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Texas Energy Efficiency Incentive Program

Wednesday, November 27, 2012

Presented by:

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THE TECHNOLOGY

The standard intelligent luminaires (iLums) unit is patented technology which replaces the current plug-in photo control unit and has the capability to remotely turn streetlights on and off. Optionally, the iLums unit can operate a luminaire via photocell, monitor luminaire energy efficiency, detect and report on fixture and circuit malfunctions, map luminaires' GPS location, and independently transmit pre-set or real time information on each streetlight to a pre-configured location.

The enhanced unit controls luminaire energy output and is able to provide:

- Neighborhood surveillance and security monitoring
- LED luminaire dimming
- Advanced meter reading and infrastructure management
- Programmability over multiple public and private networks

The iLums provides the ability to configure based on Ambient Light Detection (ALD) via the photo sensor. This feature will allow programmed configurations of the LED luminaire, an electrical service, a branch circuit, or a zone for operation based upon ALD.

HOW IT WORKS – Step 1



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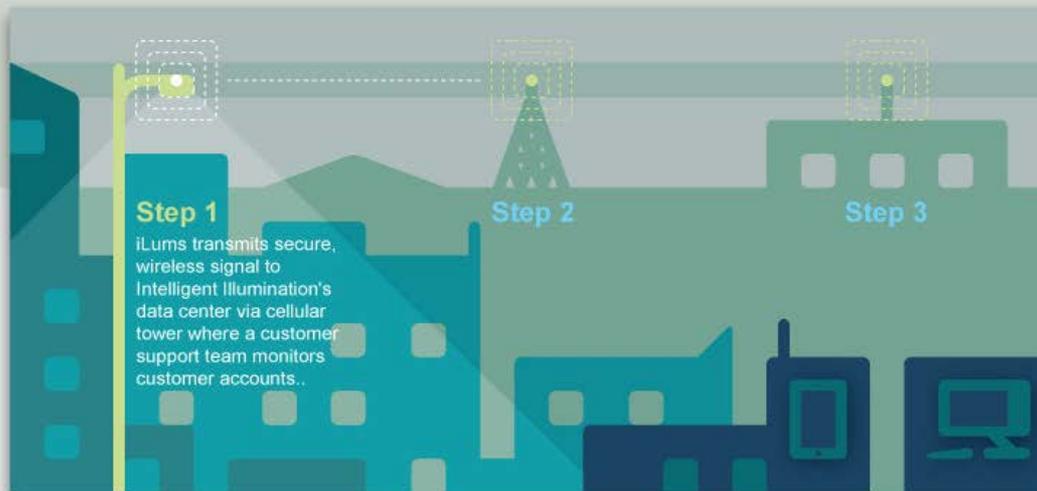
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Step 1

Step 2

Step 3



HOW IT WORKS – Step 2



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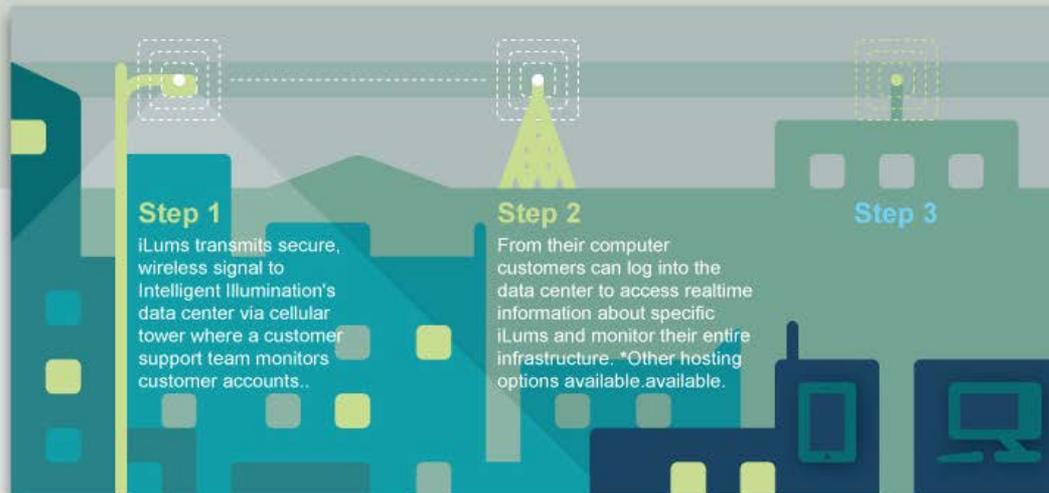
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HOW IT WORKS – Step 3



