

# Boost LED Savings Beyond 50%!

Energy Efficiency in Street Lights:  
**a Revolutionary Approach**  
[www.ilcs.it](http://www.ilcs.it)





# Adaptive dimming in street lights

*The challenge: How can we save even more energy after transitioning to LEDs on street lights?*

## Next Frontier in Sustainable Street Lighting

Transitioning to LEDs marked a significant leap in energy efficiency for street lighting. However, as the global emphasis on sustainability intensifies, the question arises: How can we push the boundaries of energy saving even further without compromising on safety, especially for drivers?

## A Strategic Evolution in Street Lighting

Enter adaptive dimming, a cutting-edge solution that addresses this very challenge. Rooted in a European directive, adaptive dimming is not just a technological advancement but a strategic approach to street lighting. Instead of maintaining a constant luminosity, adaptive dimming adjusts the brightness of street lights based on a set of well-defined criteria.

These criteria include:

- traffic flow on the road
- the luminance or reflective quality of the road surface
- prevailing weather conditions.

For instance, on a clear night with minimal traffic, the lights can be dimmed more than on a rainy night with heavy traffic.

## Balancing Energy Efficiency with Road Safety

The genius of adaptive dimming lies in its ability to strike a balance between energy conservation and safety. By dynamically adjusting the light intensity, it ensures that drivers always have adequate visibility, tailored to the specific conditions they're encountering.

This not only leads to significant energy savings but also ensures that the roads remain safe for all users. In essence, adaptive dimming represents the next frontier in energy-efficient street lighting, marrying technological innovation with a commitment to safety and sustainability.





# Adaptive Dimming: What is it and How Does it Work?

*Adaptive dimming is a cutting-edge approach in lighting control. It tailors the intensity of light sources in real-time, based on distinct parameters or situations. Unlike its traditional counterparts that maintain a steady brightness, or adapt the light with motion or radar sensors in simple ways, adaptive dimming systems are agile, ensuring light is provided precisely when and where necessary.*





## The Science Behind Adaptive Dimming

At the heart of adaptive dimming is its intricate network of sensors and control mechanisms.

They persistently track a range of factors, such as road category, traffic density, weather patterns, road luminance, street classification, lane count, and potential hazard zones.

By processing these real-time parameters, it constantly fine-tunes the optimal light intensity in a very smooth way, ensuring a balance between safety and energy conservation.

## Benefits and Applications

- **Energy Conservation:** Adaptive dimming, by tailoring light output to real-time demands, can drastically curtail energy usage. This translates to monetary savings and a diminished carbon footprint.
- **Driving Comfort:** It ensures that the roadways are always illuminated optimally, enhancing the driving experience.
- **Durability:** Lights that are perpetually at maximum brightness have a shortened life. Adaptive dimming, by modulating brightness, can prolong the life of the light source.
- **Safety Assurance:** On roadways, it ensures the right luminosity,

bolstering safety.

