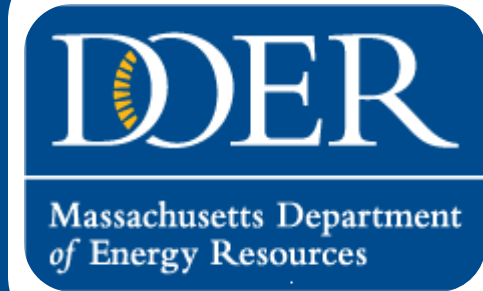


Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth



LED Streetlights in Massachusetts

Matt Rusteika, DOER
Patrick Roche, MAPC

Why Convert to LED Streetlights?



High-Pressure Sodium



- Yellowish color
- ~6 year lifetime
- Spread-out light output
- Most efficient street lighting technology other than LEDs

LED



- Whiter color
- ~18 year lifetime
- Light focused on road
- 50-60% more efficient
- Longer lifetime = O&M cost savings, big motivator for towns

LED Streetlight Conversion Grants

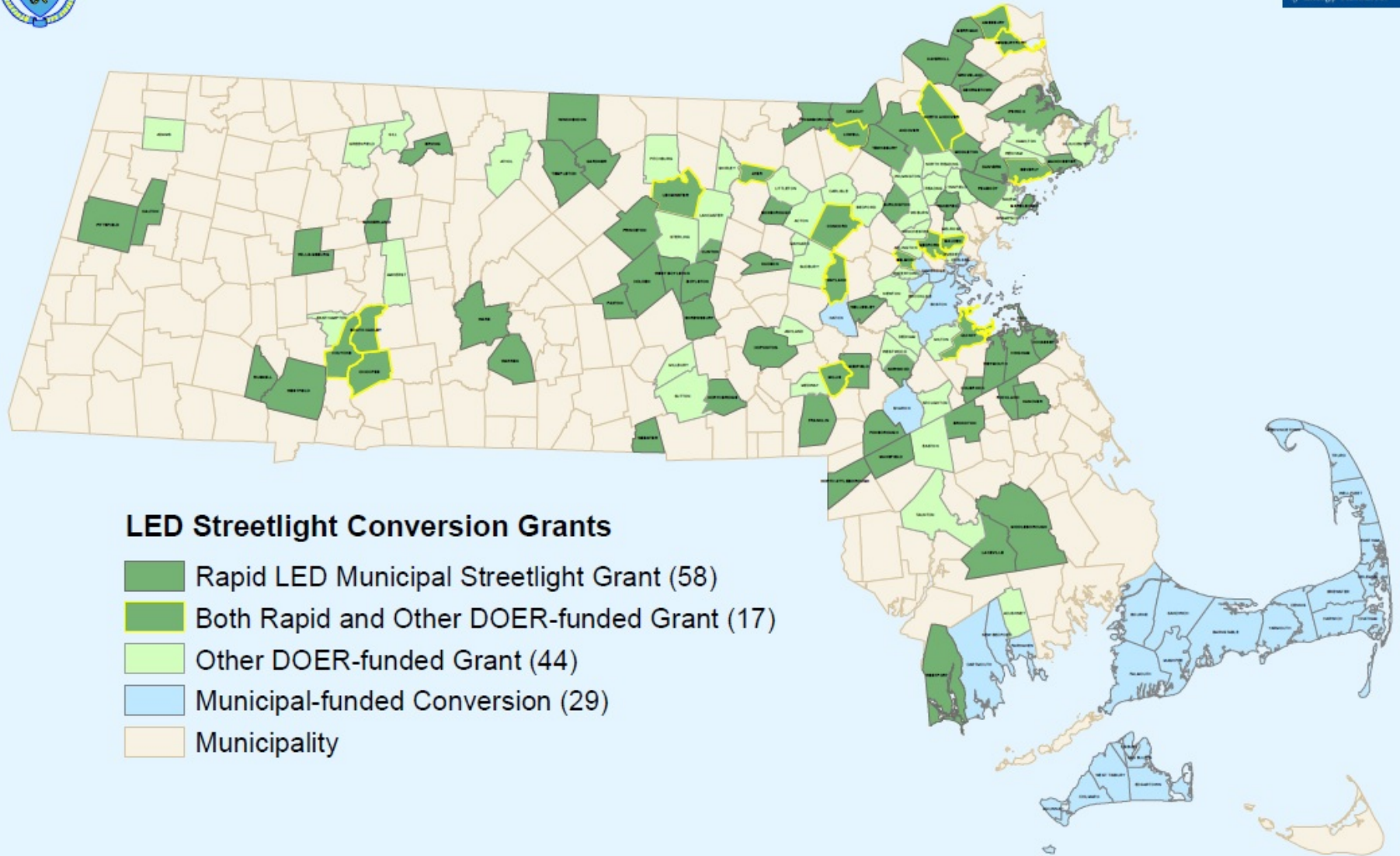
- Partnership between DOER, MAPC, ENE, MMWEC, MLPs
- Program runs through December of 2018
- Targets less efficient, municipally-owned streetlight fixtures across Massachusetts
 - Cobra-head fixtures only; no decorative lamps
 - Some spillover into decorative fixture retrofits
- \$11.9 million in funding from RGGI + ACP
- Bulk purchasing to bring down the cost of retrofits for cities and towns

