

# RESPONSIBILITY

Business • Community • Environment



ACEEE 2015 – Kimco Outdoor Lighting Controls Program  
April 21, 2015

RE THINK  
NEW  
STORE

KIMCO  
REALTY

# Kimco Overview

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- We are a publicly traded real estate investment trust (REIT) headquartered in New Hyde Park, NY who owns and operate over 750 neighborhood and community shopping centers across 39 states
- We are responsible for providing safe, efficient, and aesthetic lighting for approx. 175 million square feet of parking area (over 3,000 football fields)
- Outdoor lighting electricity is our largest operating expense at approximately \$25,000 per site annually
- Corporate sustainability goals for energy reduction from lighting control projects
  - 5% reduction from 2012 to 2013
  - 10% reduction from 2013 to 2014

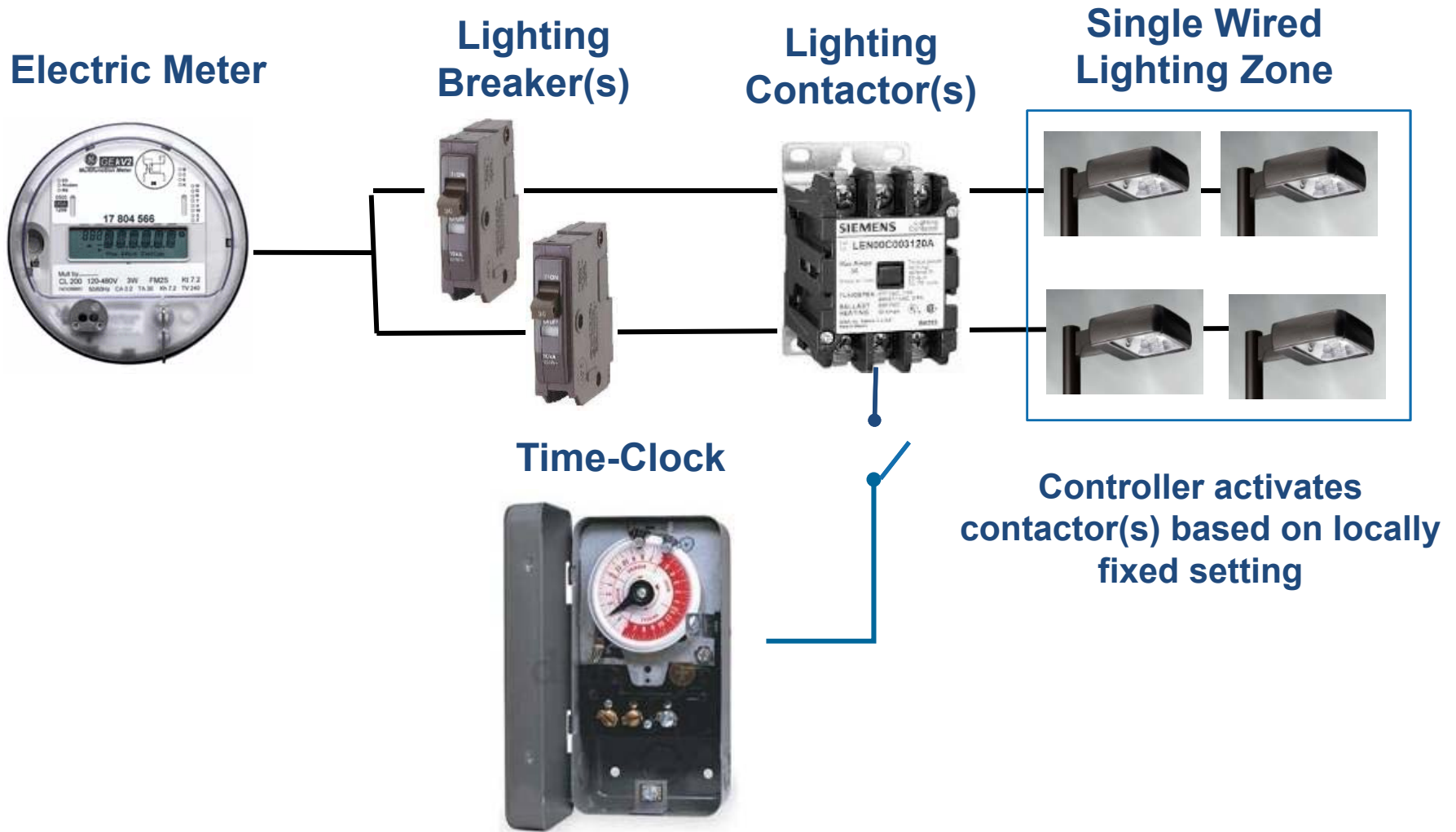
# Goals of Outdoor Lighting Controls Program

