R1963a Short-term Lighting Analysis

Preliminary Results

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Study Goals

- Examine third-party lighting sales data to assess market share in Connecticut, nearby states, the US, and program and non-program states
- Examine program tracking data to assess sales by product category and characteristics
- Obtain predicted market share through 2023, from lighting experts
- Explore qualitative product and market trends and factors influencing the lighting market, from lighting experts and document reviews

NMR Group, Inc.

cadeo

Study Goals, cont.

- Identify and describe potential indicators of when to exit the market
- Document program design and exit strategies suggested by lighting experts
- Communicate overall findings on market characteristics, trends, and implications for program design (and potential exit)

Overview of R1963a Tasks

Task	Deliverables
Task 1: Workplan and Kickoff	Kickoff Slides & Workplan
Task 2: Program Tracking Review	Data Request Tracking Data Analysis – Report Section
Task 3: Sales Data Review	2018 CREED Sales Data Analysis – Memo 2019 CREED Sales Data Analysis – Overall Report
Task 4: Stakeholder IDIs Suppliers Advocacy Groups Program Staff (2 IDI, 6 participants) Implementation Staff (1 IDI, 2 participants)	Memo Overall Report
Task 5 Reporting	Presentation (to EA Team) Draft Report (to EA Team) Revised Report (EA Team) Draft Public Report Final Report & Presentation

Type of Results Provided

- Connecticut Program sales, 2015 to Sept. 2019
  - Overall (includes savings)
  - By retail channel
  - By shape
  - By wattage bins
  - Geographic distribution
- LED market share in Connecticut, neighboring states, non-program states, program areas and nation
  - Overall (2015 to 2019)
  - By retail channel
  - By shape (2018 and 2019)
  - Supplier predictions by shape (2019, 2021, 2023)
  - By lumen bins (2019)
  - By ENERGY STAR status (2017 to 2019)
- LED and halogen pricing trends, 2016 to 2019
  - 2016 to 2019
- Supplier predictions of when LEDs will be dominant by shape

Key Take-aways

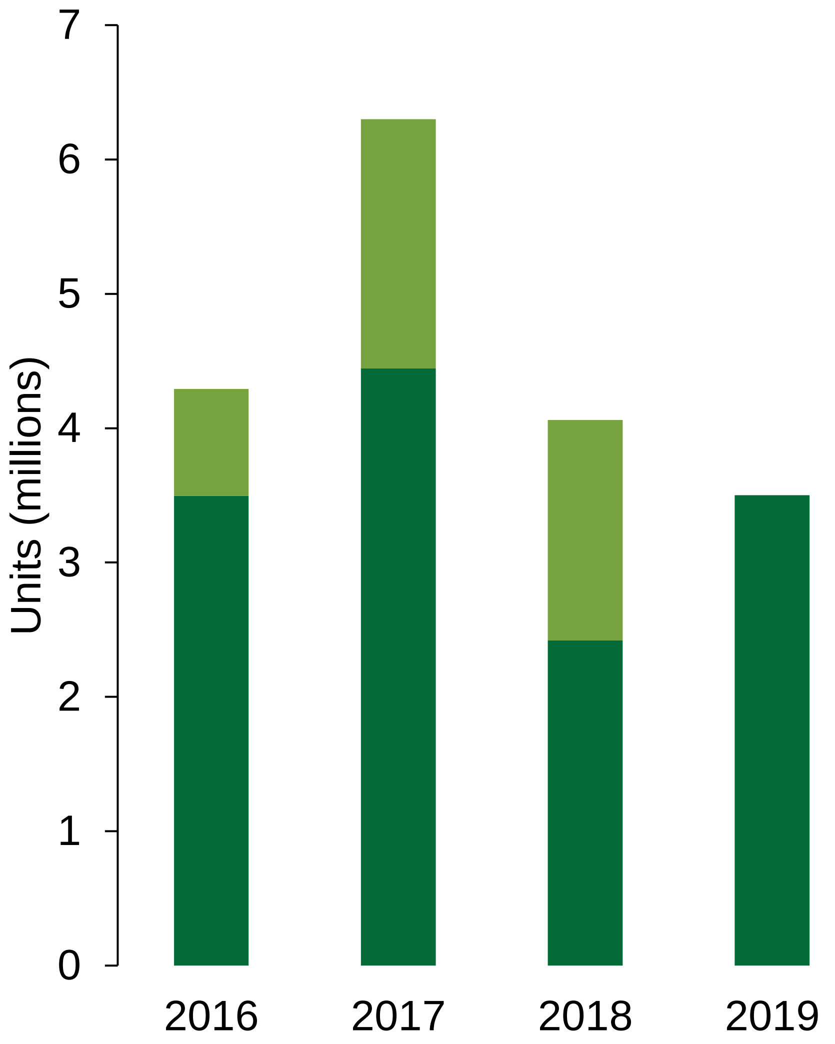
- Connecticut market shows progress, but not as much as neighboring states.
- Programs still matter, but market transformation continues in Connecticut & beyond.
- Program sales and savings and market share dropped in 2018, probably due to state-induced budget reduction.
- Reflector bulb market share and price points suggest LEDs current dominate the market.
- Decorative LED market share showed strong increase between 2018 and 2019

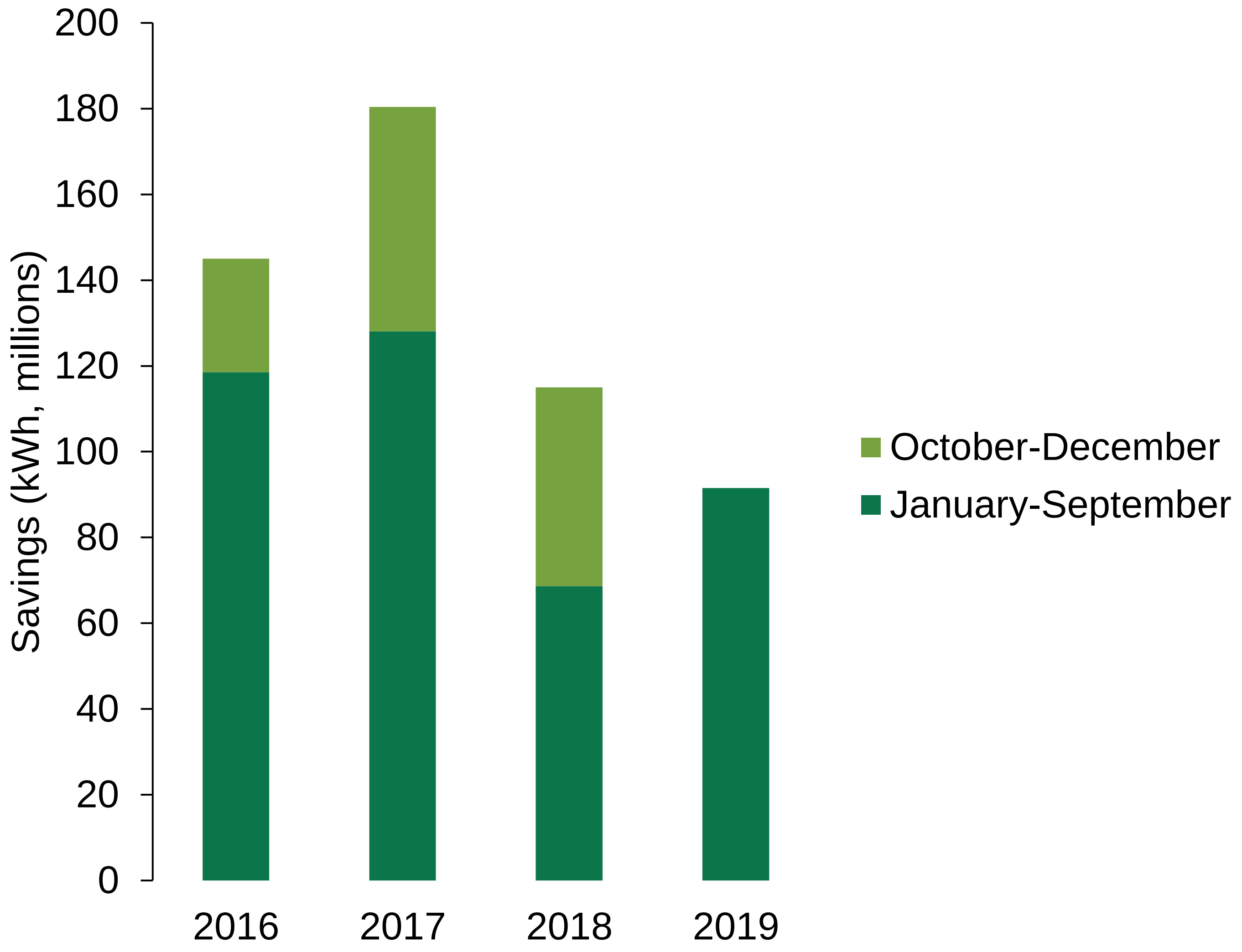
Recommendations

- Discontinue support for LED reflectors and 750 to 1,049 lumen (60 Watt-equivalent) LED A-line bulbs in all retail channels
- Limit program sales for all shapes in home improvement stores
- Continue to support decorative LEDs, A-lines in other lumen ranges through the current program cycle
- Reallocate budget to support deeper incentives on LED fixtures, decorative bulbs, and high and low lumen A-line bulbs
- Consider discontinuing the upstream retail program in the next program cycle; focus on direct install low-income, multifamily, and decorative bulbs.