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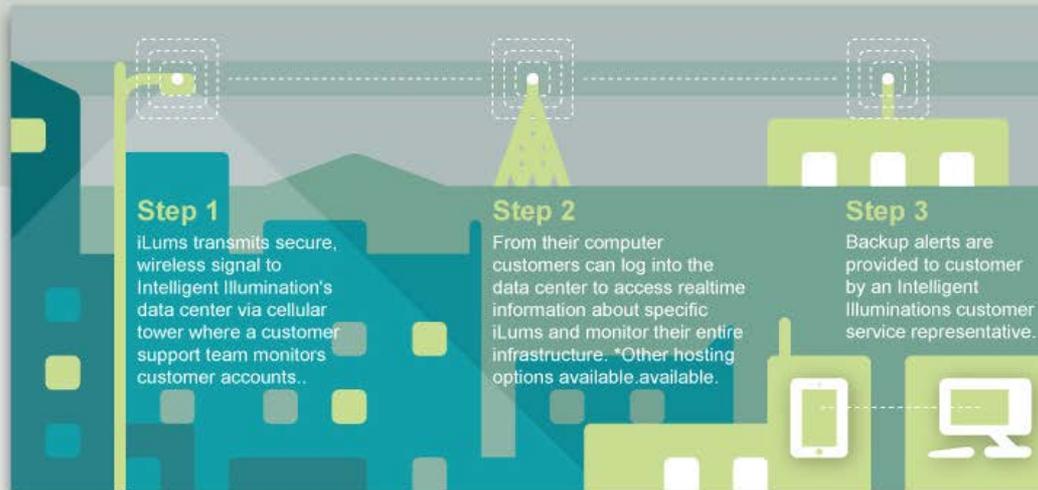
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Step 1

Step 2

Step 3





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TARGET MARKETS

- State and local governments, utilities, lighting manufacturers, private communities, universities, hospitals – any entity responsible for roadway or area lighting infrastructure can now better:
 - Monitor and control individual lights
 - Comply with lighting regulations
 - Generate significant savings in operating costs
 - Create greener environments

MARKET POTENTIAL

With major markets like Houston, Texas, where there are 180,000* street lights, the market potential is vast.

*Houston Department of Public works, www.publicworks.houstontx.gov, 2012



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INSTALLATION

Due to the sophistication of the iLums and the various ways installations are achieved, prices are determined after a full system evaluation and driven by customers' needs and wants.

Once an evaluation is performed, we can determine what cost savings will be experienced by our customers over a determined period of time.



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MEASUREMENT AND VERIFICATION

- We use baseline data collected from our customers and our iLums testing system to identify control groups with similar usage patterns and histories.
- We measure program impact for external factors that may affect energy use.
- We are in the process of measuring energy use from readily available data across hundreds of PUCs and municipalities, over different time spans, to increase the statistical precision of our results.

NOTE: We are in the process of reviewing the International Performance Measurement and Verification Protocol to determine how we can implement this data into our verification process.



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RESULTS

Our system shows actual usage in real-time with raw data collection on lamp usage, time on/time off for each luminaire, daily kWh used, high/low/ultra current status, high and low voltage, and other useful features.

Our system not only identifies where energy is being squandered via day burners, high current and high voltage, iLums also allows customers to know exactly the amount of kW used for street lighting.

Tariff compliance and the ability to know precisely how much energy is being consumed and the ability to control the consumption is greatly beneficial to any utility or co-op that owns or maintains streetlights.



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Sample Lamp List

Unit ID#	Pole#	Street Name	Street #	City	State	Zip Code	Lamp Size	Pole Type	Lamp Type	Fixture Type
27	150/B9L	Bellevue Ave	146-198	Springfield	MA	01108	70	WOD	HPS	COB
38	150/2L	Bellevue Ave	25	Springfield	MA	01108	70	WOD	HPS	COB
39	150/1	Bellevue Ave	9	Springfield	MA	01108	70	WOD	HPS	COB
6	150/B8L	Bellevue Ave	132-140	Springfield	MA	01108	70	WOD	HPS	COB
53	243/4	Brown St	14	Springfield	MA	01109	70	WOD	HPS	COB
359551030256522	243/2	Brown St	40-42	Springfield	MA	01109	70	WOD	HPS	COB
60	243/1	Brown St	40-42	Springfield	MA	01109	70	WOD	HPS	COB
41	1C	Cadwell Dr	1	Springfield	MA	01104	70	WOD	HPS	COB
67	432/6	Cadwell Dr	300	Springfield	MA	01104	70	WOD	HPS	COB
63	1F	Cadwell Dr	1	Springfield	MA	01104	70	WOD	HPS	FLD
24		Cadwell Dr	300	Springfield	MA	01104	70	WOD	HPS	COB
37	360/1	Collins St	1-23	Springfield	MA	01109	70	WOD	HPS	COB
57	432/8	Dawes St	104-106	Springfield	MA	01109	70	WOD	HPS	COB
52	432/6	Dawes St	86	Springfield	MA	01109	70	WOD	HPS	COB



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Sample Individual Lamp Performance