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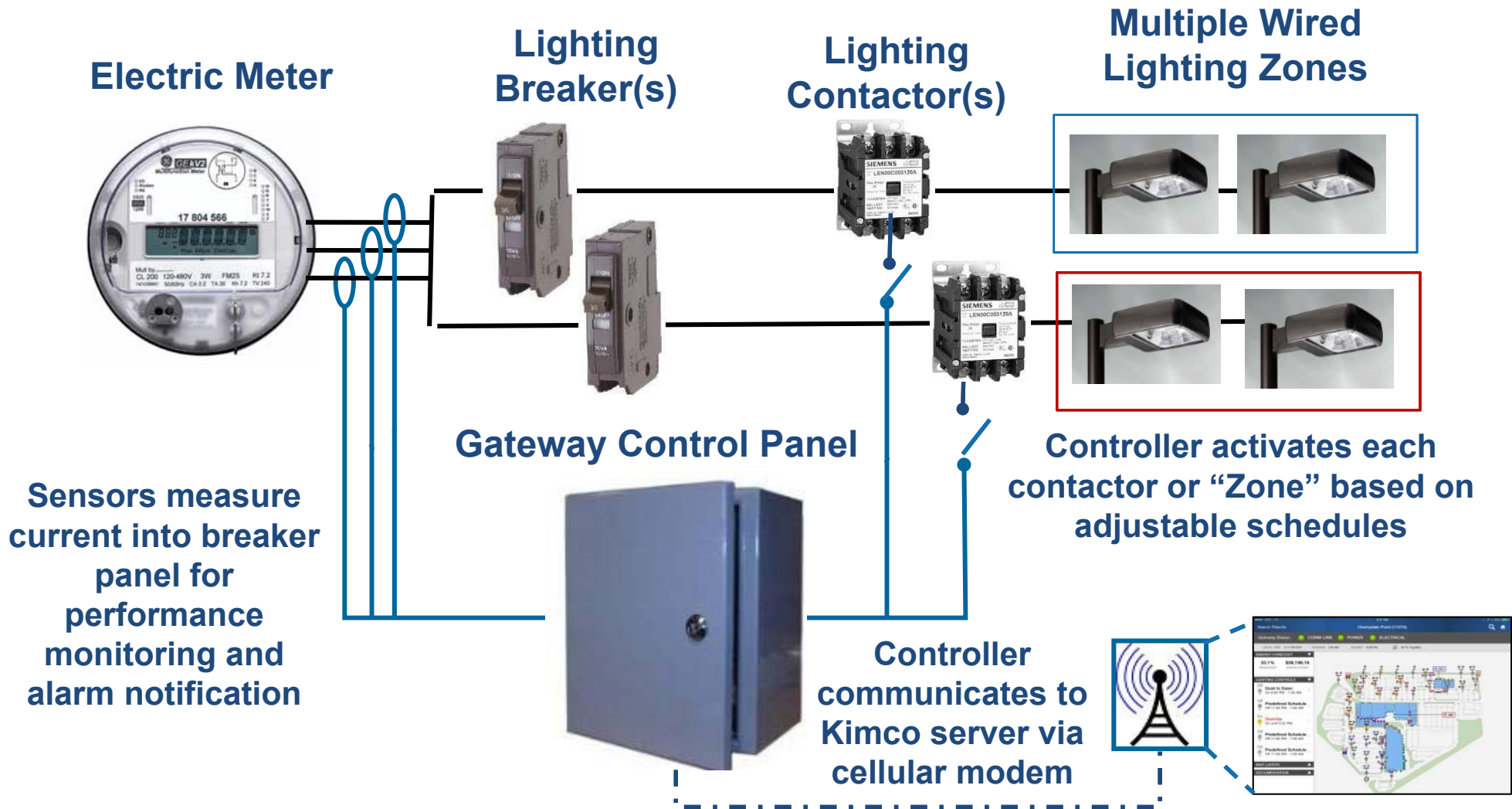


- Reduce CAM electricity consumption by 10-20% for the majority of Kimco sites through precise astronomical control and night-lighting opportunities
- Improve safety, security, and tenant experience through automatic notification of lighting outages that enable faster resolution
- Maximize property manager effectiveness through expandable technology platform

