

LightFair 2015 New York City

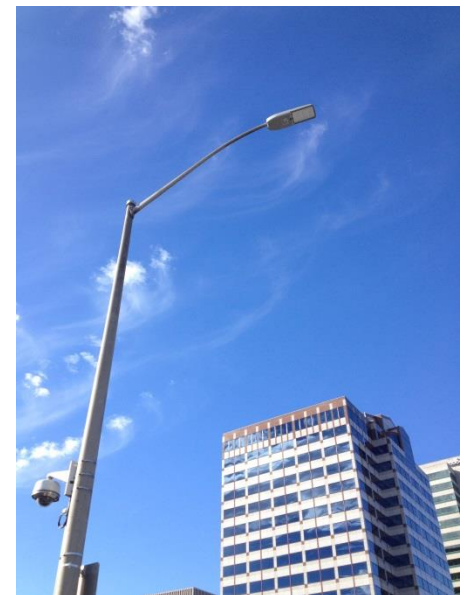
# LEDs At 5+ Years – The Scoop on Street and Area Lighting Applications

May, 2015

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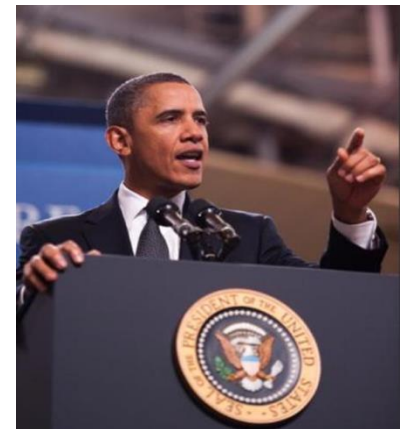


## MSSLC – Ongoing Focus

- Continuing to add resources to our MSSLC library
  - Post-top luminaire specification
  - Phase II National Street Lighting Inventory
  - Reliability track record
- Providing technical support to members in their street lighting transitions
- Providing technical support to the Outdoor Lighting Accelerator
  - Goal is an additional 1.5 million outdoor lights committed to transition by May, 2016