LED Streetlight Grant Impacts

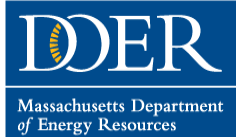
- 75 towns & 127,304 fixtures currently in-program
 - 75,295 (59%) in IOU territories—MAPC
 - More towns interested; up to 20,000 more fixtures
 - 52,009 (41%) in MLPs—ENE, MMWEC, 3 MLPs
- 340,000+ MWh of lifetime electric savings
 - ~4.6 MW savings during winter peak times
- Lumen output needed from LEDs is lower, according to grant program audits
 - Less light pollution
- Most common switch: 50w sodium to 14-17w LED



LED Streetlight Conversions Funded by DOER



DOER, 10-3-17, jpfister



Massachusetts LED Conversion Progress

- By 1/1/19, almost 75% of MA fixtures will be LED
- New rates for utility-owned LEDs recently approved
- Towns have historically bought their streetlights in order to convert

	Statewide	Investor-Owned Utilities			Municipal Light Plants
		Municipal Ownership	Utility Ownership	Total	
Total number of fixtures	505,690	305,449	131,364	436,813	68,877
Number of municipalities	351	152	152	304	47
Green Communities grants	222,984	207,652	1,466	209,118	13,866
Rapid LED Conversion grants	137,184	84,868	0	84,868	52,316
Total converted or in process	360,168	292,520	1,466	293,986	66,182
Percent converted or in process	71%	96%	1%	67%	96%
Not yet converted	145,522	12,929	129,898	142,827	2,695
Percent not yet converted	29%	4%	99%	33%	4%

* Based on best estimate

Streetlight Rates—IUU Towns

- Streetlights are owned by either to the city/town or the electric utility serving it
- Streetlights are not metered like other accounts
 - Rates for utility-owned include O&M, labor, materials; rates for town-owned can be energy-only
- Towns may buy their streetlights from their utility for undepreciated value (MGL Ch. 164 § 34A)
- Before the end of 2016, towns had to purchase their streetlights in order to convert to LED
 - Many of MA's larger cities did this, e.g. Boston

Advanced Controls

- Traditional streetlights use photocells to turn on & off
- LEDs can accommodate more advanced technologies
 - Dimming for kWh/kW savings
 - “Smart city” infrastructure
- 6 towns installing advanced controls with program funds
- Currently no rates account for dimming streetlights
 - ...but cities are asking for them



Thank you!
Questions?