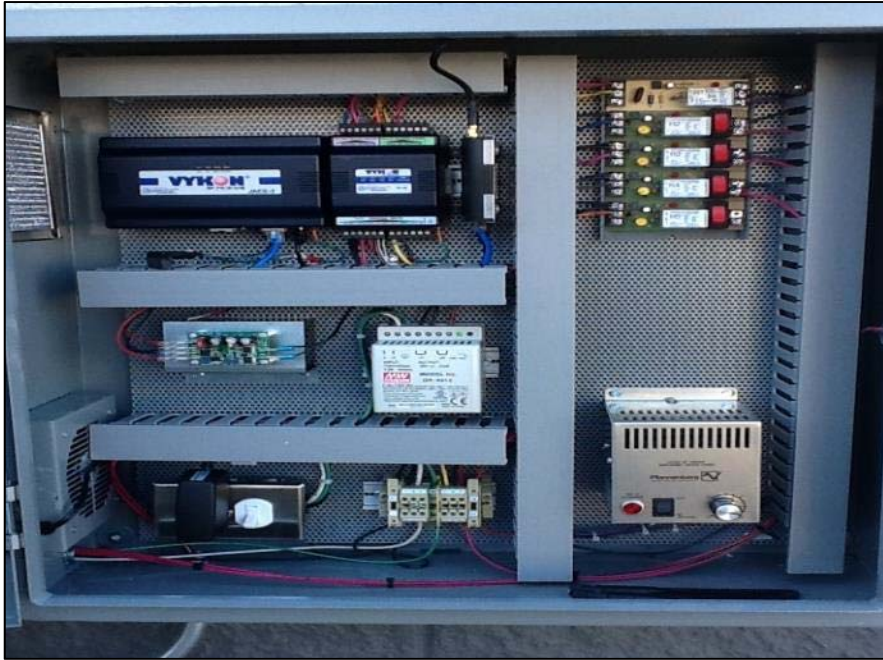
# Past Lighting Control Configuration



# Present Lighting Control Configuration

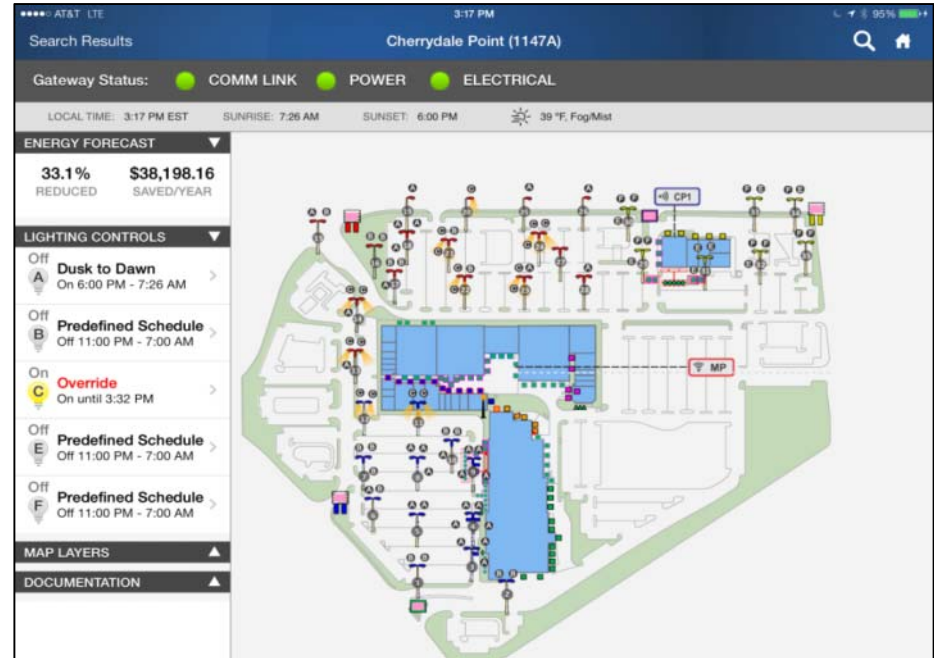


# Present System: Details



## Hardware Features

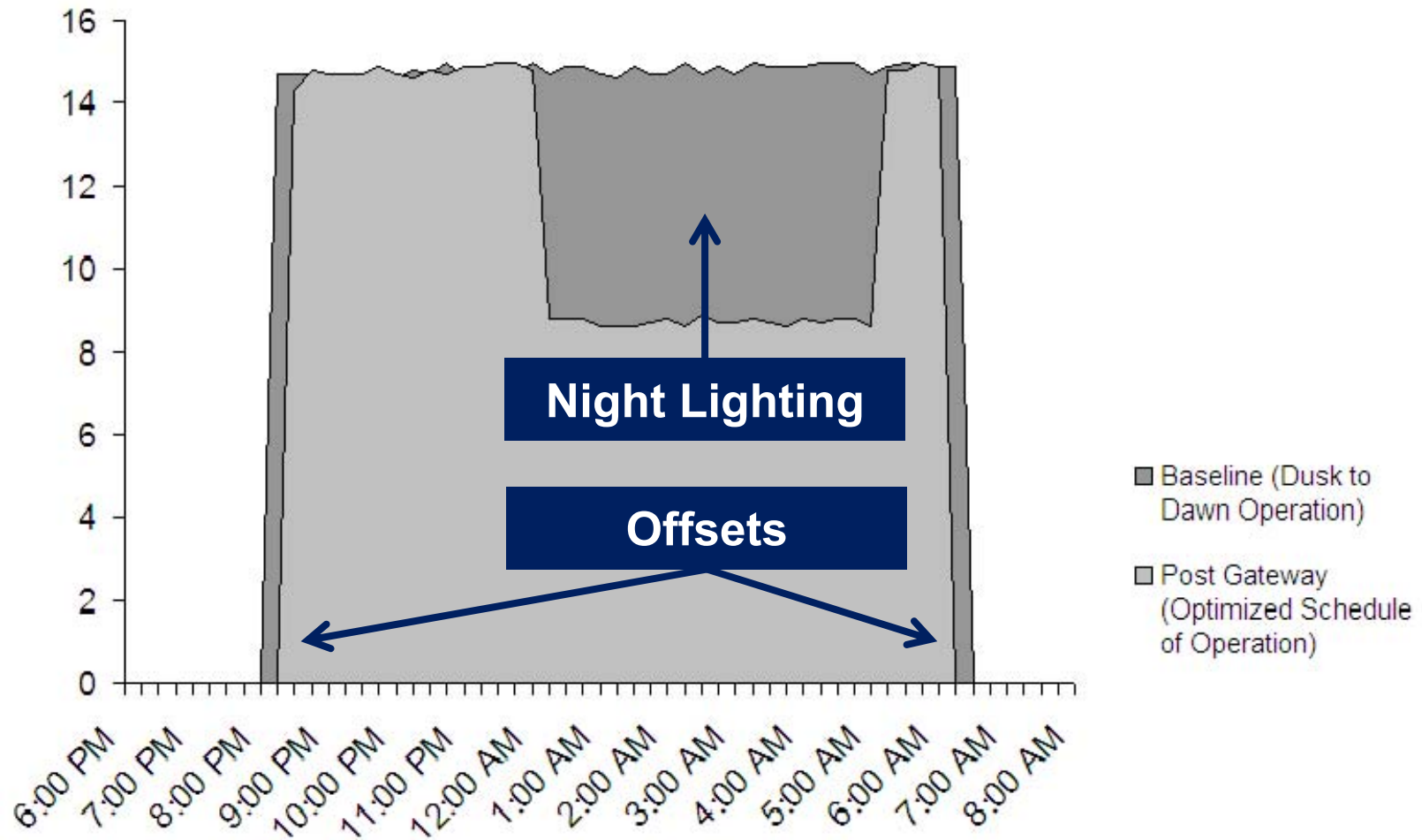
- Durable and weather tight enclosure
- Standard components for easy and reliable servicing through vendor network
- Manual override switches to bypass controller for servicing/testing lights
- Battery backup in event of power failure



## Software Features

- Accessible through any web browser or Kimco's custom iPad application
- Intuitive overrides and scheduling of lights
- Visual depiction of site lighting status, alarms, and schedule details
- Energy forecast feature dynamically shows financial impact of schedule selection

# Present System: Energy Savings



# Present System: Results

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- ≡ Launched in 2011 with national vendor using open-source Tridium Niagara AX platform (Lego set of control systems)
- ≡ Now controlling and monitoring lighting systems at 310 sites through one central web-based platform and expanding to over 380 sites by end of this year
- ≡ Average energy savings of 18% for sites that can implement night lighting and 11% for all sites installed to date (2 to 4 year simple payback at most sites at a cost in the range of \$5k to \$10k)
- ≡ Providing property managers zone-level control with night-lighting schedules through graphical dashboard available on web browser or iPad app
- ≡ Improving safety and security by using current sensors to monitor electrical faults and automatically emailing property manager
- ≡ Supporting approx. 50 in-house users and 20 regional maintenance vendors with ongoing training and 24/7 call center support