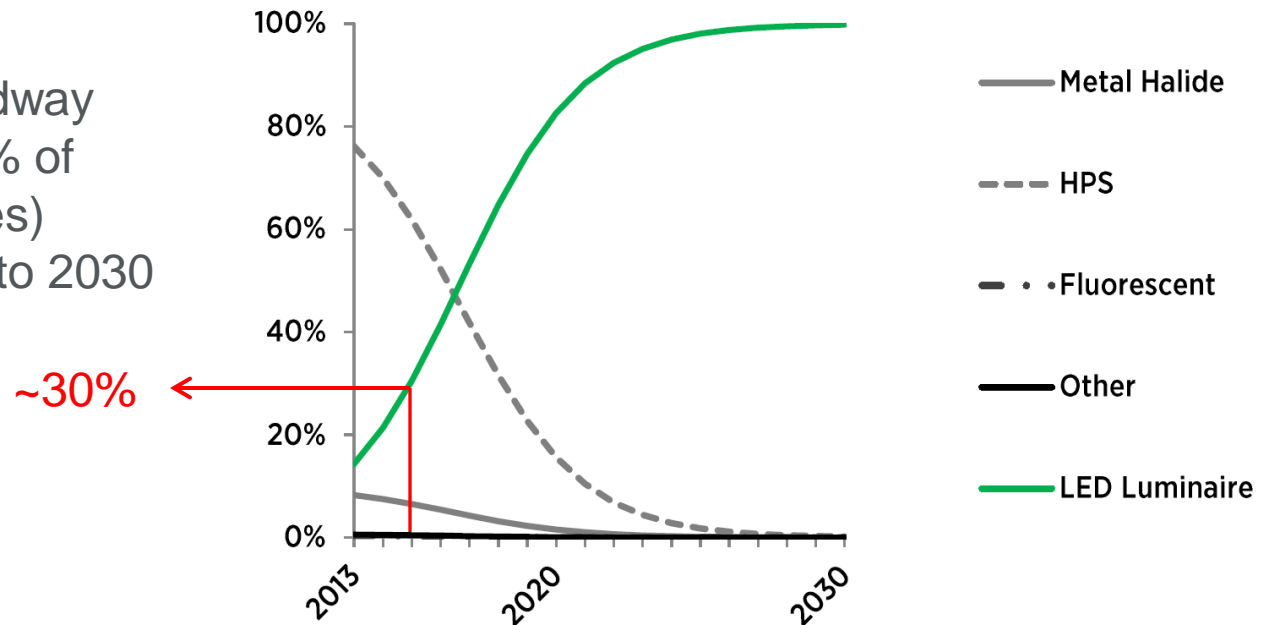
BETTER BUILDINGS ALLIANCE



## LED Street and Area Lighting Growth

- LED adoption continues to increase
  - 5+ million U.S. outdoor lighting units installed?
  - Cobra head replacements well established; moving into more demanding apps such as post-tops, high-masts, tunnels

Street and Roadway  
Market Share (% of  
lumen-hour sales)  
Forecast, 2013 to 2030



Original Graphic: Navigant

## LED Reliability Continues to be High

Responses to MSSLC Failure Questionnaire, March – April 2015

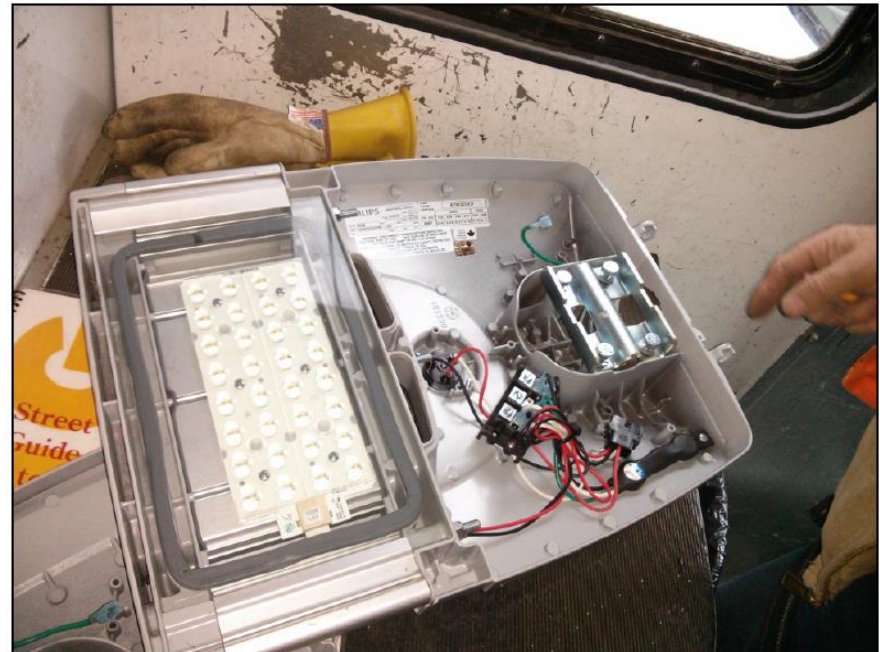
	Street Lights		Area Lights	
	Number <sup>a</sup>	Percent <sup>a</sup>	Number <sup>a</sup>	Percent <sup>a</sup>
<b>Number Installed</b>	<b>139,655</b>		<b>3,763</b>	
<b>Out of Box Failures</b>	<b>219</b>	<b>0.16%</b>	<b>25</b>	<b>0.66%</b>
- Shipping/Installation Damage	43	19.6%	3	10.0%
- Internal Electrical Issues	126	57.5%	23	90.0%
<b>Longer-term Failures</b>	<b>1113</b>	<b>0.80%</b>	<b>18</b>	<b>0.48%</b>
- Human-caused <sup>b</sup>	221	19.9%	2	13.3%
- Nature-caused <sup>b</sup>	90	8.1%	8	46.7%
- Component failure <sup>c</sup>	799	71.8%	18	100.0%
• Individual LEDs fail to light	67	8.3%	4	24.4%
• Power supply	537	67.2%	6	31.1%
• Photocell	85	10.6%	2	13.3%
• Other	125	15.7%	4	20.0%
<b>TOTALS</b>	<b>1,332</b>	<b>0.95%</b>	<b>43</b>	<b>1.14%</b>

<sup>a</sup> Numbers may not add due to: breakdown not provided on every reported failure; single failures falling into multiple categories; and rounding error.

