

Transform energy-efficient streetlights into revenue-generating, renewable assets that deliver a smarter city through mobile voice and mobile data offload.

## Energy Solutions

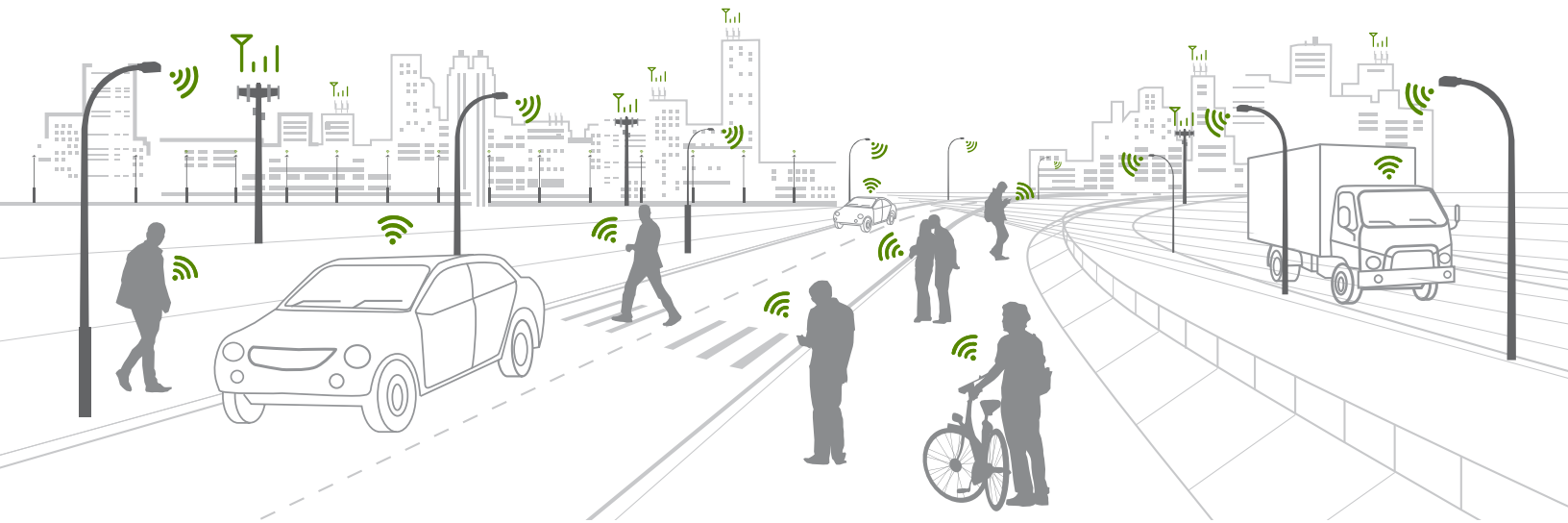


### The Building Blocks for Smart City Value

- LED lighting
- Adaptive lighting control
- Extended and enhanced voice and data networks
- Green energy generation
- Net-zero fossil fuel use
- Expanded public and private Wi-Fi
- Enhanced security applications
- Optimized asset management
- Smart parking
- EV charging
- Energy storage
- Digital advertising

## Transform streetlights into revenue-generating assets that build a smarter city.

LED streetlight retrofits deliver significant cost improvements, reducing electricity consumption and the expense related with operating and maintaining the streetlight network. With the **Petra Small Cell Streetlight Network™ (PSSN™)**, streetlight owners can extend the value of that retrofit to include Smart City services and recurring revenue streams that secure the optimal position for Smart City and 5G modernization.



### How It Works

Petra's Energy Solutions begin with energy efficiency. The heart of the system is an LED luminary complete with an adaptive streetlight controller that enables pole-level lighting control, metering and diagnostics. An energy-saving LED retrofit can cut energy consumption in half. Further reductions up to 75% can be realized by adding adaptive streetlight control that includes dimming, scheduling, remote on/off capabilities

Once installed, each streetlight becomes a node in a high-density, high-bandwidth, carrier grade communications network.

Fully deployed, this city wide network allows mobile devices to seamlessly connect to mobile carriers' networks for data and voice traffic.

It also offers valuable services to utilities and municipalities such as AMI network backhaul, private communications networks, public and private Wi-Fi, and energy storage, providing streetlight owners with a robust set of capabilities for revenue generation, security, and Smart City modernization.

