

GE
Lighting

wireless intelligence



LightGrid™ outdoor wireless lighting control system



imagination at work

measurably smarter

LightGrid™ is a groundbreaking outdoor wireless control system for street and roadway lights. The unique technology inside this system allows for remote operation and monitoring of all fixtures through a Web-enabled central management system.

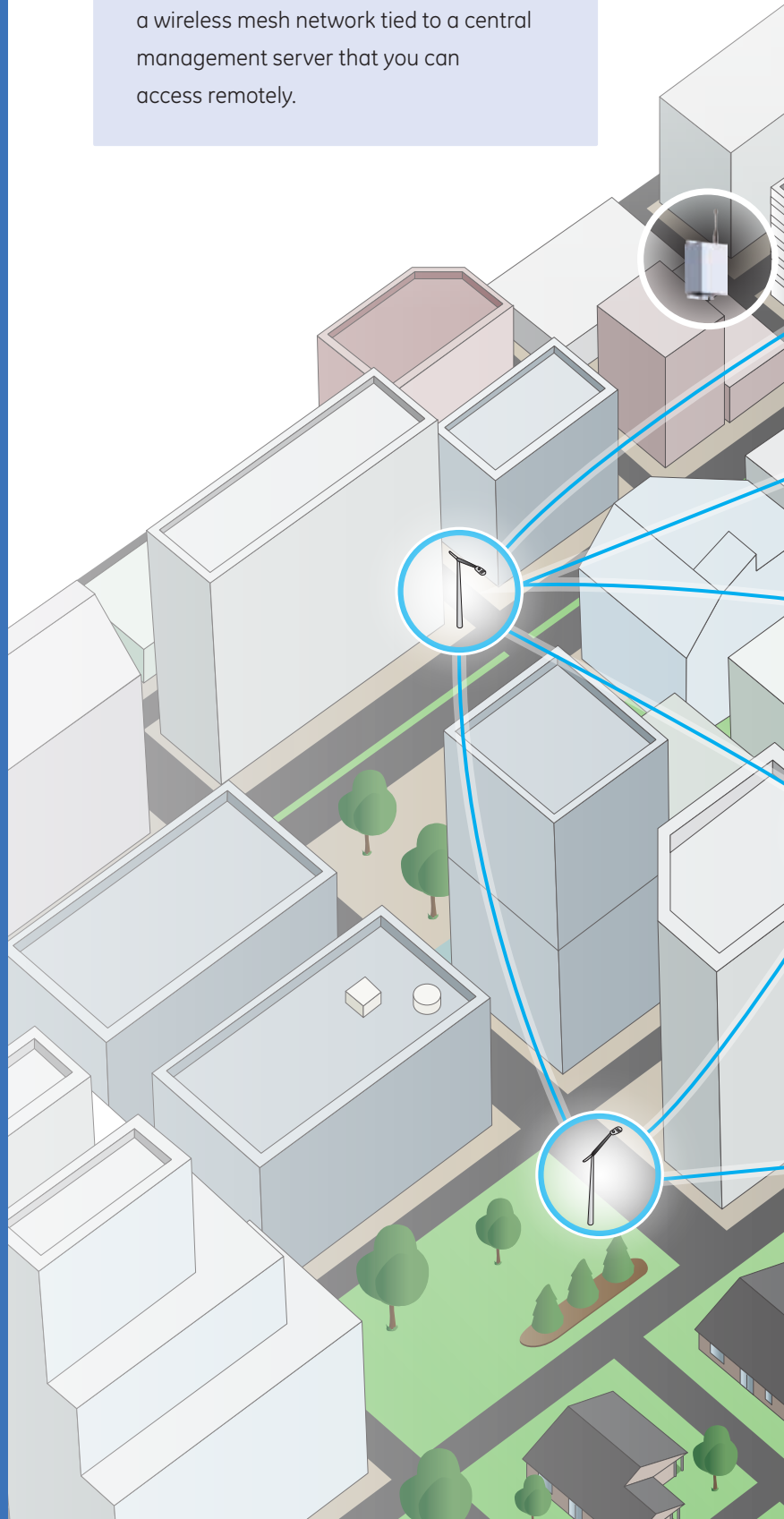
Designed with municipalities and transportation departments in mind, LightGrid offers many features, including:

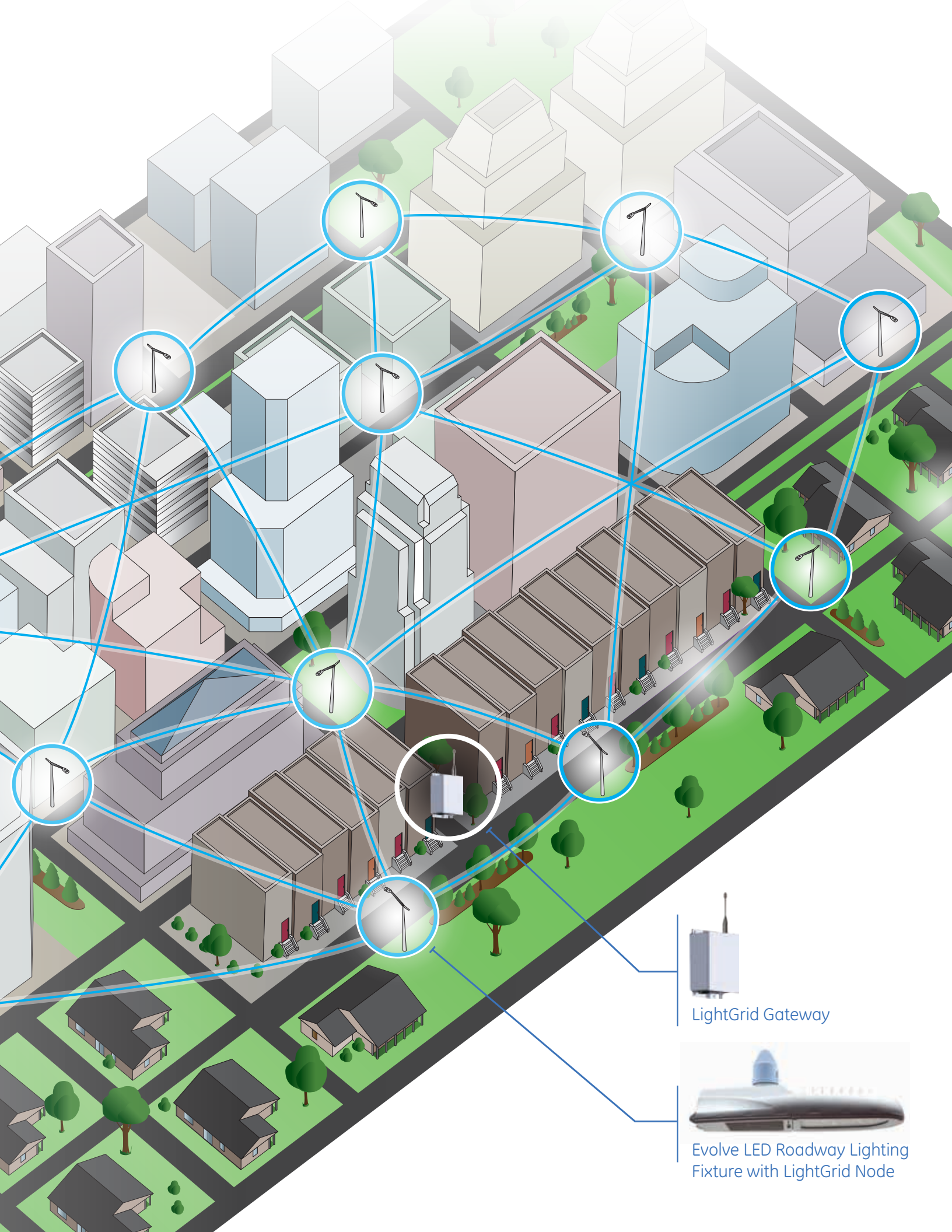
- Accurate, utility-grade energy metering per pole – you pay for what is used
- GPS chip embedded into node – always know the exact location of controllers and fixtures. Node automatically connects to network and acquires location in just minutes, reducing commissioning time.
- One-piece control – no special electronics necessary in the fixture. Node simply connects to external socket, so it can be added easily at any time.
- Operates with programmed schedules in case of network outage

Together with award-winning Evolve™ LED roadway lighting fixtures, LightGrid will deliver the energy efficiency, reliability and flexibility needed to optimize street and roadway lighting.

