

# Ubicquia & RealTerm Energy :

## Reducing Streetlight Energy Consumption by 67% in 30 Cities

### Key Highlights



- Energy consumption reduction of 3,721,673 kWh annually
- The equivalent of taking 568 gas-powered vehicles off the road
- 60-80% reduction in energy usage & carbon emissions

### Background

Over half the cities in North America have made the conversion to LED lights, but less than 10% have opted to add lighting controls. Lighting controls can deliver an additional ~20% in energy savings by enabling communities to implement remote dimming schedules.

They also give cities real-time alerts that help them predict, prevent, and address issues, thereby radically improving operational efficiency.

RealTerm Energy knew that high-pressure sodium (HPS) streetlights were in place in many cities. These were extremely inefficient in terms of energy consumption and lifespan, and more expensive to maintain and operate. They also incurred substantial maintenance/rental operating fees from the utility.

Cities had limited resources in terms of staff, time and budget to manage and maintain these assets.

RealTerm Energy needed a solution which would lower greenhouse gas emissions and energy costs, increase efficiency, improve the visibility of assets and their lifespan – all while decreasing maintenance needs.

They knew that LED conversions with smart lighting controls typically result in a 60-80% reduction in energy usage, along with a corresponding reduction in carbon emissions.

### Objectives

- Reduce carbon footprint and environmental impact
- Reduce energy consumption and expenditure on energy bills
- Enhance public safety
- Implement remote dimming schedules
- Reduce maintenance costs and save staff time
- Improve asset management and visibility, with real-time alerts of problems



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## Challenges & Solution

### Challenges

Traditional streetlights, like HPS, cost a lot in terms of energy bills, maintenance and operations. While opting for LED lights helps solve some of these problems, there are even more efficiencies to be gained by adding lighting controls and intelligent asset management. This requires a smart platform which can monitor remote assets, feed that information to a central control, and operate dimming schedules.

The platform needs to connect to the network via LTE coverage to share real-time data and operate the lighting controls reliably. Secondly, the smart controls (or nodes) need to be designed to fit the existing streetlight infrastructure to ensure easy installation and avoid the cost of new equipment.

### Solution

RealTerm Energy combined their LED streetlight conversion program with Ubicquia's smart city platform. So far, they have completed 25 smart street lighting projects and are in the final stages of completing projects in five other cities across the United States and Canada. These cities, concerned about their carbon footprint, have converted their streetlights to LED and implemented smart lighting controls.

This program is enabling cities and towns to achieve significant savings in environmental impact and energy usage, while enjoying enhanced asset management capabilities they didn't have before. The fact that the platform uses LTE has meant that the system has been easy to connect and implement.

RealTerm Energy has also deployed other Ubicquia intelligent infrastructure platforms for air quality monitoring, public WIFI and video analytics to enhance public safety.

### Benefits

- Reduced energy consumption, carbon footprint and light pollution
- Enhanced public safety thanks to improved lighting quality
- Lower maintenance, operations and energy costs
- Improved asset visibility and analytics, resulting in longer asset lifespan
- A cost-effective smart city platform



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## Project Architecture

### Project Architecture

The system installed in the 25 cities includes the UbiCell Smart Streetlight Controller for dimming, the UbiSmart Air Quality Monitor Plus (AQM+) for environmental analytics, and UbiVu®, a cloud-based management tool that makes monitoring and operating cities' intelligent street infrastructure easy and intuitive. Cities can use this to monitor energy usage data and air quality, as well as troubleshoot equipment and perform scheduling.

“By deploying next-generation smart lighting controls and air quality monitoring platforms in communities across the country, RealTerm Energy and Ubicquia are helping municipalities improve the environment and quality of life for their residents,” said Mark Carter, Vice President of Smart Solutions, RealTerm Energy. “We are proud to work with Ubicquia and community leaders to help cities and towns make significant, measurable cuts to their environmental impact, energy usage, and costs.”

### UbiCell Smart Streetlight Controller

- Installs in minutes
- Compatible with 360 million streetlights worldwide
- Allows communities to schedule and dim lights
- Enables reductions in power consumption, carbon emissions and cost



### UbiSmart AQM+

- Monitors particulate pollution
- Monitors other air quality hazards
- Identifies potential environmental risks, e.g. forest fires/pollutants
- Identifies dangers to public health





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## The results

### The results

Towns and cities across North America are reporting a sizeable reduction in energy usage of up to 79% thanks to RealTerm Energy and Ubicquia solutions. As well as benefiting the environment, communities and taxpayers are seeing a decrease in their energy bills.



### Rockland, ME

Annual kWh savings 251,519 (71%)  
Annual Electricity Cost Savings: \$112,067.00 USD

### Camden, ME

Annual kWh savings 74,277 (66%)  
Annual Electricity Cost Savings: \$43,220.00 USD

### Pepperell, MA

Annual kWh savings 81,291 (58%)  
Annual Electricity Cost Savings \$54,975.00 USD

### Nyack, NY

Annual kWh savings 338,086 (79%)  
Annual Electricity Cost Savings \$128,823.00 USD

### Biddeford, ME

Annual kWh savings 1,006,101 (69%)  
Annual Electricity Cost Savings \$394,876.00 USD

### Auburn, ME

Annual kWh savings 434,341 (65%)  
Annual Electricity Cost Savings \$196,959.00 USD

“ We are very pleased that we have taken on the management of all our streetlights and completed the conversion of our cobra heads and decorative fixtures in the project with RealTerm. We're saving money through reduced operating costs and reducing greenhouse gas emissions, and as an extra perk, we received recognition and a grant award from NYSERDA for the accomplishment. ”

- Marcy Denker, Sustainability Coordinator, Village of Nyack, NY.

“ Pepperell is strongly committed to climate change issues and considered converting to LEDs as an opportunity to reduce energy consumption. We have also declared ourselves a Dark Sky friendly community and strive to eliminate unneeded nighttime lighting. This conversion reduces nighttime lighting and glare without compromising the public safety benefits of street lighting. ”

- Andrew MacLean, Town Administrator, Town of Pepperell, Massachusetts.