




Plan Lumières 4.0

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Year of commitment : 2019

CO2 Impact : 166,000 tonnes of CO2 avoided and 76% energy savings



Builder

LuWa (Citelum, DIF, Luminus, CFE)

Manager / Dealer

SOFICO

GENERAL INFORMATION

This building was awarded the Sustainable Infrastructure Grand Prize of the Green Solutions Awards 2020-21 at the national level; and a mention for the same category at the international level.

The Plan Lumières 4.0 aims to design, modernise, finance, manage and maintain the public lighting infrastructure on the 2,700 km of Wallonia's (Belgium's) road network. Carried out in the form of a PPP (public-private partnership) between the LuWa Group (a consortium led by Citelum, a subsidiary of the EDF Group) and SOFICO (the contracting authority for Wallonia's structural (auto)road network), the Lighting Plan places user safety, energy savings and ecology at the heart of its project. In addition to replacing all the lighting with LEDs, this plan also provides for the introduction of innovations that will result in significant energy savings and improved safety for road users.

Progress Status

In progress

Data Reliability

Self-declared

Funding Type

Public/Private Partnership

Website Enterprise / Infrastructure

<https://www.luwa.be/>

Sustainable Development

Attractiveness :

Every user who travels on the Walloon core network will benefit from this technological innovation.

Well Being :

The main benefit of the Plan Lumières 4.0 for the citizen is the optimisation of his safety on the network. Indeed, the replacement of old bulbs by LEDs allows the use of cold light, more adapted to the human eye, which maximises the driving comfort of road users.

User comfort is maximised by the choice of very high performance materials. The implementation of a true master plan for lighting design makes it possible to better read the road network by adapting lighting and colour temperatures. The identity of the road network - both during the day and at night - is thus profoundly modified, reinforcing its appeal and influence.

Indeed, this solution makes it possible to adapt the illumination according to the external conditions such as the instantaneous traffic, the average traffic, average traffic, weather conditions, work-related interventions or possible accidents. The aim is to maximise energy savings while guaranteeing the safety of users.

In addition, the Group is deploying a double system of presence detectors to control the luminaires more precisely according to traffic conditions. Doppler sensors, placed on motorway ramps and car parks, allow instant detection of vehicles or pedestrians, while Bluetooth sensors determine travel times and average speeds on motorways and national roads.

The project also takes account of road users by carrying out most of the renovation work at night on high-traffic routes to minimise inconvenience to drivers while ensuring the safety of the work teams. The marking is optimised, in coordination with the SPW teams, to limit the inconvenience and its duration while guaranteeing maximum safety for those working on the site and for road users.

Social Cohesion :

With this ambitious project, Wallonia is positioning itself as a model for social integration and employment: 400 jobs generated, 100,000 hours of training, a share of the market reserved for integration companies.

Preservation / Environmental Improvement :

Thanks to the modernisation of public lighting, energy savings of 76% will be made and 166,000 tonnes of CO2 will be saved. In addition, the road network will be equipped with 2,500 cameras and sensors that will make it possible to deduce the occupation of the roadway. Lighting will thus be adapted as closely as possible to the needs of users, while making further energy savings and preserving biodiversity.

Thus the lighting will be adapted in the Natura 2000 Zones [1] according to the nocturnal cycles, the specificities and the behavior of the fauna and the flora in front of the light. All this is made possible thanks to the many innovations brought by this project.

The Plan Lumières 4.0 is part of a real sustainable development approach. Beyond energy savings, modernization choices take into account the durability and longevity of materials and their recycling. The reduction of light pollution, the preservation of natural areas and biodiversity are also taken into account. This is how the LuWa group is committed to an approach that respects the environment.

[1] Natural or semi-natural sites of the European Union with great heritage value

Resilience :

High performance commitments have also been made since, after the modernisation of the equipment, the instantaneous availability of the structures will be guaranteed at 99.2%, the average duration of breakdowns will not exceed 10 hours and all intervention times will be reduced to a minimum.