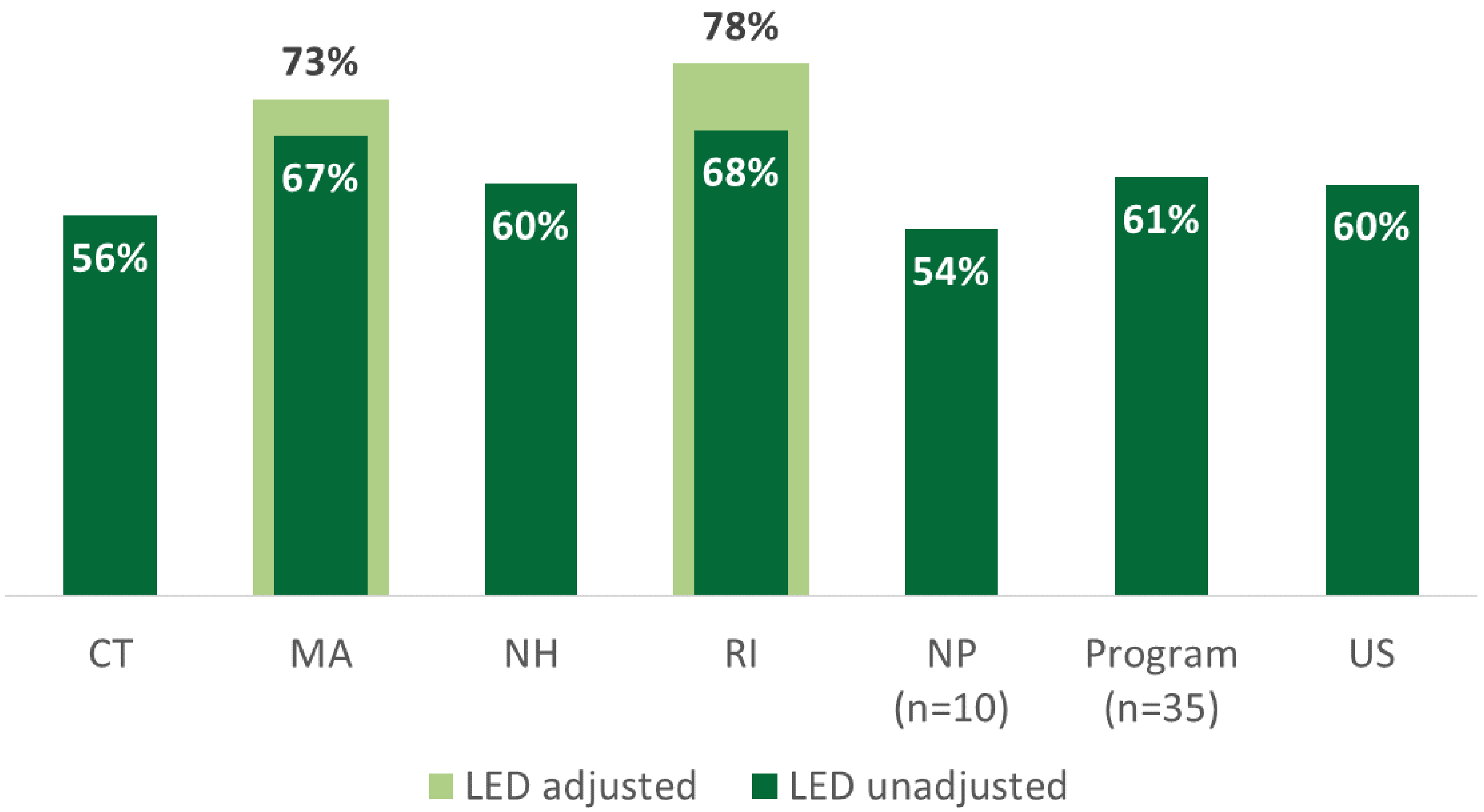
Overall Sales Trends

2019 CT Program Volume and Savings were Between 2017 and 2018 Levels





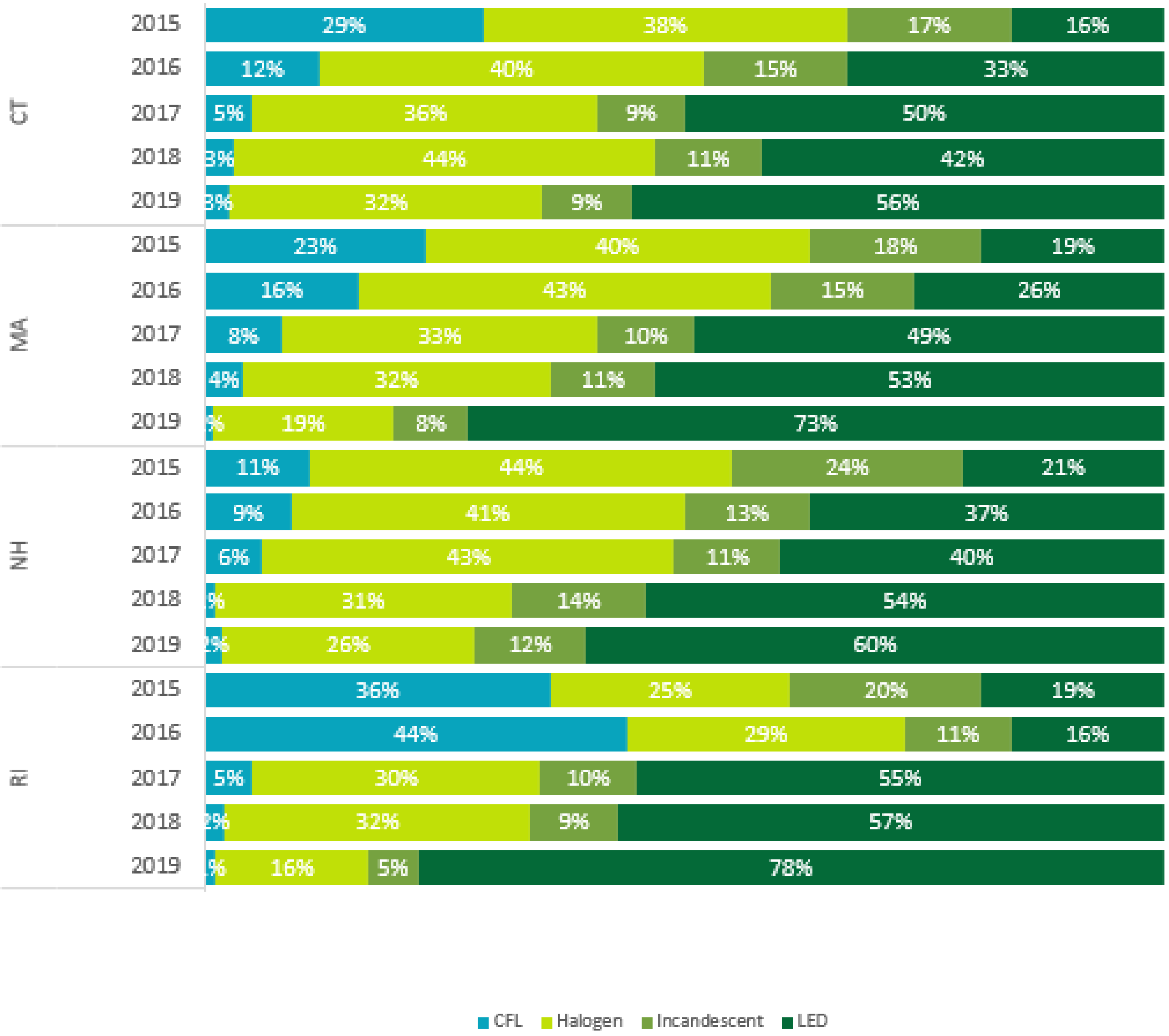
2019 LED Market Sales Shares – All Channels