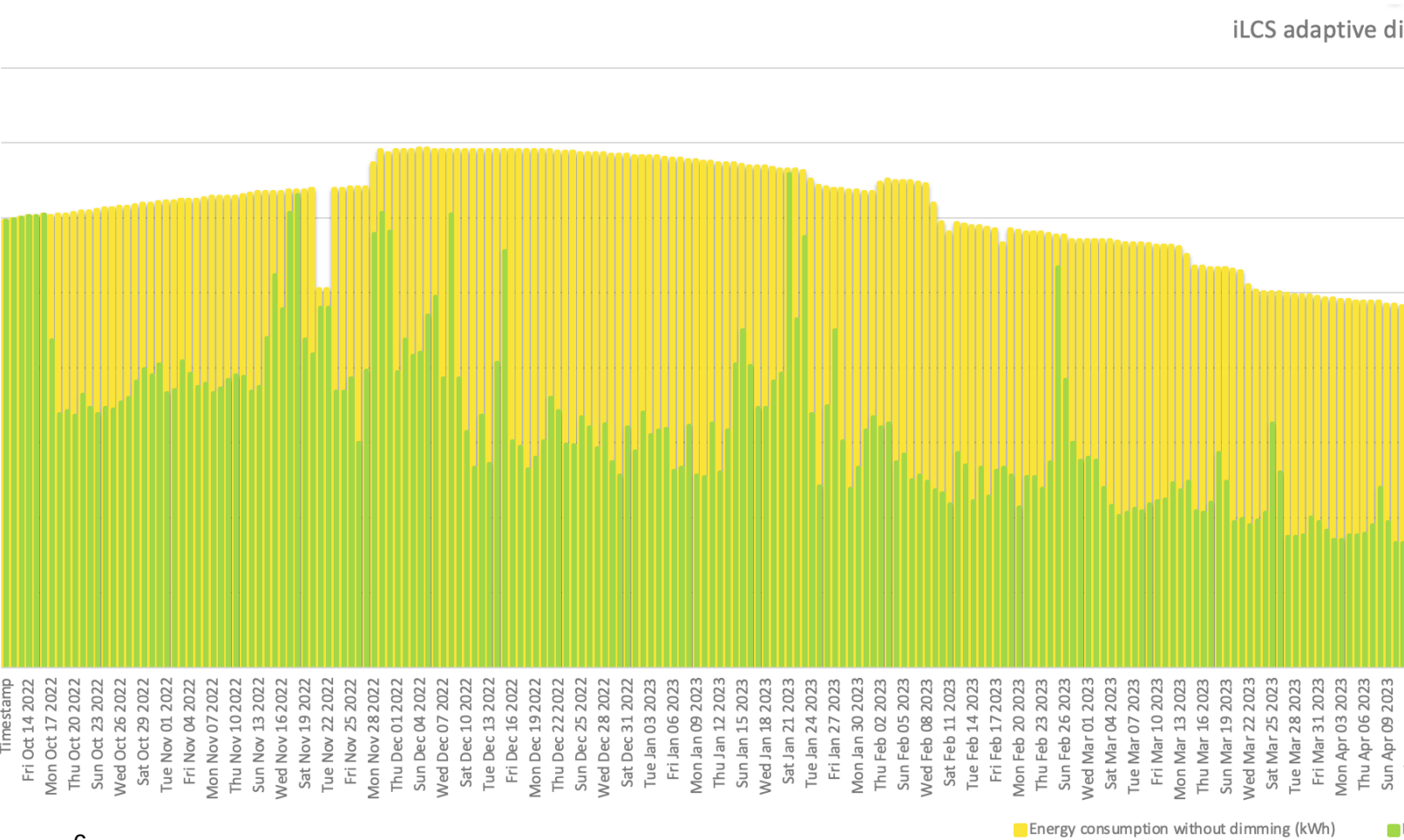
- **Synergy with Advanced Systems:** It seamlessly integrates with broader infrastructural or urban management systems, facilitating comprehensive supervision and fine-tuning of diverse functionalities.



# From Vision to Reality

How the City Achieved Monumental Energy Savings!  
A real scenario

Total luminaries 2752	Average daily consumption with adaptive dimming: 646kWh
Luminaries with adaptive dimming 878	Average daily saving in a timeframe of 1 year: 53%
Average power 140W	Equivalent trees planted 10.636
Average daily consumption with LED 1.36MWh	





Visualization of iLCS System Efficiency in LED Energy Consumption

The data on the left page and the chart below showcases data from a city utilizing the iLCS system. Derived directly from real-time cloud data, this graph vividly illustrates the efficacy of the iLCS system in enhancing the energy efficiency of street LED luminaires.

Comparative Analysis of LED Energy Consumption: Astronomical Calendar vs. iLCS Adaptive Dimming

With the yellow colour, we can appreciate the energy consumption of LED lamps if they were operated according to a standard astronomical calendar, i.e., without dimming. This represents a sort of "baseline" or reference scenario, showcasing the energy consumption in the absence of any optimization, except the astronomic clock.

The green values, on the other hand, show the actual energy consumption when the lamps are managed by the iLCS system, which uses adaptive

dimming to adjust light intensity based on various factors such as traffic conditions, luminance, and weather conditions.

iLCS System's Impact: Significant Energy Savings and Environmental Benefits

This adaptive approach ensures that the lamps always provide the right amount of light needed, avoiding energy wastage.