Responsible use of resources :

The Plan Lumières 4.0

is part of a sustainable development approach. Replacing the current sodium bulbs with more economical LED bulbs and adapting the lighting to traffic conditions will save 76% of energy and 166,000 tonnes of CO2. The reduction of light pollution as well as the preservation of natural areas and biodiversity were also taken into account in the development of the project as the lighting is adapted in Natura 2000 areas.

As part of the Lights 4.0 Plan, LuWa has implemented a strategy of dimming schemes on (auto)roads. on Walloon (auto)roads. This strategy allows for energy savings and and CO2 emissions while optimising user safety.

The Lighting Plan 4.0 will therefore enable 76% of energy savings to be made at the end of the modernisation process. The dimming schemes, which came into force last October, will alone save the energy consumption of around 8,000 households, or 32% (of the 76% expected) of the current energy bill.

Governance

SOFICO

Holder Type : Public Local Firm

LuWa (Citelum, DIF, Luminus, CFE)

Builder Type : Other

SOFICO

Manager / Dealer Type : Public

The Enlightenment 4.0 Plan was concluded in March 2019 in the form of a **PPP** (public-private partnership) between SOFICO and the LuWa consortium. SOFICO benefits from technical assistance from the Public Service of Wallonia Mobility and Infrastructures (SPW MI) for this mission.

Business Model :

This Plan, which allows for the complete renovation of the lighting of major roads and makes it more efficient, with a budget of 600 million euros financed by SOFICO and spread over 20 years, i.e. 30 million per year. **Thanks to the savings** made by the placement of **LED technology** and by **intensity modulation, the budget allocated to lighting by SOFICO remains similar** to that previously allocated to this item.

Sustainable Solutions

MUSE

Description :

More than an optimized CMMS, MUSE® offers many benefits for effectively monitoring and organizing the urban assets of cities.

On the MUSE® platform, all urban equipment is listed with its history and geolocation. This information is then used to define preventive maintenance rounds, plan renewals and manage malfunctioning problems.

In the case of the Plan Lumières 4.0, the city services and Citelum teams are quickly alerted via the platform of potential failures and are thus able to coordinate repairs and put the equipment back into service. MUSE® is also used to monitor the level of equipment consumption. With the help of reliable reports and indicators, sources of high consumption are identified in order to take the necessary measures to reduce energy expenditure and preserve resources.

CO2 Impact : 166,00

- o Security
- o Other
- o Other
- o Urban Lighting

Company (es) Website :

Company (es) Website :

Company (es) Website :



Contest

Reasons for participating in the competition(s)

L'innovation au service de l'environnement :

Grâce à la modernisation de l'éclairage public, des économies d'énergies seront réalisées à hauteur de 76% et 166 000 tonnes de CO2 seront épargnées. De plus le réseau routier se verra doté de 2500 caméras et capteurs qui permettront de déduire l'occupation de la chaussée. L'éclairage sera ainsi adapté au plus près des besoins des usagers tout en réalisant de nouvelles économies d'énergie et en préservant la biodiversité.

Ainsi l'éclairage sera adapté dans les Zones Natura 2000[1] en fonction des cycles nocturnes, des spécificités et du comportement de la faune et de la flore face à la lumière. Tout cela est rendu possible grâce aux nombreuses innovations apportées par ce projet.

Le Plan Lumières 4.0 s'inscrit dans une réelle démarche de développement durable. Au-delà des économies d'énergie, les choix de modernisation prennent en compte la durabilité et la pérennité des matériels et leur recyclage. La réduction des nuisances lumineuses, la préservation des zones naturelles et de la biodiversité sont également pris en compte. C'est ainsi que le groupement LuWa s'engage dans une démarche respectueuse de l'environnement.

La sécurité, une priorité :

La modernisation porte sur le remplacement des 110 000 points lumineux actuels par des luminaires dernière technologie LED, mais également sur la rénovation et le remplacement des points de commande, ainsi que de 31% des supports et le renouvellement de 20% de réseau souterrain.