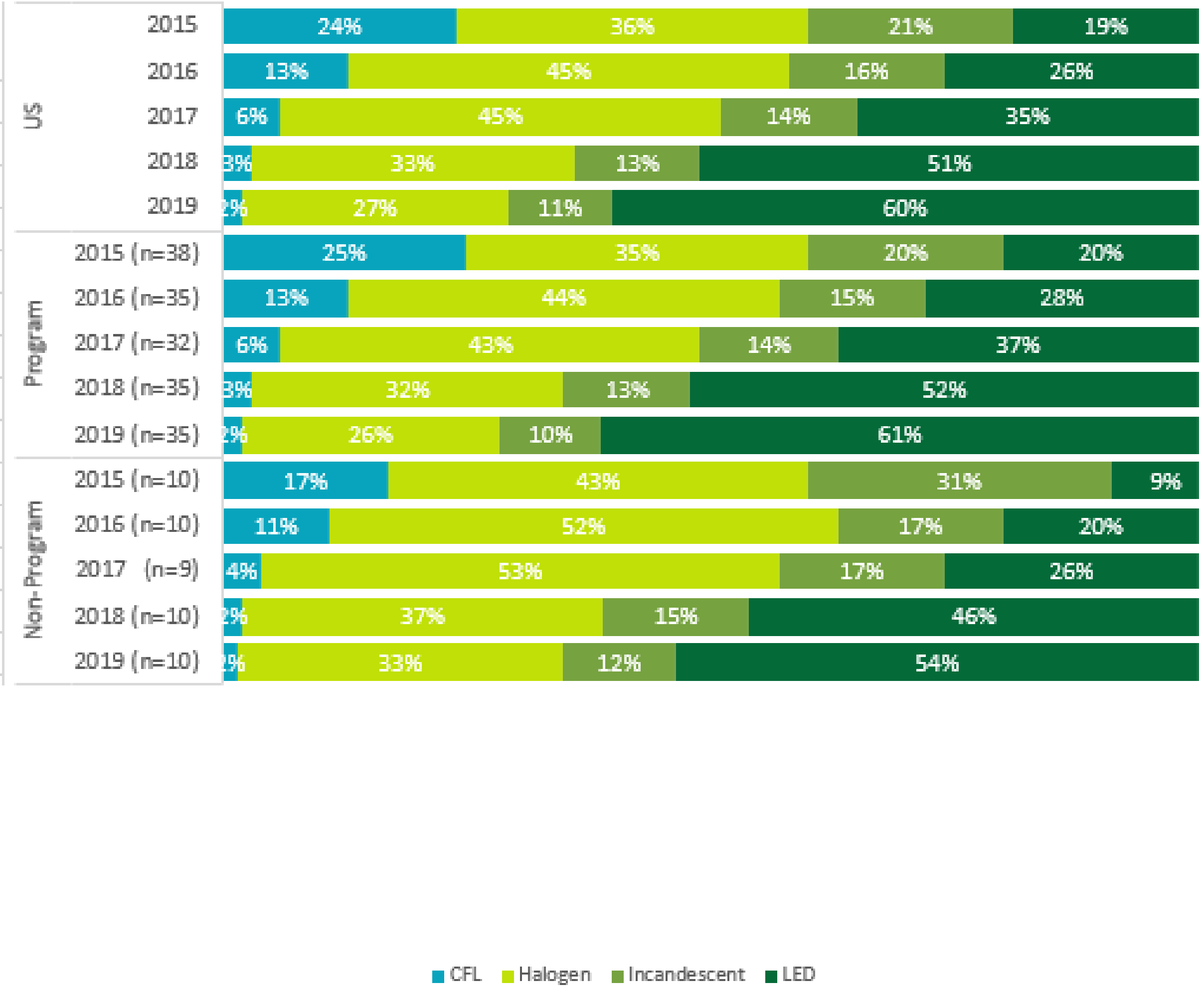


CT market share similar to non-program areas, below the other three states, whether adjusted for program sales* or not.

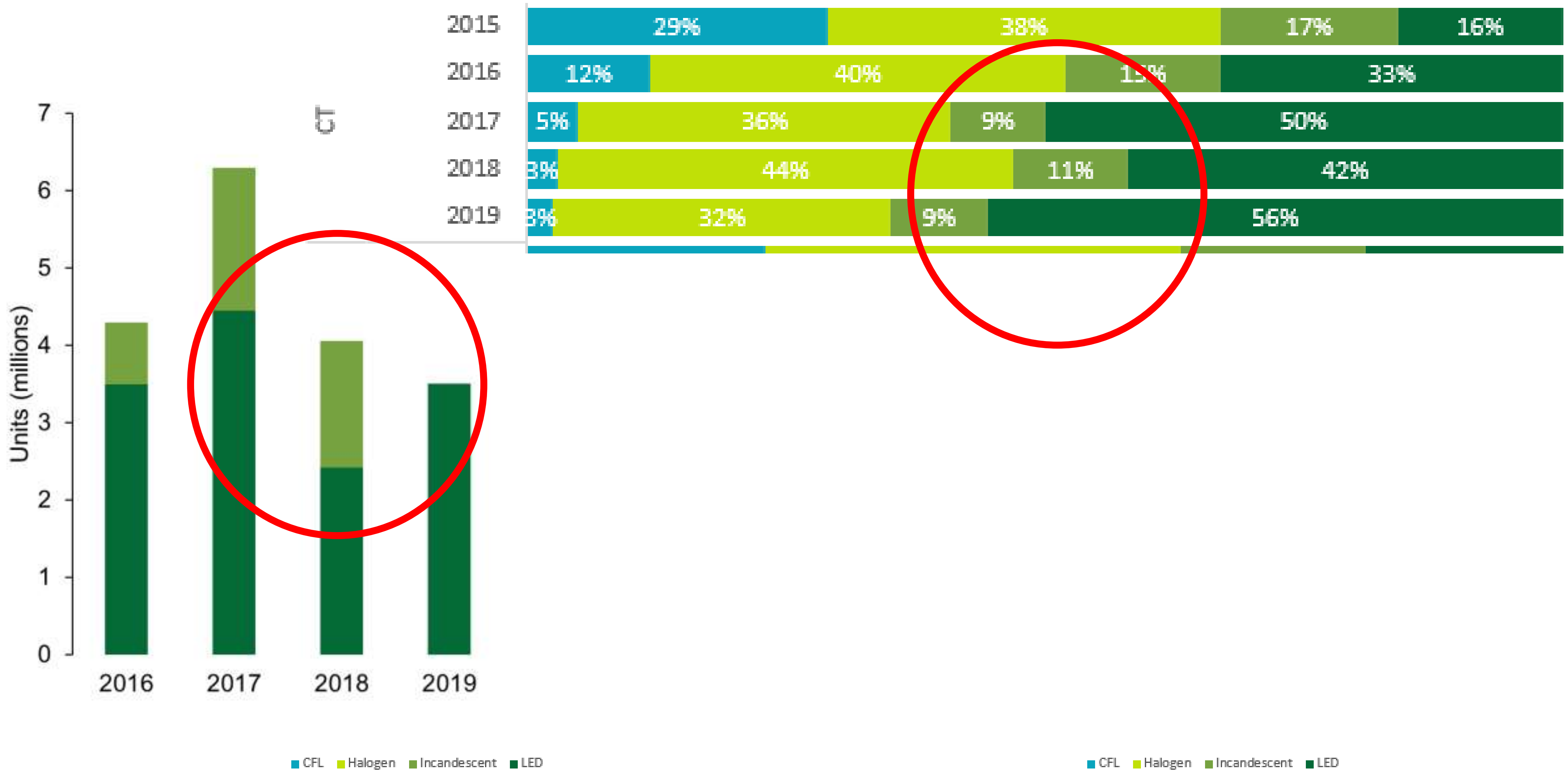
* CREED adjusts programs states LED shares if LightTracker estimated market sales volumes do not align with program sales.