From the difference between the colours the efficacy of the iLCS system is clear: an energy saving that approaches 55%. This not only translates into considerable economic savings but also has a positive impact on the environment, reducing the carbon footprint associated with lighting.

Graphically, yellow colour shows bar consistently higher than the green ones, along the axis of the days of the year. The gap between these two bars represents the daily energy savings achieved through the use of iLCS.

The area between the two lines over

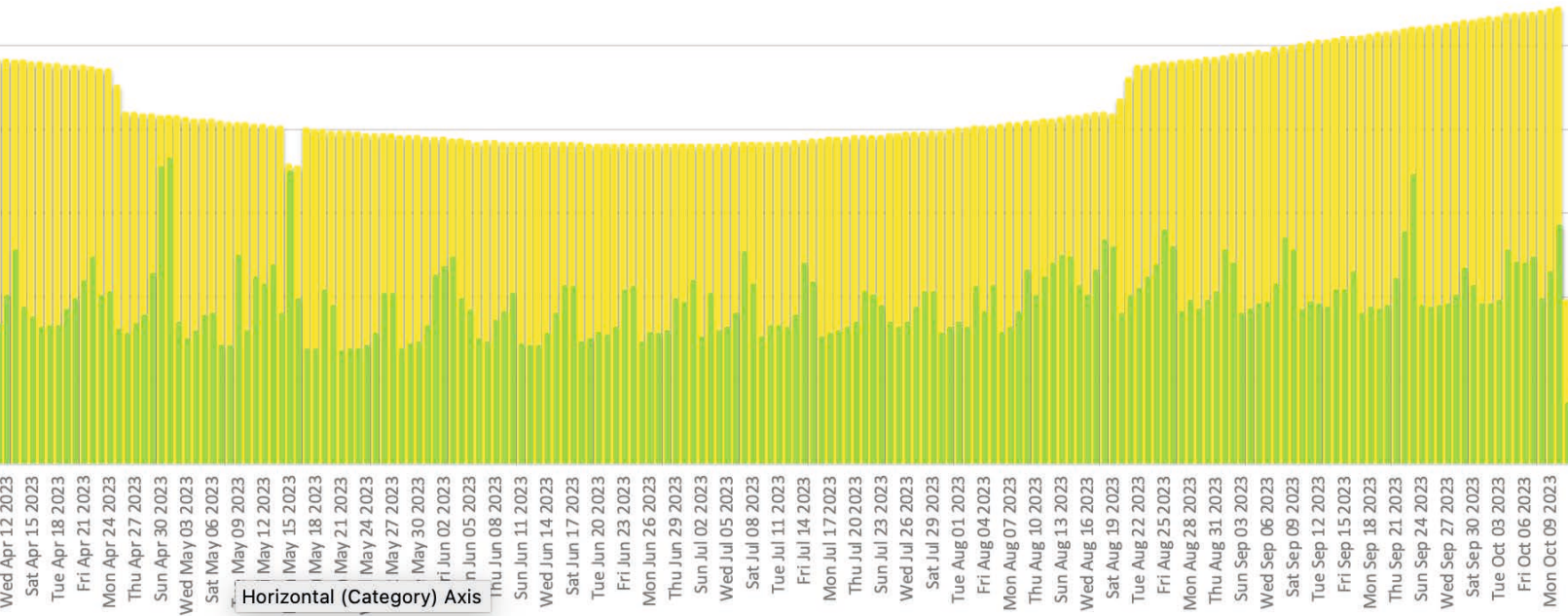
the entire year represents the cumulative energy savings, highlighting the system's efficacy over time.

iLCS platform: A Dual Benefit of Economic Savings and Sustainability

In conclusion, this graph not only emphasizes the efficacy of the iLCS system in reducing energy consumption but also its potential in providing a rapid return on investment and contributing to a more sustainable future through the reduction of CO2 emissions.