<sup>b</sup> Human-caused failures include vandalism, accidents, pinched wiring, etc. Natural causes include lightning strikes, wind, moisture, etc. <sup>c</sup> Not mutually exclusive with the previous two categories.

## LED Reliability Cont'd

- Failure questionnaire results coincide with results previously reported by:
  - Los Angeles: **0.3%** (400 units out of 140,000 installed)
  - Boston: **1.2%** (371 units out of 32,000 installed)
  - Seattle: **0.79%** (304 units out of 38,460 installed)
  - Las Vegas: “Less than **0.05%** warranty replacement”



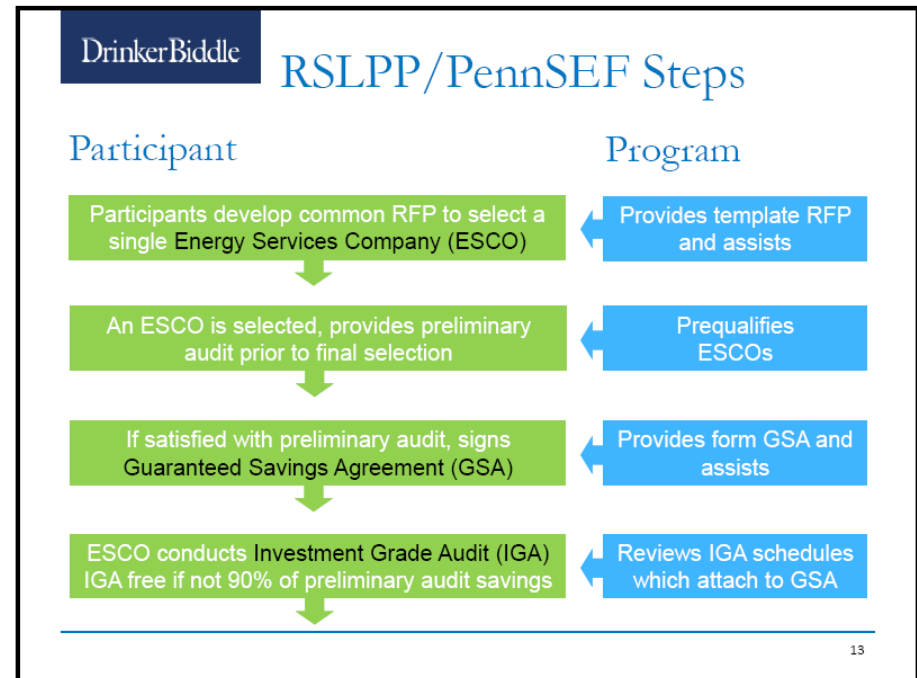
## The Situation Today

- Familiarity with LED technology is widespread
- Means of funding a transition are expanding
  - ESCOs
  - Efficiency organizations - PSEF
  - Municipal associations – CCOM, MAPC
  - Manufacturers
  - Banks / traditional finance community
- Misaligned incentives and preservation of the status quo impeding many interested users
  - NEEP study: only 13 of 45 Northeast and Mid-Atlantic IOUs offered LED tariffs for company-owned lights in August 2014; almost half charged more for them



## The Situation Today – cont'd

- Support increasing through utility turn-key programs:
  - Pacific Gas & Electric
  - Georgia Power
  - Duke Energy
- ...and for smaller communities through collaborative representation:
  - Delaware Valley Regional Planning Council
  - Iowa Association of Municipal Utilities
  - The Energy Network



## What's Trending Now

- Controls and citywide networks
- Light at the preferred CCT and distribution
- Illuminance reductions that challenge established norms
  - Perceived brightness of LEDs leads some to go well below RP-8
  - Environmental, health and/or cost concerns may lead to downsizing or even light removal



Source: Hubbell  
Lighting

Town	Initial # of fixtures	Total # of fixtures removed	% of fixtures removed
Hartford	521	175	33%
Rockingham	461	123	27%
Shelburne	233	124	47%
Williston	160	53	33%

Source: Efficiency Vermont Street Lighting Guide



## In Sum

- LED Street and area lighting products appear to be meeting or exceeding projections for energy savings, reliability, and market penetration.
- Their implementation has not been without issues, some intrinsic and some external, but these are being ironed out in due course.
- The ongoing advancement towards a very different future continues at an impressive pace, as wide-ranging control capabilities enabled by the digital nature of the technology are recognized and achieved.





# Questions?

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