Market Share Over Time – All Channels



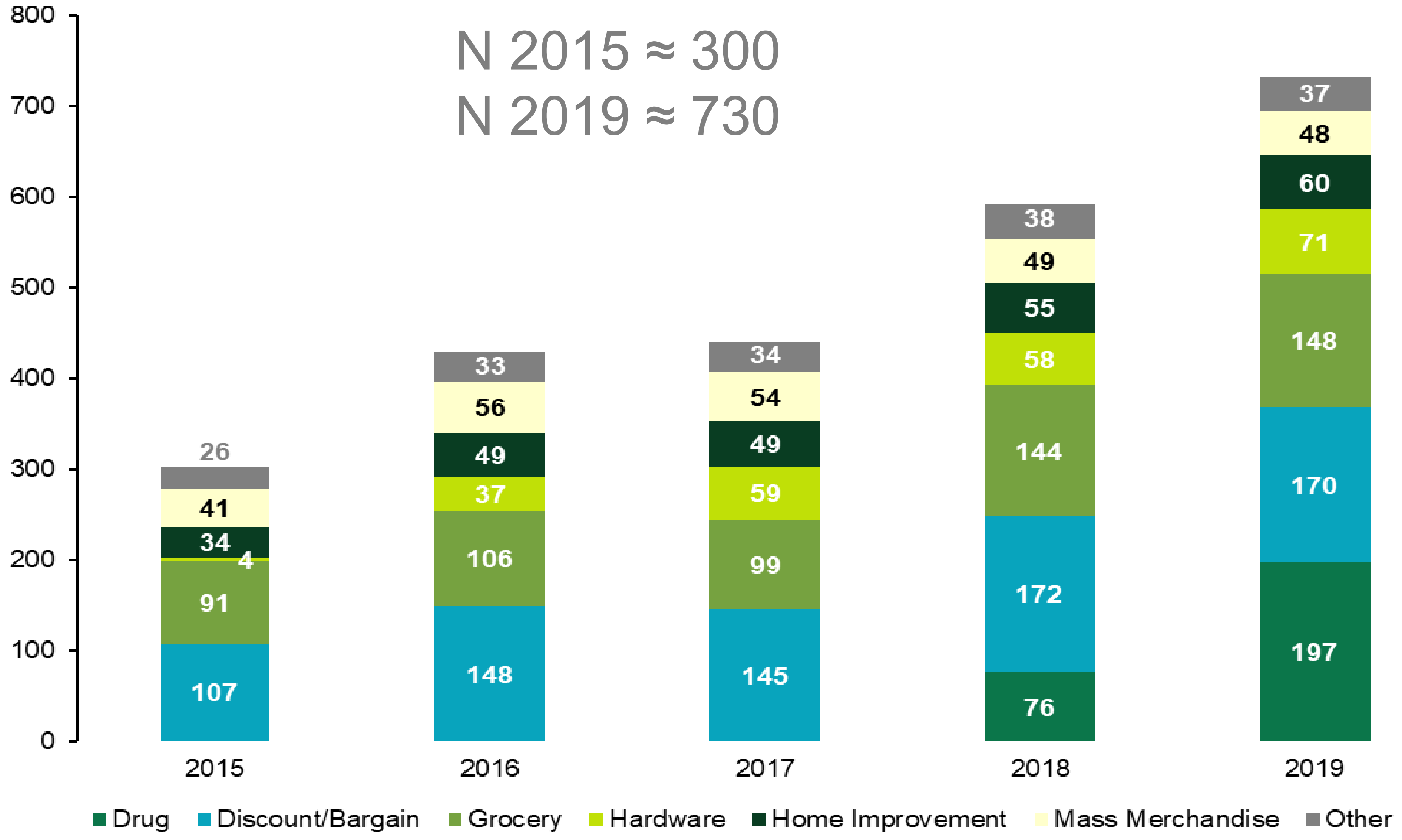


Impact of 2018 Program Activity Reduction

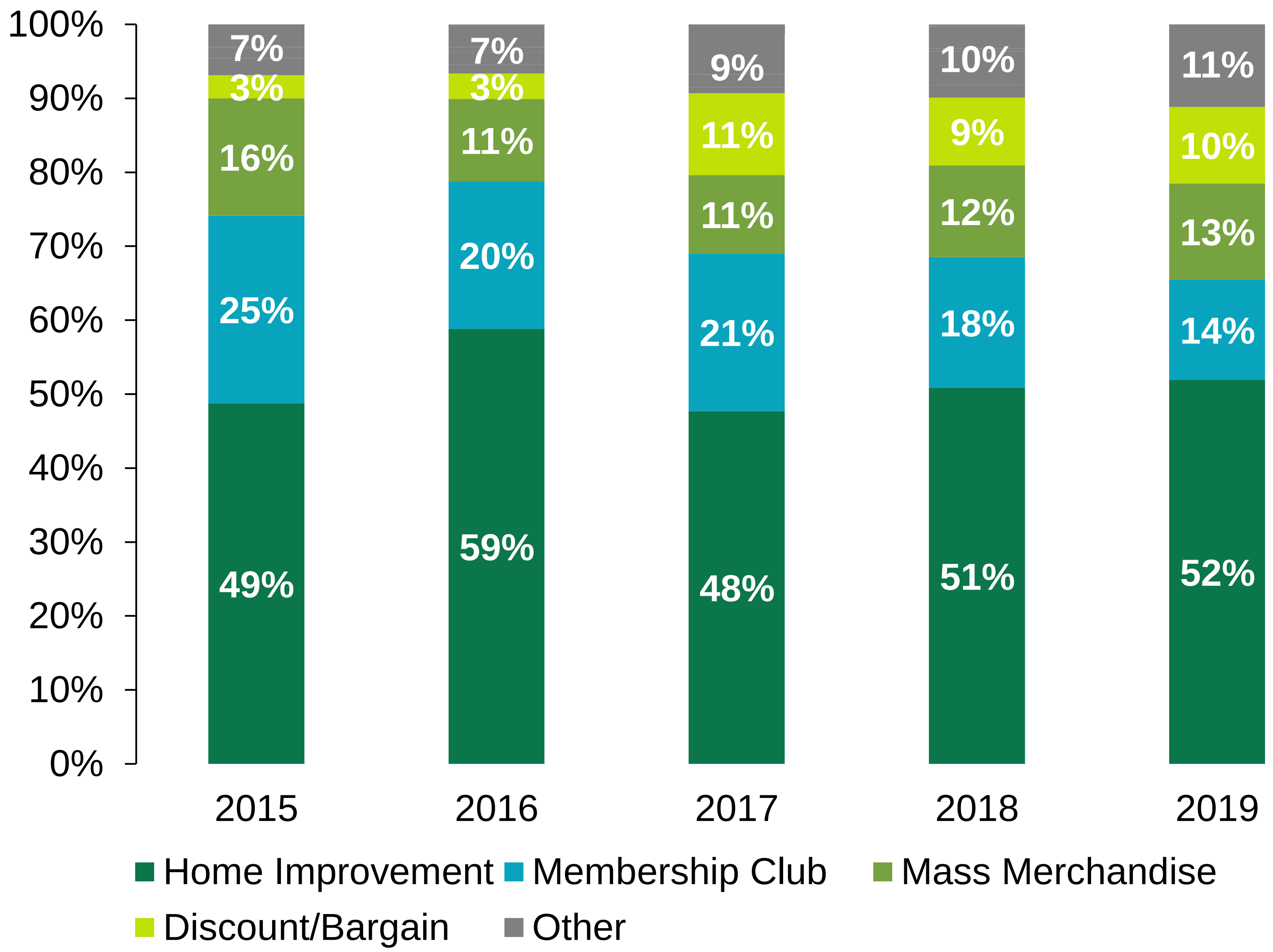


Sales by Channels

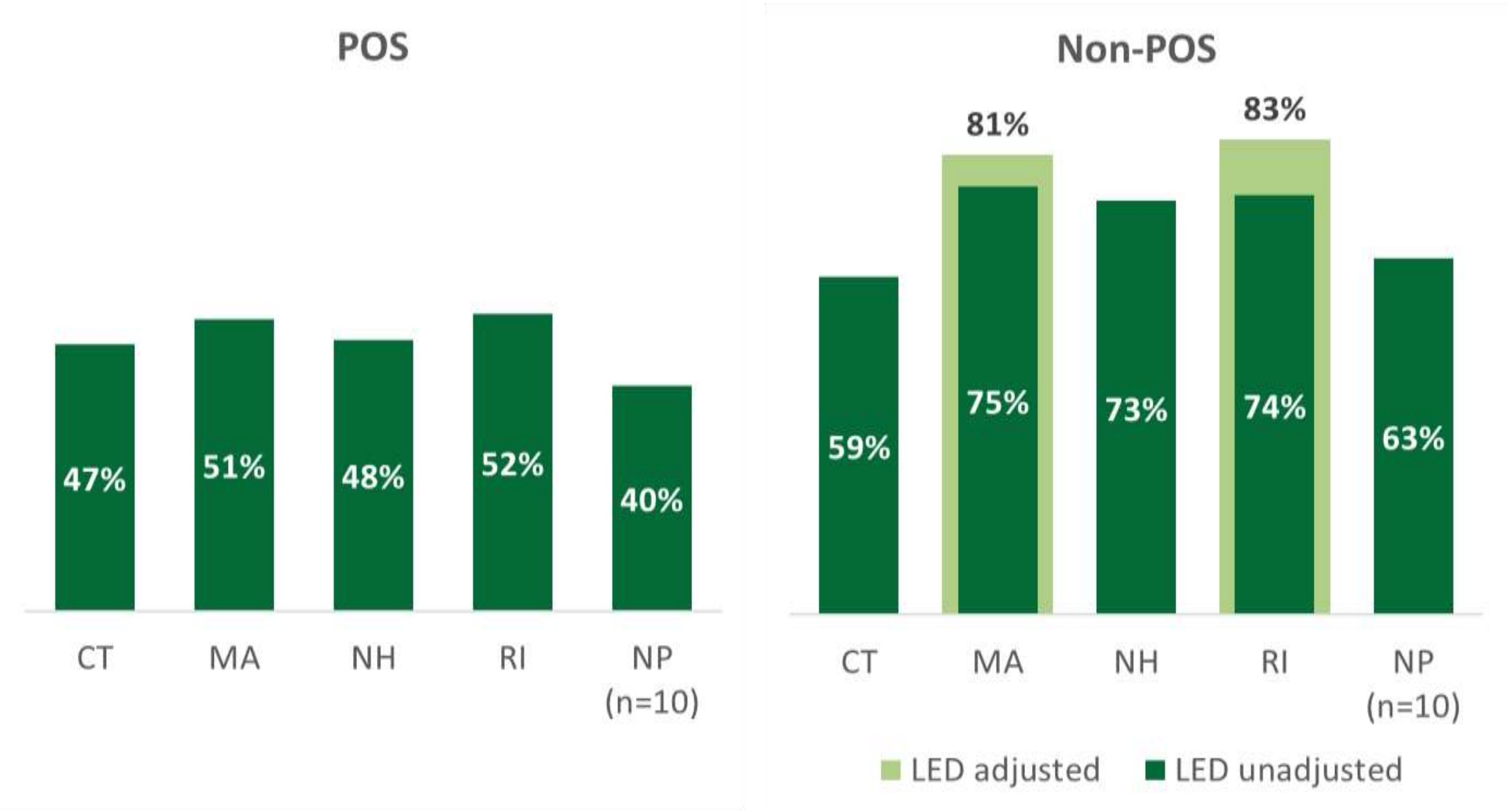
Number of Stores by Retail Channel



Home Improvement Stores Accounted for about Half of CT Program Units in 2017-2019