Lamp Info	Status Date	Daily kWh	#Tilts	#Lo Curr	#Hi Curr	#Ultra Curr	#Lo Volt	#Hi Volt	#Alert	#Tickets
ID#60-Brown St 243/1	2012-11-05	1.21	2	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-06	1.19	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-07	1.35	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-08	1.28	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-09	1.11	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-10	1.2	1	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-11	1.26	1	0	0	0	0	0	0	0



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Sample Individual Lamp Usage

Lamp Info	Status Date	Daily kWh	#Tilts	#Lo Curr	#Hi Curr	#Ultra Curr	#Lo Volt	#Hi Volt	#Alert	#Tickets
ID#60-Brown St 243/1	2012-11-05	1.21	2	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-06	1.19	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-07	1.35	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-08	1.28	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-09	1.11	0	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-10	1.2	1	0	0	0	0	0	0	0
ID#60-Brown St 243/1	2012-11-11	1.26	1	0	0	0	0	0	0	0



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Sample High-Low Average Stats

Lamp Info	Hi Volt	Lo Volt	Avg Volt	Hi Curr	Lo Curr	Avg Curr
ID# 1 Johnson St 844/3	135	116	124	6.2	0.1	1.4
ID# 10 Wilmont St 1664/4	134	119	127	2.7	0.2	2.0
ID# 11 Marion St 999/2	136	124	130	6.5	0.4	1.3
ID# 12 Monson Ave 1072/1	132	118	126	4.1	0.1	1.6
ID# 13 Granville St 698/1	133	119	126	2.4	0.1	1.9
ID# 16 Ladd St 887/1	136	119	129	12.4	0.2	2.6
ID# 19 Lowell St 960/6	135	120	131	5.8	0.1	2.6
ID# 2 Parker St	135	120	128	10.2	0.8	1.2
ID# 20 Johnson St 844/4	133	120	127	8.7	0.1	1.9
ID# 21 Granville St 698/2	131	112	122	5.3	0.1	2.4
ID# 22 Leyfred Terrace 931/B14	145	126	141	10.7	0.1	3.2



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APPLICABILITY

The iLums system can be applied to Texas' EEIP by creating an avenue for controlling and monitoring streetlights.

- Texas' Senate Bill 7 program requires electric distribution utilities to offset 10% of load growth through energy efficiency. Our units are easily installed and the system, simply by way of its control capability, is a viable solution for energy conservation through load growth reduction.
- Our technology is applicable to all areas of Texas since streetlights are found in every urban and rural community.
- Our pilot program is an excellent way to overcome many barriers to implementation and enjoy the benefits of the iLums system before engaging in a full deployment. We are currently running successful pilot programs in other markets.



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BENEFITS of iLums

Remote Monitoring – iLums allows customers to respond more quickly and effectively to lighting outages.

Mobility iLums web-launched architecture also makes it easier than ever to support field linemen who need to securely monitor and control devices. No client software installation is required. Clients simply login to iLums using any web-based browser.

User-Friendly –iLums is an easy-to-use point and click interface, allowing web and mobile users to quickly access light and information summaries. Administrators have a designer interface with templates of pre-built, utility specific reports.

Scalability – iLums is based on today's software architecture and systems: Java, web servers, databases and protocols. Combined with advanced features like load-balancing clustering and client re-targeting, its scalability is exceptional. Data throughput is proven at several utilities, handling systems that scale to many hundred thousand data points. The system is designed to expand to virtually any customer's requirements.

Security – iLums was built with security in mind from the ground up. Communication channels are encrypted using SSL technology.



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BENEFITS of iLums continued

Many utilities in Texas have seen legal action taken against them over the last couple of years. The nature of the action is the assumption that utilities are overcharging based upon mandated tariffs. The disconnect is that utilities bill for assumed lumen output and cities and municipalities questions such tactics when there are lights out.

Cities like Galveston, Houston,

With iLums, there is no question about lumen output. Utilities would be able to know the exact number which will keep their customer happier and informed.

As Galveston Mayor Jaworski was quoted saying to a local newspaper regarding audits, “It doesn’t have to be an adversarial type of review. CenterPoint ought to be interested in making sure we have correct information; we’re their customer.”

<http://galvestondailynews.com/story/236322>

June 5, 2011

Laura Elder



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SUMMARY

Intelligent Illuminations is the only company that provides wireless point-to-point solutions creating more efficient lighting systems. Our patented products provide the most efficient, effective monitor and control systems to our customers.

Over many years, we have perfected our technology to revolutionize the retro-fit roadway and area lighting market. Our customers are better able to comply with regulations, save tax-payer money and create greener cities.

In addition to our wireless system, we provide our customers with customized solutions to fit their needs. We will provide free assessments to ensure goals, challenges and future requirements are identified.

iLums is a solution that works with every luminaire manufactured and used in North America.



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