# A retrofit that makes money.

The Petra Small Cell Streetlight Network is building the next generation of public-private partnerships and delivering the highest revenue streams for streetlight owners.

### Reduce costs. Generate revenue.

By incorporating high-capacity, carrier-grade communication networks for mobile voice and data services, solar capacity, and both Smart City and Smart Energy services, Petra allows you to add revenue generation on top of the cost savings of streetlight modernization.

With the PSSN, every retrofit can simultaneously reduce streetlight energy consumption and ongoing maintenance expenses while generating recurring revenue streams.

*Petra Solutions include advanced monitoring and management technology that provides asset owners and operators real-time visibility and energy management controls as well as a predictive engine that identifies and alerts operators to performance degradation, anomalies or equipment failures.*



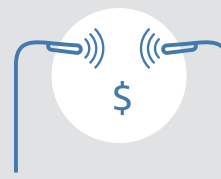
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## Create the most value from your streetlight network



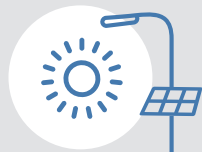
### Increase the value of an LED Retrofit

Deliver the most cost effective, energy efficient streetlight solutions to customers and members by adding uncapped revenue streams and economically sound Smart City services to the cost savings of adaptive LED retrofits.



### Unlock new 5G and Smart City revenue sources

Partner with mobile carriers to tap into new revenue streams by transforming streetlights into city-wide high-bandwidth communications networks that generate revenue, enhances security and delivers valuable IoT and Smart City services.



### Strengthen your operations with Smart Energy Solutions

Enhance your operations with public and private communications networks, solar power generation, AMI backhaul and other IoT services.



### Deploy economically sound Smart City projects

Modernize municipal infrastructure and provide valuable services to citizens and businesses with Smart City projects that generate revenue for positive ROI.

## PETRA ENERGY SOLUTIONS

Reducing the energy bill of your streetlight network delivers strong value, but it's only the beginning. By incorporating high-capacity, carrier-grade communication networks for data services, solar capacity, and both Smart City and Smart Energy services, you're adding revenue to savings.



### HIGH EFFICIENCY ADAPTIVE STREET LIGHTING

An energy-saving LED retrofit can cut energy consumption in half. But when you add dynamic streetlight control that includes dimming, scheduling, remote on/off capabilities and reduced O&M costs thanks to predictive maintenance and controls, now you're looking at a reduction in consumption by up to 75%.



### RENEWABLE ENERGY GENERATION

Adding solar capacity allows you to go beyond breaking even—it gives you the ability to offset your electric bill for a true net-zero streetlight network—and generate revenues above and beyond that.



### SMART ENERGY SERVICES

Building off of our highly distributed sensing, communications and controls network, Petra Systems offers valuable services to utilities, such as AMI network backhaul, private communications networks, and storage solutions.

### KEY BENEFITS

- Improve energy management
  - Increase energy savings through adaptive controls of LEDs
  - Reduce energy consumption with dynamic scheduling
  - Reduce O&M costs through predictive maintenance and controls
- Maximize revenue potential from every streetlight
  - Go beyond a basic subsidy of the retrofit: self-fund the cost of streetlight modernization and get a new funding stream for other initiatives
  - Ensure continuity of dividend payouts regardless of energy-efficiency technology adoption
  - Generate more revenue per pole than possible with lease/attach fees and traditional small cell approaches.

For more information about the latest Petra Solutions, go to [petrasystems.com](http://petrasystems.com)

**PETRA SYSTEMS EAST (HQ)**  
Petra Systems, Inc.  
One Cragwood Road Suite 303  
South Plainfield NJ 07080  
Tel: 908-462-5200  
Fax: 908-462-5300  
[info@petrasystems.com](mailto:info@petrasystems.com)

**PETRA SYSTEMS WEST**  
Petra Systems, Inc.  
225 Canyon Blvd  
Boulder CO 80302  
Tel: 720-638-8593

**PETRA SYSTEMS MIDDLE EAST**  
Queen Zain Alsharaf Street  
Amman Gate Building,  
2nd Floor-Deir Ghbar  
P.O. Box 17587  
Amman 11195, Jordan  
Tel: +962 6 586 8490  
Fax: +962 6 586 8590