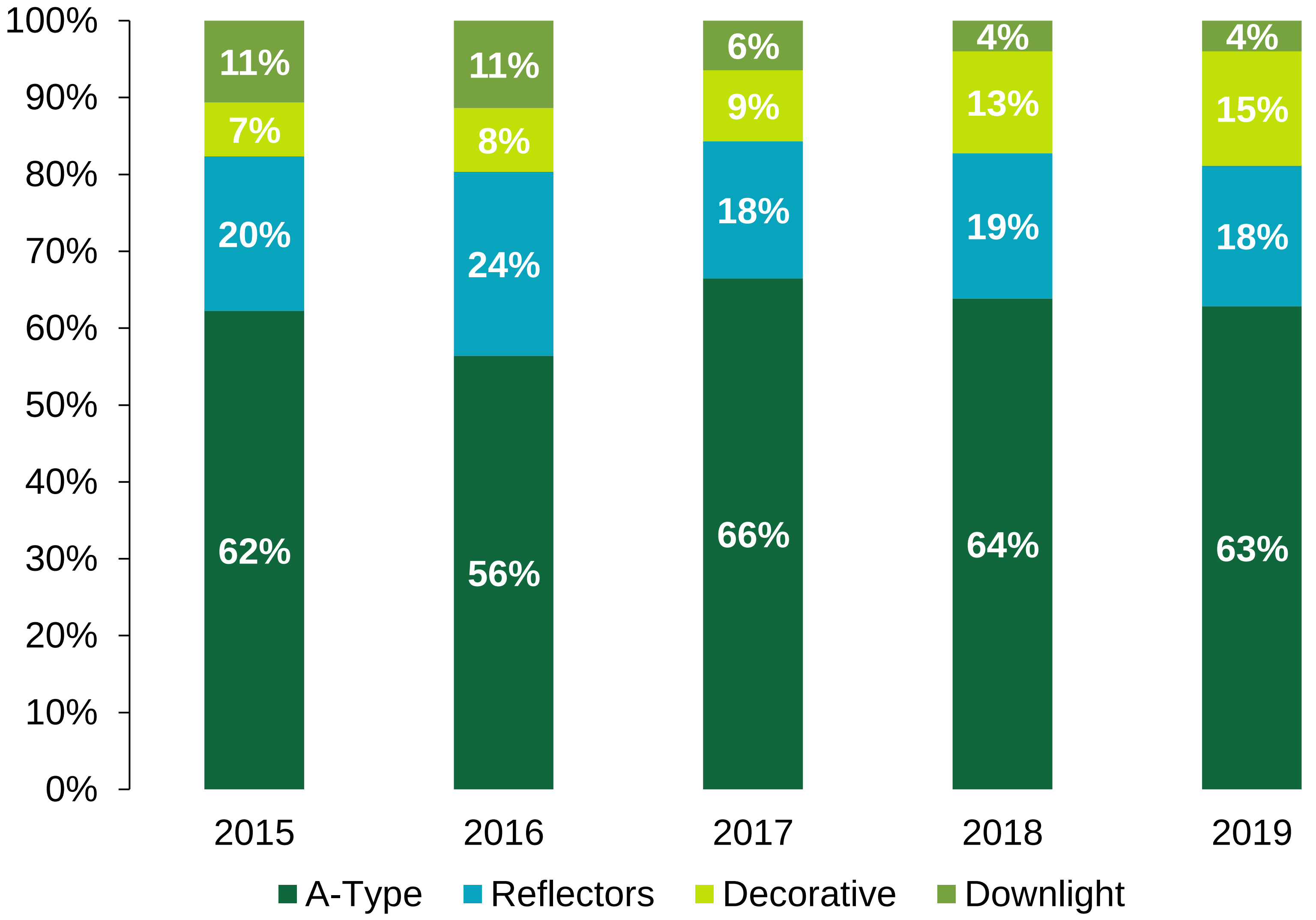


2019 LED Market Shares by POS vs. Non-POS



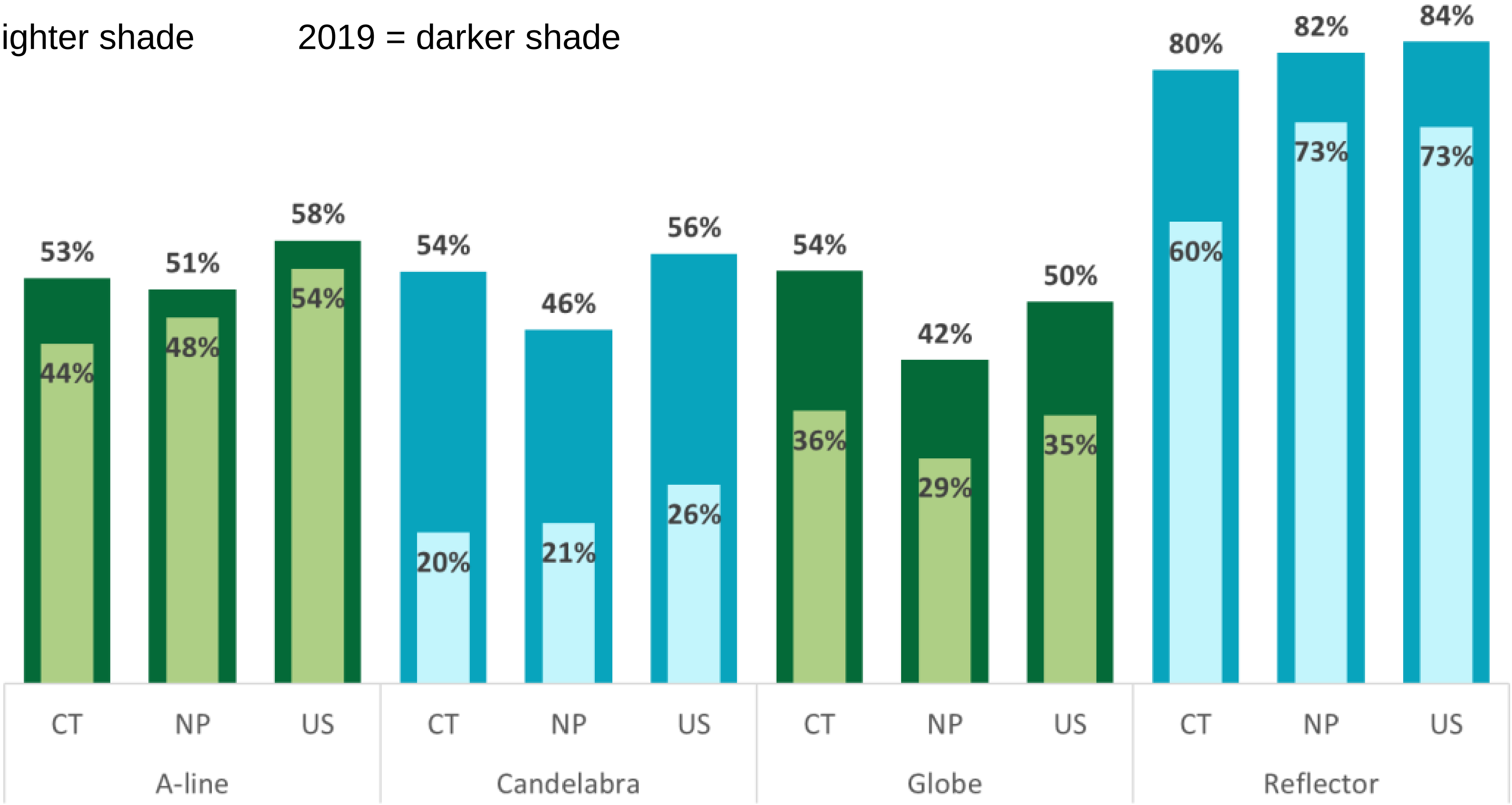
Sales by Bulb Shape

CT LED Program Shares by Shape Have Been Consistent Since 2017



2018 - 2019 LED Market Shares by Shape: All Channels

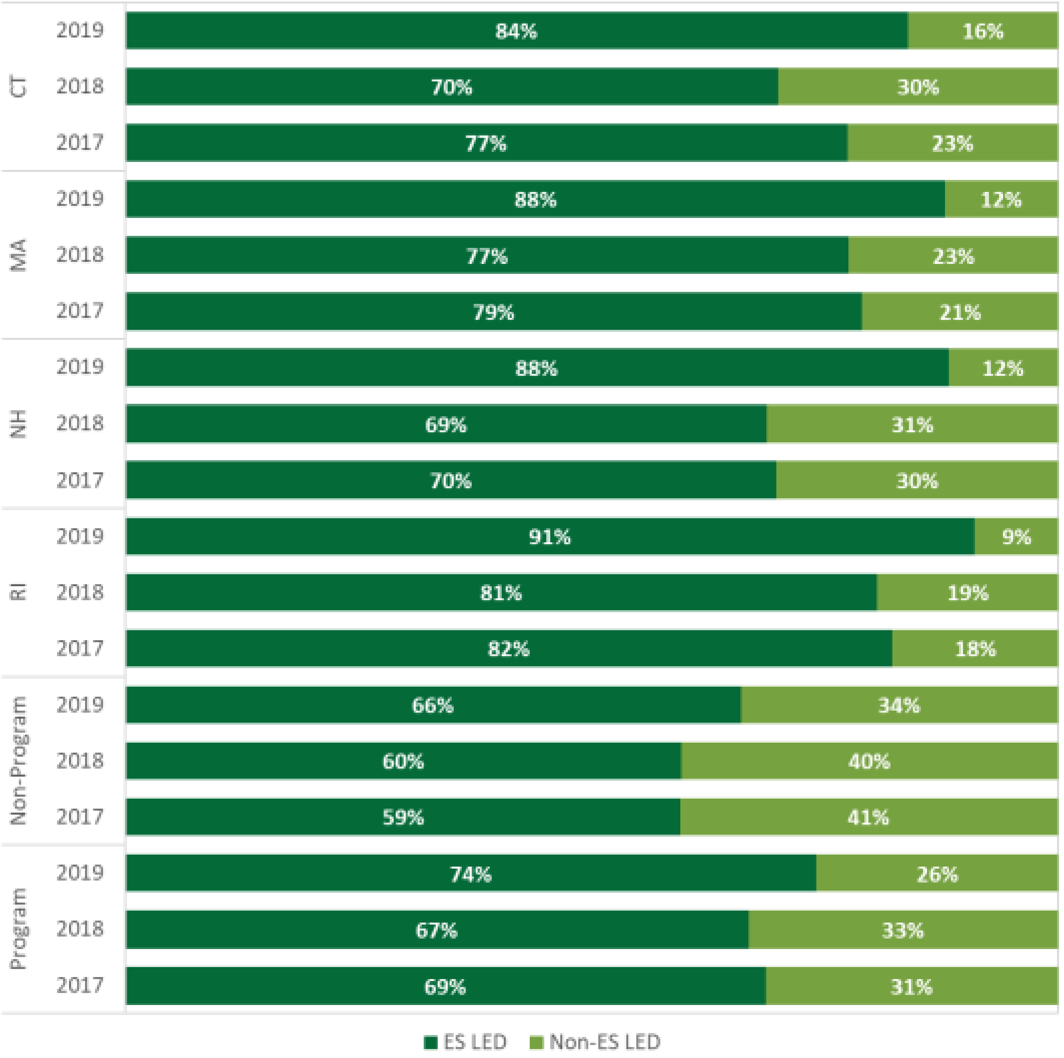
2018 = lighter shade 2019 = darker shade