LightGrid puts you in control, from the office or on the go.

The node and gateway placement creates a wireless mesh network tied to a central management server that you can access remotely.





LightGrid Gateway



Evolve LED Roadway Lighting Fixture with LightGrid Node



intelligent design

The LightGrid system is made up of three basic components: nodes, gateway(s) and server.

LightGrid nodes

- Built-in GPS device lets you know the exact location of each fixture, which provides confirmation of installation, as well as making for more efficient maintenance
- Automatically connects to the network, reducing commissioning time
- Utility-grade metering means you pay for actual energy use, with measurement accuracy of $\pm 2\%$
- One-piece control ensures no special electronics are needed as node connects to external socket
- Maximum fixture load: 450W
- Power consumption: 120-277VAC: 2W, 347VAC: 3W, 480VAC: 3W

LightGrid gateways

Each LightGrid wireless gateway can control a mesh network made up of 500+ nodes. Protected by an IP66 enclosure, they're designed for reliable operation, even in the harshest environments.

- Automated GPS detection
- 500m line-of-sight range
- Output: Standard TCP-IP interface
- Input: 120-277VAC, 347-480VAC

SPECIFICATIONS

Node

Maximum fixture load:
450W

Power measurement accuracy:
 $\pm 2\%$

Power consumption:
120-277VAC: 2W
347VAC: 3W
480VAC: 3W

Internal GPS
Dimming control output:
0-10V

Gateway

Supports 500+ nodes
Output:
Standard TCP-IP interface

High gain antenna
Input:

120-277VAC
347-480VAC

IP66 enclosure

Network

Industry standard communications:
IEEE 802.15.4 :6LoWPan
50 channel 902-928Mhz FHSS
500m line of site range

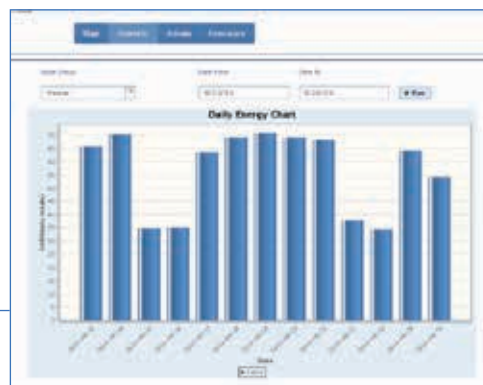


LightGrid server

With LightGrid, lighting data for every fixture is accessible through a Web-based interface that can be hosted remotely. Protected by a high level of security encryption, our central management server offers secure login for all users.

Armed with actionable information, municipalities and transportation departments can implement smarter energy-saving strategies through more precise on/off and dimming schedules, particularly during a middle-of-the-night operation in low traffic areas. Other features include:

- Updates are easier with “over the air” firmware upgrades
- Send automated fault email notifications when something happens to a fixture
- Display GPS coordinates in the Google Maps format
- Present real-time lighting information with a single click
- Access scheduling, customized reporting, grouping and user access level management
- Manual dimming with detailed information



energy wiser

Behind every Evolve LED roadway lighting fixture is a century of street lighting experience. Inside each is the most advanced GE optical system technology available.

Evolve™ LED Scalable Cobrahead (ERS)

Recently named Best in Class by the U.S. Department of Energy in the Next Generation Luminaires™ Design Competition, the Evolve LED Scalable Cobrahead luminaire offers excellent lighting uniformity and control with low glare. By focusing more light on the road, where it's needed, Evolve fixtures have a higher Coefficient of Usage (CU) for greater application efficiency.

- 11+ years of service life to significantly reduce maintenance costs

Evolve LED Streetlight (ERX)

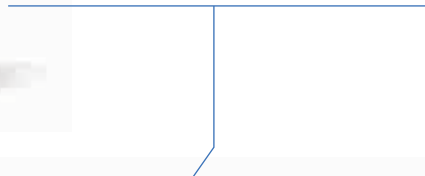
Like the Scalable Cobrahead, our Evolve LED Streetlight lighting offers highly controlled light distribution with less waste and can be paired with programmable dimming options for even greater savings and control.