# Challenges and Lessons Learned to Date

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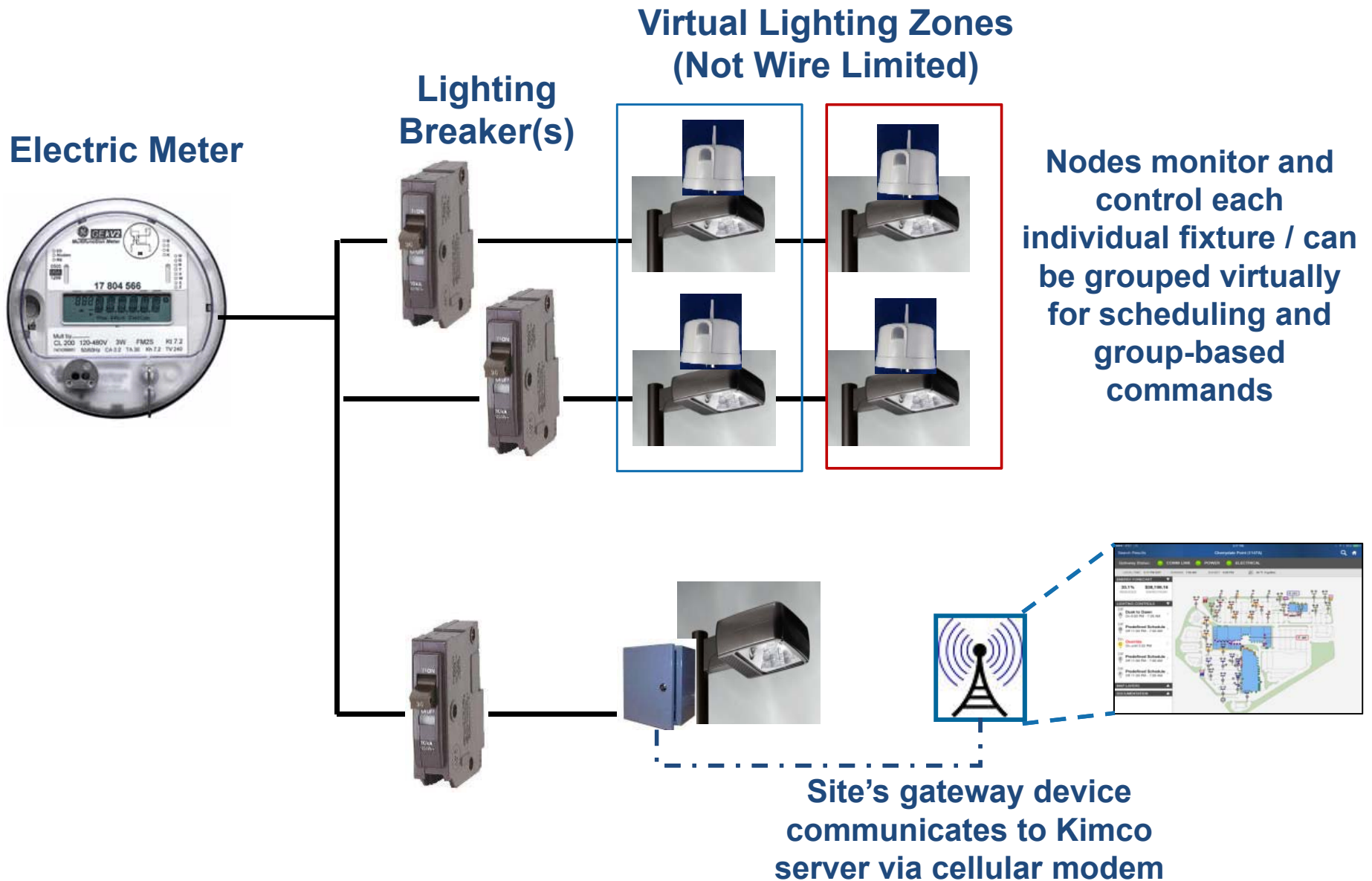
1. Motivation: Its about more than the energy savings!
2. Technology
  - a) Need to balance cost and features
  - b) Zone-level control is limiting but is simple and cost-effective
  - c) Legacy systems – can't live with them, can't live without them
  - d) Try to get on a “future proof” runway for future systems and services
3. Implementation
  - a) Vendor selection is key – knowledgeable, experienced, trustworthy
  - b) Defining standardized process, documentation, and QC protocol
  - c) Ongoing user management and training is needed for continued savings and benefits (tempting to assume this just happens)
4. Utility Incentives: Too often “icing on the cake” / need to move the incentive up the value stream so they are easy and bankable for end-users