ENERGY STAR and Lumen Bins

ENERGY STAR LED Market Share – POS only

- Suppliers and implementation contractor:
  - Retailers in program and non-program areas stock similar numbers of LEDs
  - Program areas stock a higher proportion of ENERGY STAR qualified LEDs
  - Sales data confirms supplier opinions



LED Lamp Wattages for CT Program Sales Vary by Bulb Type

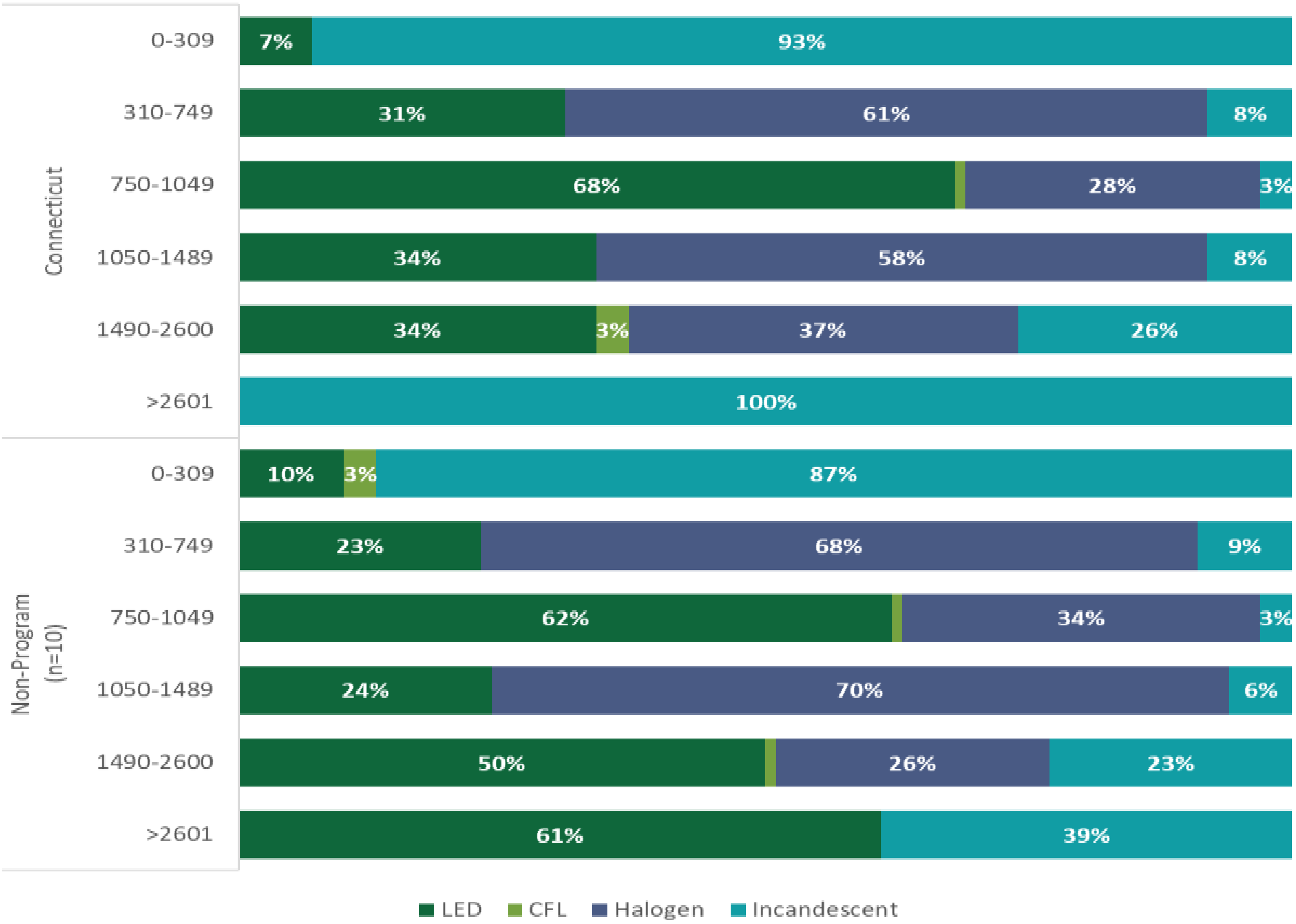
Wattage	Decorative	A-Line	Downlights	Reflectors
Three or Less	9%	0%	0%	0%
3 to 4	44%	0%	1%	1%
4 to 5	25%	4%	0%	0%
5 to 6	20%	6%	0%	1%
6 to 7	2%	6%	2%	9%
7 to 8	0%	13%	1%	10%
8 to 9	0%	36%	49%	19%
9 to 10	0%	18%	29%	24%
10 to 12	0%	4%	16%	15%
12 to 15	0%	7%	2%	17%
Greater than 15	0%	6%	0%	4%