Le Plan Lumières 4.0 propose de nombreuses technologies qui ont pour objectif de rendre les routes plus sûres pour les usagers. Un des grands piliers du Plan Lumières 4.0 réside dans la sécurité. Grâce à un dispositif de télégestion, l'éclairage est adapté aux situations et aux usagers. Les niveaux d'éclairage sont ainsi hiérarchisés selon les différents types d'axes routiers et sont modulés selon les situations soit de manière instantanée, soit de manière préprogrammée: échangeurs qui s'illuminent à l'arrivée d'un véhicule, lumière clignotante avertissant un conducteur à contresens, intensité lumineuse accentuée lors d'une mauvaise météo.....

L'objectif est de maximiser le confort et la sécurité de l'utilisateur grâce à un matériel d'un très haut niveau de performance. La mise en place d'un véritable schéma directeur d'aménagement des luminaires qui permet de bénéficier d'une meilleure lecture du réseau routier. Des engagements de performances élevés sont aussi relevés puisqu'après la modernisation des équipements la disponibilité instantanée des ouvrages sera garantie à 99,2%, la durée moyenne des pannes n'excédera pas 10 heures et tous les délais d'intervention seront réduits au maximum.

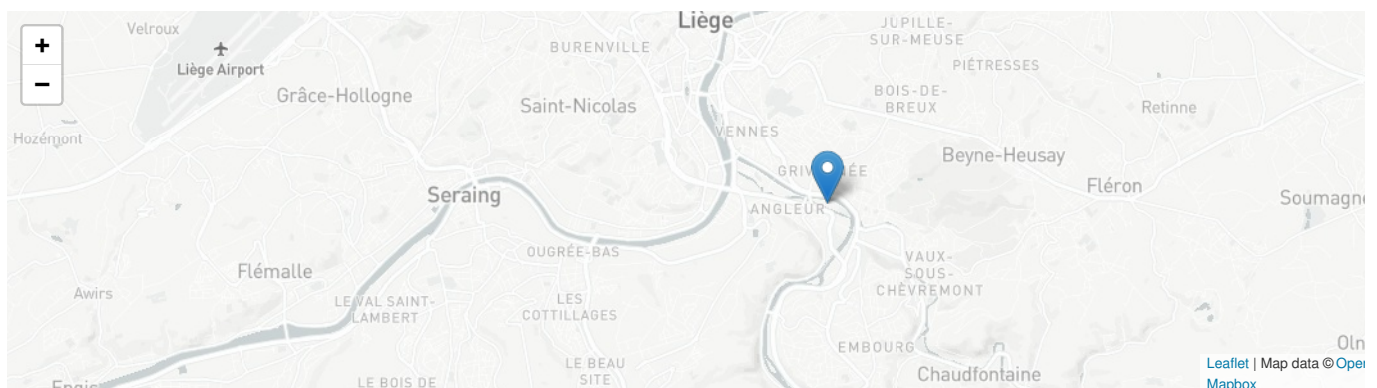
Ce projet tient également compte des travailleurs en effectuant la majorité des travaux de rénovation de nuit sur les axes à trafic important pour minimiser la gêne des conducteurs tout en assurant la sécurité des équipes d'interventions. Le balisage est quant à lui optimisé, en coordination avec les équipes du SPW, pour limiter la gêne et sa durée tout en garantissant une sécurité maximale pour les intervenants sur chantier et les usagers de la route.

[1] Sites naturels ou semi-naturels de l'Union européenne ayant une grande valeur patrimoniale

Building candidate in the category



Grand Prix Infrastructure Durable





Engis

LE BOIS DE
L'ABBAYE

LE BEAU
SITE

EMBOURG
Chaufontaine

Olné

Rue Malleue

Hermalle-
sous-Huy

Bois de la Neuville
et de la Vecquée

EN
FRÉHISSE

Route du Condroz

Filff

Trooz

Beaufays

Neupré

Méry

Strivay

Hony

Stinval

Yernée

Saint-Séverin

Amostrennes

Esneux

Fontin

Betgné

La Haze

Blindef

Adzeux

Ogné