# Motivation Towards the “Next Frontier”




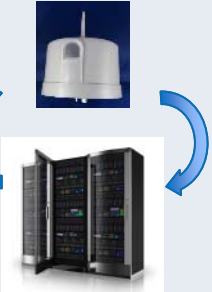
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- ≡ Move beyond just controls to leverage the efficiency, lighting quality, durability, and controllability of LEDs
- ≡ Maximize value of current zone-based controls platform while making strategic progress toward fixture-level control
- ≡ Rely on standards in interoperability and hardware interfaces (e.g. ANSI C136.41)
- ≡ Control and monitor at a more granular level to improve operational effectiveness (facing challenge of “big data”)
- ≡ Integrate multiple systems to expand value proposition (e.g. lighting, security, traffic analysis)

# Future Lighting Control Configuration



# Kimco Lighting Controls Timeline

	Long Past (Before '01)	Recent Past ( '01-'11)	Current ( '11-'15)	Future
<b>Controller Hardware</b>	Mechanical	Digital Proprietary	Digital Open Source	Digital Connected
<b>User Interface</b>	Physical	Non-Graphical Web	Graphical Web and Mobile	Graphical Web and Mobile
<b>Level of Control</b>	Whole Site	Whole Site	Zone	Fixture
<b>Level of Monitoring / Energy Reporting</b>	None	None	Whole Site	Fixture
<b>Scheduling Capability</b>	Static On/Off	Adjustable On/Off	Adjustable On/Off	Event-based On/Off and Dimming
<b>Diagram</b>				

# Progress Towards “Next Frontier”

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- ≡ Performed 280 site lighting assessments since Summer of 2013
- ≡ National lighting retrofit project volume increased by 10x from 2014 to 2015 largely due to assessment program
- ≡ Launched Illumi-Nation program this year investing approx. \$8 million dollars across 100 projects using LEDs with wireless controls or “controls ready” capable of future upgrade
- ≡ Evaluating technology partners for fixture level controls and performing due diligence for integration with existing controls platform
- ≡ Piloted LED with fixture-level controls in Fall of 2014

# Pilot Project Highlight: 280 Metro Center

- ≡ Pilot LED retrofit project conducted in Fall of 2014 in Colma, CA
- ≡ Replaced 74 qty. 400W and 14 qty. 250W MH fixtures with 80 qty. dimmable 217W LED fixtures
- ≡ Reduced full load electricity demand in the parking lot from 39.7 kW to 17.4 kW representing a demand reduction of 22.3 kW or 56% savings.
- ≡ Installed wireless control nodes on every LED fixture and an embedded PIR motion sensor on one fixture per pole (additional 20-30% savings)
- ≡ Raised the average foot-candle level in the main parking area from approx. 0.5 FC to 2.8 FC while lowering the max/avg. ratio from a highly non-uniform ratio of 16.6 to a highly uniform ratio of 2.6.
- ≡ Tested embedded IP cameras to control lighting at entrances, provide live view of property, and analyze traffic patterns



# Pilot Project Highlight: 280 Metro Center

Events for Dimming V3

Custom - Sunrise at 6:45 AM Sunset at 7:39 PM Update Events for this Profile

Weekday Events Weekend Events

Mon  Tue  Wed  Thu  Fri  Sat  Sun

Enable Event	Astronomical Time Adjustments	Time	Action	Options
<input checked="" type="checkbox"/> Diagnostic Event <input checked="" type="checkbox"/> Enable Current Measurement		11 :50 <input type="radio"/> AM <input checked="" type="radio"/> PM		
<input type="checkbox"/> Disable <input type="checkbox"/> Time of Day <input checked="" type="radio"/> Astronomical Time	0.0 Hours <input checked="" type="radio"/> Before <input type="radio"/> After <input type="radio"/> Sunrise <input checked="" type="radio"/> Sunset	07 :39 <input type="radio"/> AM <input type="radio"/> PM	Output 5.0V	<input type="checkbox"/> Photocell <input type="checkbox"/> Motion
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# Contact Information

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