40 WE

60 WE

WE = Incandescent wattage equivalent

2019 A-line LED Market Shares by Lumen Bin – POS only



40 WE

60 WE

75 WE

100 WE

40 WE

60 WE

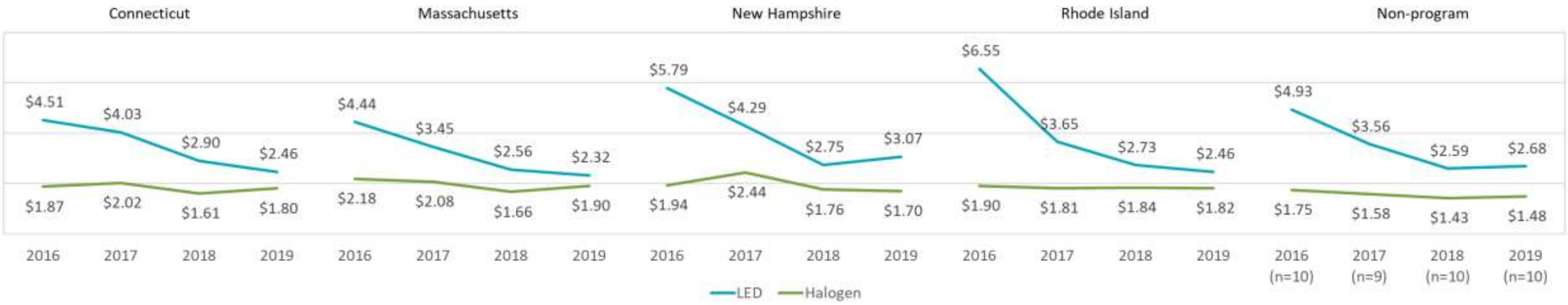
75 WE

100 WE

WE = Incandescent wattage equivalent

Price Trends

LED and Halogen Price Trends - All Channels



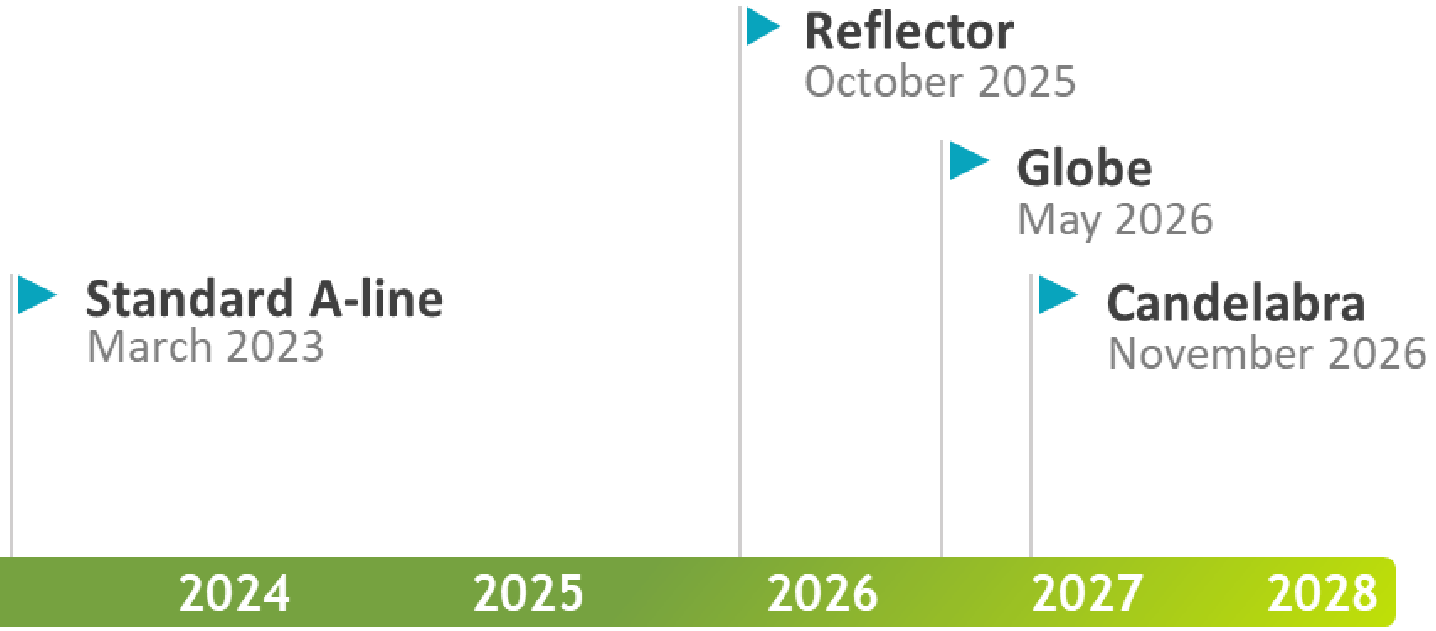
Includes any program incentives and no way to separate out

LED and Halogen Price Trends by Shape – Non-program POS Only

Market Dominance

Supplier Predictions of Year of LED Market Dominance

- Market share most common definition of dominance
  - Threshold ranged from 50% to 90%, with the average response of 62%
  - CT reflector sales well beyond this; others approaching
- Other definitions:
  - Consumer LED recognition, preference
  - Holds majority shelf space
  - Socket penetration threshold
  - Price parity (or close to it)



Thank you

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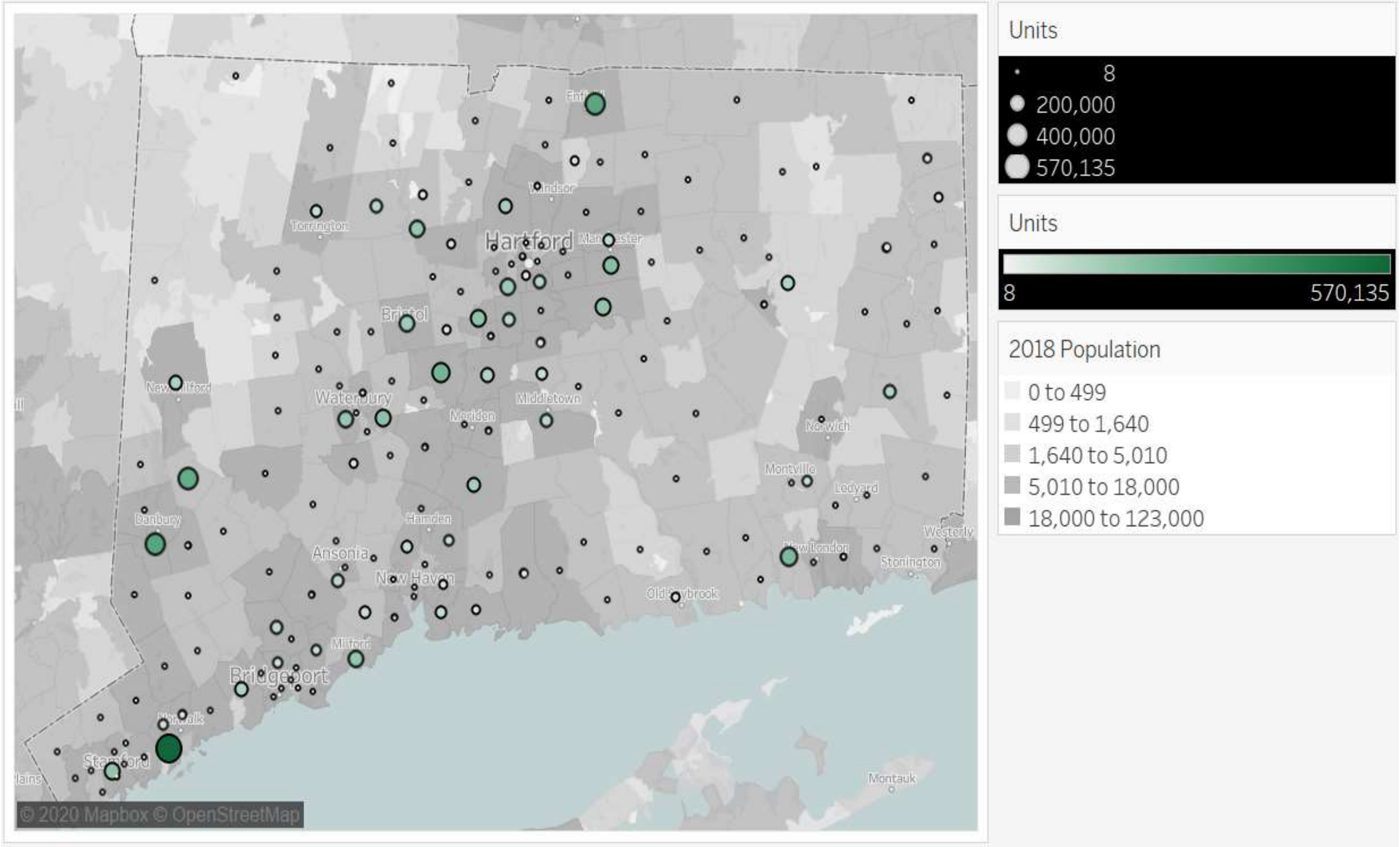
Study Obstacles

- Suppliers provided limited info on market share, transformation timeline, market exit
- Delays entering field and challenges in securing Wave 1 IDIs = no Wave 2 IDIs
- Did not get lumen data from the Companies so relied on wattage in the program tracking analysis

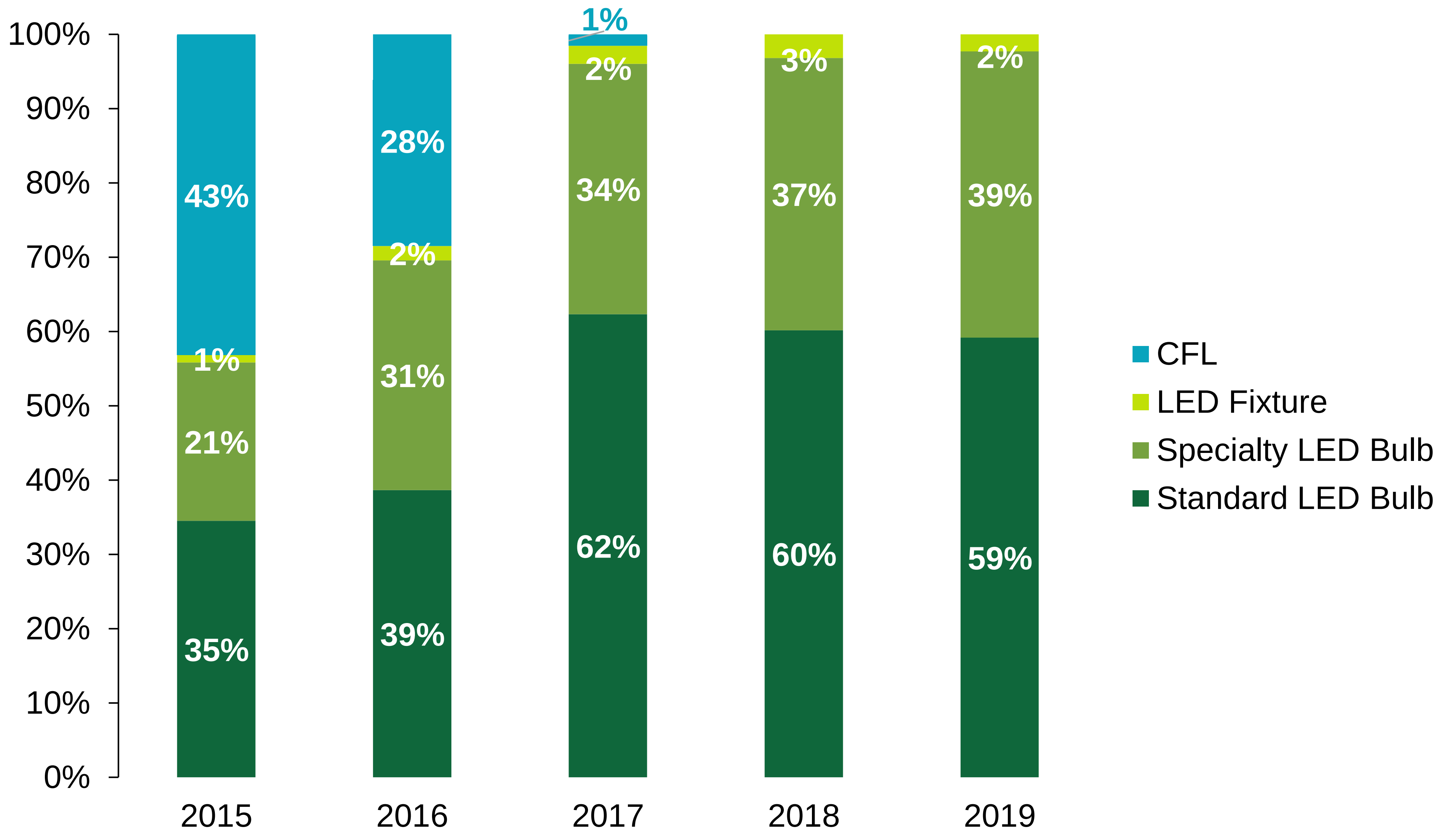
UI and Eversource Data Used in Analysis

Data Source	Time Addressed	Annual Average Number of Units Sold
United Illuminating Product Markdowns	2016-2019	885,000
Eversource Product Markdowns	2015-Sept. 2019	3,578,000
Eversource Product Coupons	2015-2018	2,000