ERS1, ERS2, ERS3, ERS4

- Replaces up to 400W HPS fixtures
- Accommodates one to four lane widths
- Optimized to meet existing and future Recommended Practices
- Reduces maintenance with long life (50,000 @ L85)
- Offers design flexibility with reversible optics



Each LightGrid node is designed to fit GE's Evolve Cobrahead fixtures, among others, attaching easily in minimal time to create the wireless mesh network that puts complete control at your fingertips.



GE's solution for Tarentum Borough, Pa.

We replaced 100% of the existing street lighting and facilitated a financing strategy that resulted in a positive cash flow status from day one.

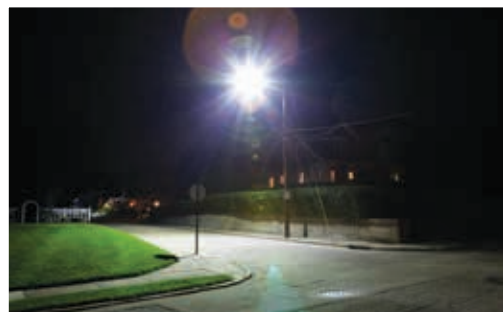
OPERATING IMPACT

- \$40,000 savings per year
- 66% energy savings per year
- Eliminated 100% of maintenance hassles and costs
- Positive cash flow status from day one

ENVIRONMENTAL IMPACT

- Reduced energy consumption by 223,000 kWh per year

"In a small town like this, you have to be very careful with each and every dollar," says Carl Magnetta Jr., mayor of Tarentum Borough. "We try to keep taxes as low as possible, and by going into this lighting program, we have saved ourselves a lot of money. This benefits everybody."



the smartest grid on the block.

As energy efficiency and savings drive outdoor street and roadway lighting demands, control means much more than turning on the streetlights at dusk. Control means being able to program each fixture, on every street, individually. To brighten areas when more light is needed – or to dim them when it's not. And to detect and correct problems quickly to minimize complications. At GE, we offer you that kind of control with LightGrid – and make it easily accessible anytime, anywhere.

GE brings intelligent design to a simple, easy-to-use system that puts municipalities and transportation departments in complete control, delivering the energy efficiency, flexibility and low-maintenance functionality that cuts costs.

To learn more about the LightGrid Outdoor Wireless Lighting Control System, contact your independent lighting representative or visit gelighting.com/lightgrid.



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a true efficiency trailblazer



San Diego improving Downtown District with LED street lighting with wireless controls

City is first in the United States to utilize GE's LightGrid™ technology

THE SITUATION

Looking to improve street lighting in its Downtown District, San Diego officials conducted lighting preference surveys of more than 100 residents and five key stakeholder groups that oversee the city's maintenance assessments.

THE SOLUTION

LED street lighting was favored after the study indicated broad-spectrum lighting was preferred by residents and business owners. Wireless lighting controls were chosen for additional benefits and savings.

GE's Evolve™ LED Avery StreetDreams™ Post Top lighting fixtures, equipped with the LightGrid™ Outdoor Wireless Control System, will replace approximately 3,000 high pressure sodium lamps in a move expected to save the city of San Diego upwards of \$254,000 annually—likely even more when incorporating available dimming schedule features.

"GE worked with us to develop the perfect, functional fixture for our city with the ideal light output. GE added a band to reduce the uplight and incorporated a frosted lens per our residents' request. Adding in the adaptive controls took the solution a step further. It is the most beautiful light."

- Lorie Cosio-Azar, Project Officer,
City of San Diego Environmental Services Department

The first in the United States to utilize GE's LightGrid technology, the city of San Diego will offer residents, business owners and visitors improved and energy-efficient lighting that will significantly trim the city's spending and maintenance needs.

For more information, visit gelighting.com/roadway.



OPERATING IMPACT

- \$250,000+ in annual savings
- With LightGrid, additional savings are expected by moving to a metered rate, rather than a flat-rate tariff, with its local utility company for the city's street light usage



ENVIRONMENTAL IMPACT

- Customized fixture incorporated a band to reduce uplighting
- Reduced CO₂ emissions



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