project is to make a shift from municipal light infrastructure planning towards a modern energy efficient and demand-oriented lighting design and better light and energy management. The process itself presents smart solutions that will be developed and implemented as test pilots within the project lifetime. They will significantly contribute to the reduction of CO2-emissions in local authority districts & regions and enhance the quality of stay.

SPECIFIC OBJECTIVES

- Promoting user-accepted energy efficient lighting solutions by improving the quality of light according to social needs
- Strategies for improving and implementing harmonized public lighting standards and norms
- Capacity building to improve the energy efficiency in public lighting infrastructure and positive image-building for the application of dynamic lighting and energy-saving

EXPECTED RESULTS

The expected result is to get the best relation between highly energy efficient public lighting infrastructure and the quality of stay in urban areas through better light quality. This implies also to develop public lighting standards & norms to better meet social needs and make the application of dynamic lighting possible. It furthermore needs capacity building and awareness-raising for dynamic lighting & energy-saving potentials. The project will demonstrate the process of how a city can implement energy efficient lighting starting from the idea&analysis, GIS data mining, strategy development until financial models, procurement rules, implementation and evaluation. This goes hand in hand with the joint implementation and testing of pilot demonstration investments to proof the benefits and increase acceptance of energy-efficient lighting among end users and town planners.

PROJECT DURATION

01.06.2016—31.05.2019

GRANT

ERDF Funding 2.851.809,29 EUR

LEAD PARTNER

University of Applied Sciences Technology,Business and Design Wismar

THIS PROJECT HAS BEEN FUNDED BY INTERREG CENTRAL EUROPE

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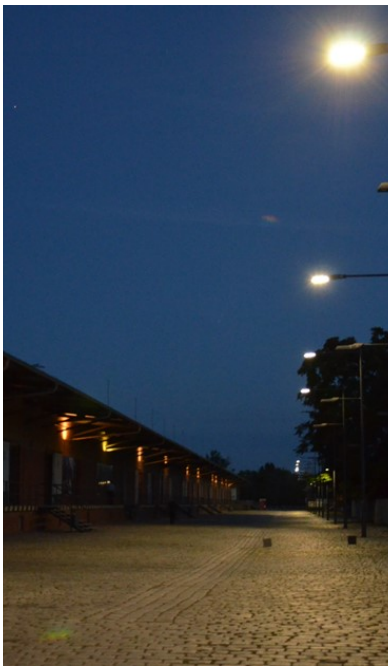

Kick-off

Dynamic Light kick-off meeting was held between 4th and 5th of July 2016 in Berlin, Germany. Fifteen partners from seven European countries are starting under the lead of University of Applied Sciences Wismar a cooperation on innovative and energy efficient public lighting solutions. After the kick-off, the project partners participated in a site visit of the LED Walkway in Berlin.

5th International Light Symposium on Future of Healthy Light & Lighting

The 5th International Light Symposium on Future of Healthy Light & Lighting took place on the 12 -14th of October in Wismar. Light Symposium Wismar 2016 is a three-day forum that brought together recent insights into the effects of healthy light and lighting in daily life with respect to research, theory, technologies, design, and applications. For more information visit: http://lightsymposium.de/2016/

Press Conference

The press conference at the beginning of the Dynamic Light project took place on the 13th of October 2016 at Technology Innovation Centre Medjimurje, Croatia. The speakers on the conference were the director of Medjimurje energy agency ltd. MENEA, Mr. Alen Višnjić, prefect of the Medjimurje County, Mr. Matija Posavec and mayor of the Town of Čakovec, Mr. Stjepan Kovač. “This is a pioneer project in Croatia which deals with innovative, energy efficient and dynamic public lighting. It will increase the attractiveness of the city and the comfort of living; satisfy the social criteria and safety norms. In the centre of the town of Čakovec a pilot investment will be implemented - the replacement of the current lighting with the new, modern, dynamic one.” – explained Mr. Višnjić and emphasised that, following the town of Čakovec, it is the wish to implement good practices in other towns and municipalities in Medjimurje County, as well. The Croatian project partners, Medjimurje energy agency and the Town of Čakovec signed projects Partnership Agreement during the conference.

Selecting locations for pilot installations

Besides of the large scale investments planned by the project locations for smaller scale pilot installations are being selected in Poland, Czech Republic and the region of Rostock, Germany. In the Czech Republic several municipalities have been contacted by the local partner. A meeting in the Town of Sušice, often called the Gate to the Šumava Mountains, laid down foundation for future cooperation on pilot activities in the town. The former royal town spreads on both the banks of the once gold-bearing Otava River on the area of 16.6 square kilometers, and has about 11,500 inhabitants. There is a huge potential in the implementation of dynamic lighting in the Town of Sušice and town representatives are well disposed towards such kind of investments.

PARTNERSHIP

University of Applied Sciences Wismar, Germany

Business support centre Ltd., Kranj, Slovenia

PORSENNA n.g.o., Czech Republic

Medjimurje energy agency ltd., Croatia

Municipality of Cesena, Italy

TEA SpA, Italy

Bruno Kessler Foundation, Italy

Spath MicroElectronicDesi gn GmbH, AUustria

City of Graz, Austria

Ernst Moritz Arndt University of Greifswald, Germany

SWARCO V.S.M. GmbH, Germany

Deutsche Lichttechnische Gesellschaft e.V. (LiTG) , Germany

Poltegor-Institute, Poland

Hanseatic City of Rostock, Germany

Town of Čakovec, Croatia

Events 2017

Join us on:

19th—21st April:

Dynamic Light 2nd Project progress and steering committee meeting in Wroclaw, Poland

11th—13th October:

Dynamic Light 3 rd Project progress and steering committee meeting in Prague, Czech Republic

Meet project members at:

30th—31st May

Smart Lighting: Premium Conference & Expo on Human Centric Lighting in Hamburg, Germany

29th May—3rd June

eceee 2017 Summer Study on energy efficiency in Presqu'île de Giens, France

13th—15th September

9th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'17) in Irvine, California, USA

18th—20th September

13th LUX Europa Conference in Ljubljana, Slovenia

1st –4th Novebmer

Professional Lighting Design Convention (PLDC) 2017 in Paris, France

Contact

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