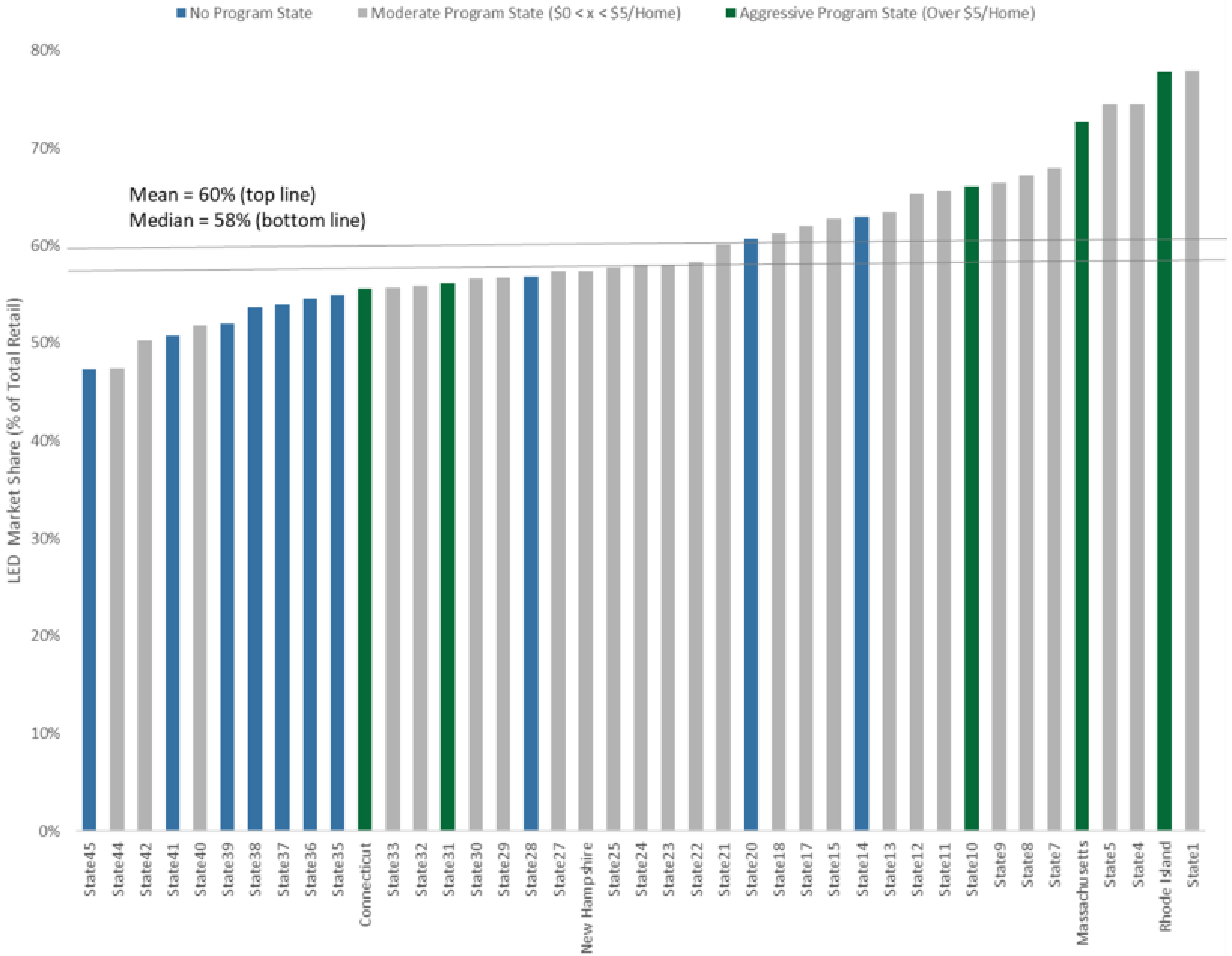
Programs have Reached Most of CT



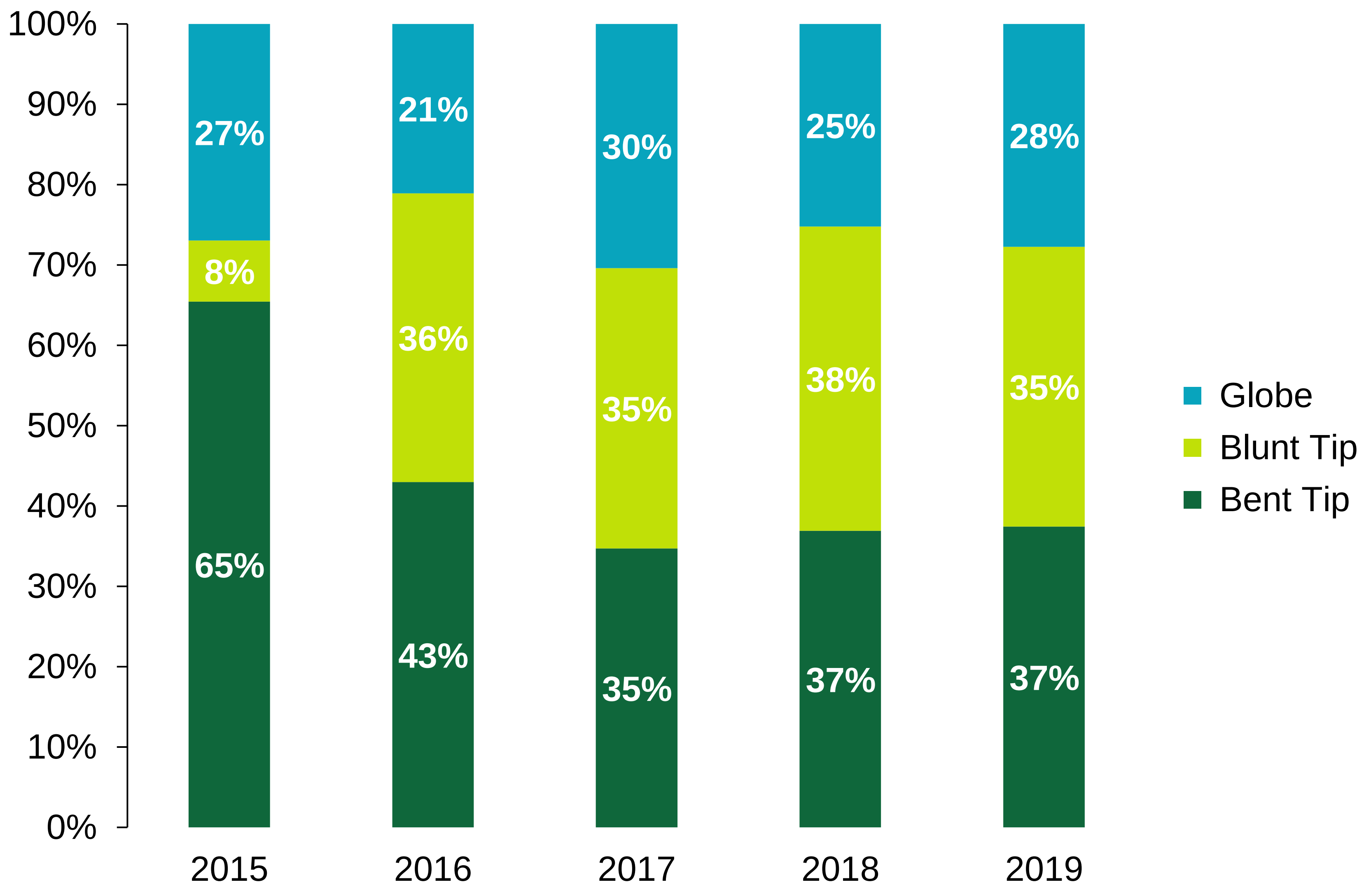
Standard LEDs and Specialty LEDs Dominate CT Program Share



State-level Market Share by Program Spending



Bent-Tip, Blunt-Tip, and Globe Decorative LEDs have Similar CT Program Shares



Supplier Predictions of Market Share
n = 10 CT, 11 Non-program