This means that by using the iLCS system, more than half of the energy that would have been consumed without dimming has been saved. This is a significant saving, both in terms of energy conservation and economic benefits.

mming vs LED



Energy consumption with iLCS adaptive dimming (kWh)



## Green Milestones: The Power of Energy Savings

*iLCS adaptive dimming in one small town is like erasing 100 cars from the road and planting 20,000 trees every year: a game-changer for a greener tomorrow!*

The energy savings achieved through this project have profound environmental implications

Within a year, by transitioning from the old 3MWh system to 646kWh, iLCS adaptive dimming secures a savings of about 2.3MWh. When comparing this to the 1.36MWh consumption of using only LEDs without adaptive dimming, the iLCS approach results in an impressive annual savings of approximately 859.9MWh.

This translates to a reduction of approximately 430 metric tons of CO<sub>2</sub> emissions. This impressive reduction in energy and corresponding CO<sub>2</sub> savings has significant environmental benefits.

### Equivalent Impact: Removing 100 Cars Annually

The carbon footprint reduction is equivalent to removing a sizable number of cars from the road each year. To contextualize, this energy conservation might be comparable to taking approximately 100 cars off the road annually.

### 20,000 Trees as equivalent carbon reduction

Moreover, to offset the amount of carbon prevented from being emitted due to this energy reduction, one would

need to plant a considerable number of trees. In fact, the energy saved could equate to the carbon sequestration potential of over 20,000 trees planted and nurtured for a year.

Beyond these figures, such an energy conservation effort also contributes to the preservation of natural resources and assists in combatting the broader challenges of climate change. This initiative is a testament to the substantial strides that can be made toward a more sustainable and eco-friendly future.



# Experience Before Committing: Dive into Adaptive Dimming PoC Trial now!

## Considering to use iLCS adaptive dimming in your projects?

Good news: it's simpler than you might think! The installation process is truly intuitive. To get started, all you need to do is attach a Zhaga device to each lamp. Then, with the aid of easily pole-mountable sensors dedicated to traffic, luminance, and weather conditions detection, you're already on the right track.

And the best part? All these devices communicate with each other in real-time without the need for costly SIM cards.

Forget about complications: there's no requirement for intricate configurations or ongoing management. The

system operates fully automatically, ensuring a hassle-free experience for you. If you're still on the fence, we invite you to get in touch with us.

To make your decision even easier, we offer Proof of Concept (PoC) trials, allowing you to experience the solution firsthand and witness the benefits of an actual field installation. Don't wait, discover the magic of adaptive dimming with us!

## iLCS: Pioneering the Future of Street Lighting

It's worth noting that amidst the global push for energy efficiency and innovation, iLCS stands distinctively ahead of

the curve. We are the only player in the world to have achieved this advanced approach to adaptive dimming in street lighting.

Our unique method, which seamlessly integrates traffic flow, road luminance, and weather conditions to determine optimal lighting levels, isn't just innovative—it's patent pending. This patent underscores our commitment to originality, research, and the relentless pursuit of excellence.

As the sole provider of this ground-breaking technology, iLCS is not only lighting up roads but also leading the way in sustainable and intelligent urban illumination.





# Who we are:

## Global Synergy in Smart Urban Solutions

*Join the revolution in energy-efficient street lighting.  
Illuminate the future with us!*

### iLCS: A Global Fusion of Italian Innovation and Malaysian Mastery

iLCS stands as a evidence to international collaboration, born from the synergy between an advanced Italian Engineering Center, renowned for its expertise in wireless technologies and IoT systems, and a Malaysian powerhouse dominating the public lighting market with expansive production and distribution capacities on a global scale.

### Strength in Unity: Our Global Partnerships Drive Excellence

Our partnerships further amplify our capabilities. With a dedicated Italian firm at the helm of our production and distribution throughout Europe, a German entity deeply rooted in smart city service provisions, and a strategic partner in Dubai orchestrating our reach within the UAE market, our network is vast and proficient.

