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SMART CITIES START WITH SMARTER UTILITIES:

# The role of smart lighting

**SENSUS**  
a xylem brand



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## Lighting consumption is a global and local issue.



19%

Energy consumed by outdoor lighting globally



40%

A city's energy load from streetlights

Outdoor lighting provides visibility and a safer environment within our communities. It also beautifies streetscapes to make our landscapes prettier. Municipalities and utilities provide lighting for the public good.

But serving the public with this highly visible infrastructure can be costly. Globally, outdoor lighting consumes 19 percent of energy use. On a local level, up to 40 percent of a city's energy load can be attributed to streetlights. That percentage is high because a majority of streetlights today are inefficient, and they are not controlled or managed. Providing this key public good creates increased maintenance, decreased air quality and potentially high costs. Municipalities must get smarter when it comes to outdoor lighting.

## A smart solution

As technology rapidly advances, cities are shifting toward smart utilities, or as Kristi Wray, Product Manager, Smart Outdoor Lighting Control at Sensus, calls them, "smart public goods." Wray says smart lighting sets the groundwork for the establishment of smart cities. "I define smart cities a bit differently," she says. "Smart is about being dependable and reliable, plus cost-effective in terms of management." Smart lighting is the anchor because it is the most visible solution a city can deploy—and it immediately impacts the consumer.

Where this technology has been embraced, the communication network, smart meters and smart sensors create community-wide connectivity.

The smart lighting system incorporates the activity and conditions monitored by the sensors. The result is a positive cause-and-effect relationship. Public lighting being provided truly as needed—instead of being based solely on timers or outdated definitions—creates significant energy savings. Lower energy usage generates a decrease in costs for the municipality. As a result, cities or towns have the ability to allocate more money toward other maintenance needs or improvement projects.

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## The significant impacts of smart lighting

A better quality of life and customer experience



Lower energy usage and maintenance costs



Cost savings that provide money for other community needs



A sense of security and increased safety



The impact of smart lighting on the community is also quite significant, because condition- or event-driven illumination creates inviting public spaces for citizens. Overall quality of life is also improved because a dependable outdoor lighting system provides a greater sense of security in neighborhoods and around public venues. “Improved and controlled lighting helps pedestrians and drivers see better, with light levels based on current conditions such as weather or traffic,” Wray says. “Smart lighting also offers increased security since public safety officials and emergency responders have the ability to control or flash light fixtures under certain circumstances.”

## Smart value

Outdoor lighting concerns vary depending upon the light asset owner and customer base. Utilities may focus on maintenance costs, while municipalities target customer experience. Universities, which are additional stakeholders, are concerned about campus safety. Smart lighting offers the best solution for everyone—suppliers and consumers—because it can be tailored to the needs of any event or situation and addresses the four primary categorical concerns: safety, energy consumption, maintenance and customer service.

One of smart lighting’s greatest values is that the system lowers energy consumption. This is important to all users because it ultimately means lower costs. Expenses can also be decreased by improved maintenance efficiencies. Cities often dispatch repair crews only after roving crews find outages while patrolling the streets. But a repair crew does not know what is wrong with an assigned light, nor do they know if they have the correct tools and replacement parts on their truck to make the repair without yet another visit to the pole.

Traditionally, cities manage light fixture outages through customer complaints, but often these calls do not indicate the exact light that failed or what caused the failure. Significant delays in repairing the fixtures can result, as customers typically wait three weeks or more after a light goes out before they finally call to complain. With the capabilities of smart lighting sensors and control devices, a light is able to communicate its own location and what is wrong. This removes the need for truck patrols and eliminates complaints before they can even be made.

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KRISTI WRAY  
Product Manager,  
Smart Outdoor Lighting Control  
Sensus

Outdoor smart lighting provides a means to program the light level applied to events and conditions. According to Wray, “With smart lighting, the sensors allow for the appropriate amount of light to be aptly emitted, so the level of light varies with function, traffic, weather, time of night, etc. Appropriate lighting and fewer outages make public areas safer because light is being properly distributed.”

## **The digital divide**

With smart lighting as the obvious value-producing solution for smart cities because of its visibility and immediate impact, Wray uses her platform to educate utilities and municipalities on what she calls the “digital divide.” Ideally, she asserts, smart city solutions need to bring value to *all* residents and groups within the city. Although utilities are mandated to provide these public goods to every resident, many smart city services being promoted by vendors are targeted to specific areas within a town or to just the largest cities. Most often, these smart city boundaries are located where the highest-class citizens work and reside. “The benefits of smart utilities and solutions within a city should not be limited to certain classes,” Wray says. “The advantages of a smart city should reach the entire community.”

The management and delivery of public goods along with smart public infrastructure underpin the advancement of a city, and smart utility solutions bring significant benefits—economic, environmental and experiential—for every community. With smart lighting, the payback is fast and notable, so it’s a great place to start the smart utility conversation. Because soon “smart” will be the new public goods expectation.

## About Sensus

Sensus, a Xylem brand, helps a wide range of public service providers—from utilities to cities to industrial complexes and campuses—do more with their infrastructure to improve quality of life in their communities. We enable our customers to reach farther through the application of technology and data-driven insights that deliver efficiency and responsiveness. We partner with them to anticipate and respond to evolving business needs with innovation in sensing and communications technologies, data analytics and services. Learn more at [sensus.com](https://sensus.com) and follow us on Facebook, LinkedIn and Twitter through @sensusglobal.

## Sensus by the numbers