### iLCS: Pioneering the Future of Smart Urban Connectivity

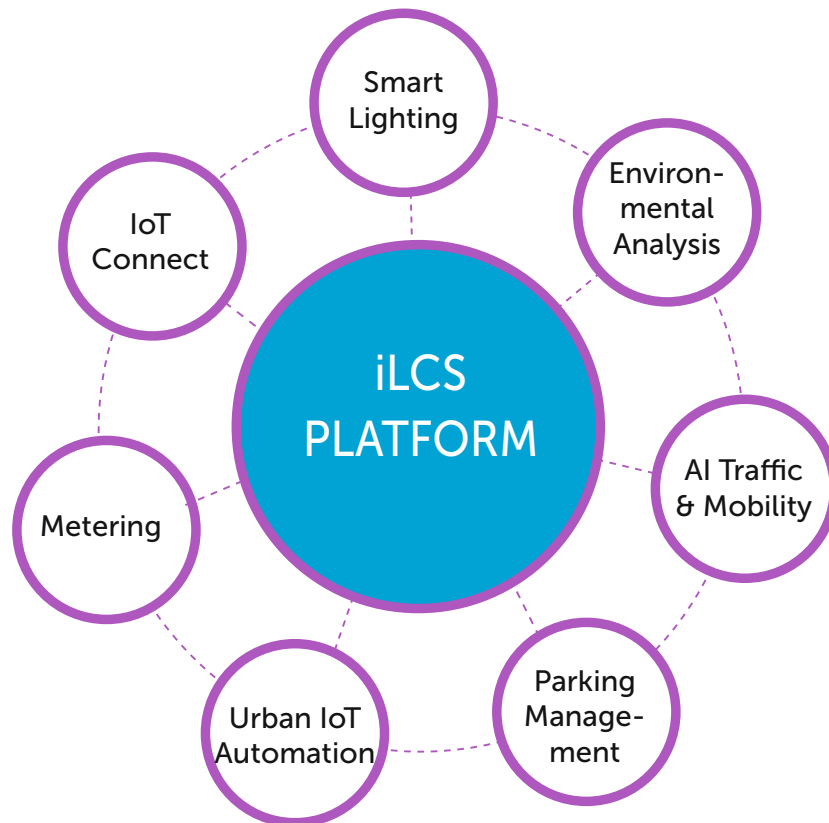
Renowned for its 'smart' urban services, iLCS is at the forefront of IoT data management through its cutting-edge real-time platform. Seamlessly integrating various wireless infrastructures – from IEEE802.15.4, LoRaWAN, Mioty, 5G, NBIoT, and beyond – our platform serves as a versatile middleware and multiservice collector. With its myriad of connectors, it captures and channels data for third-party application use, enabling cross-data processing and alerts. Such capabilities not only enrich the individual data points but also deliver unparalleled value to our customers seeking our advanced services. Dive into the future with iLCS and reshape the way cities breathe and function.





# iLCS platform and its Application modules

*The iLCS platform features a variety of application modules, each meticulously crafted to intuitively capture, process, and display real-time data from the field.*



## Features

- Management of real time data flows.
- Integrates data sources from existing and future systems.
- Open communication protocols.
- Generation of complete data streams from the connection of existing systems to the system using the data or to the final application.
- Ability to integrate lot devices for the collection and analysis of municipal data.
- Provision of services to interested parties and analysis to support the integration of existing systems.

## Functionality

- Real-time data collection by pre-existing systems and IoT devices.
- Provision of raw or in-depth data integrated between them (data fusion) for users and processing systems.
- Smooth visualization in framework, maps and dashboards.
- Data security and protection from cyber attacks.
- Analysis of raw data and harmonisation.
- Calculation of real-time forecasts based on incoming data.
- Event data ("raw data"): Analysis
- Calculation models based on historical data - Big Data Analysis.

## Extensions

- Provision the development of data processing and actions based on events.
- Complex artificial intelligence models based on available data.
- Deep Learning and computer vision frameworks for extracting data in real time from video streams.
- Customizable and verticalized dashboards for the user and / or for the service.





2018  
Best innovative product - Middle east Lighting  
design summit 2018 (Dubai)

2018  
Best innovative product - Australian smart  
lighting summit

2019  
Top5 in category "smart city" at Handelsblatt  
Energy awards 19/20 (Germany)

2020  
European product design award

  
Intelligent Light Control System

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