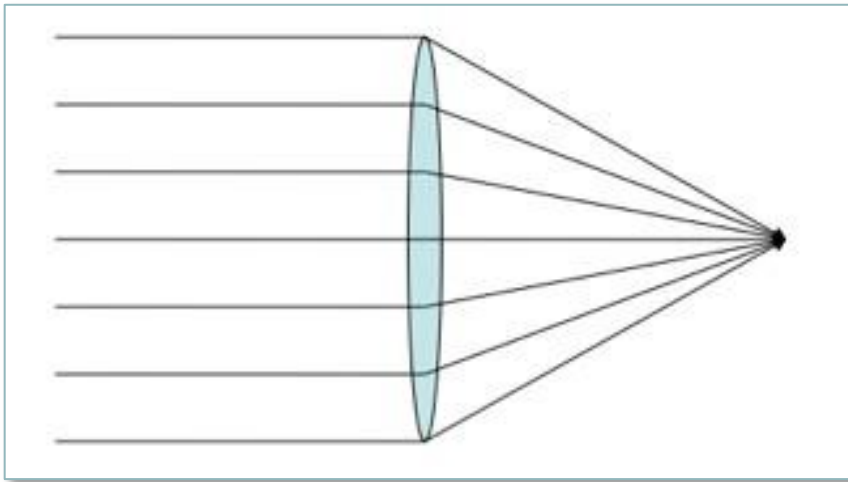


Focusing Some Light on Two Specific Issues for Cost Effectiveness Testing

IEPEC 2015, Long Beach, CA
Seth Craigo-Snell, Ph.D.

Presentation Outline

- Introduction
- Incremental Measure Costs
- Free-Rider Incentive Payments



“... the difference between the cost of an energy efficient measure and the cost of a baseline measure that provides comparable service ...”

Sherman and Rouleau, 2014 “Hunting the Wild Incremental Cost”, AESP National Conference

Purchase Price Incremental Cost



EC Halogen

\$1.25 per bulb



CFL

\$2.45 per bulb

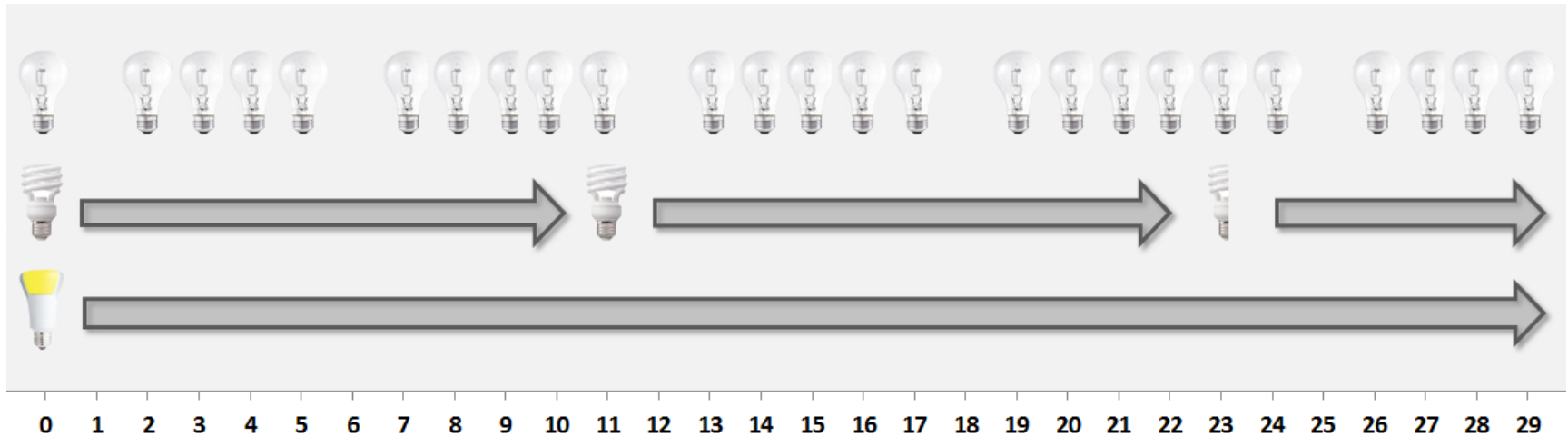


LED

\$6.92 per bulb

Unit Purchase Price Incremental Cost	\$1.20	\$5.67
Total Program Costs	1,000,000 CFLs \$1.2M	200,000 LEDs \$1.134M

Lighting Purchases by Technology

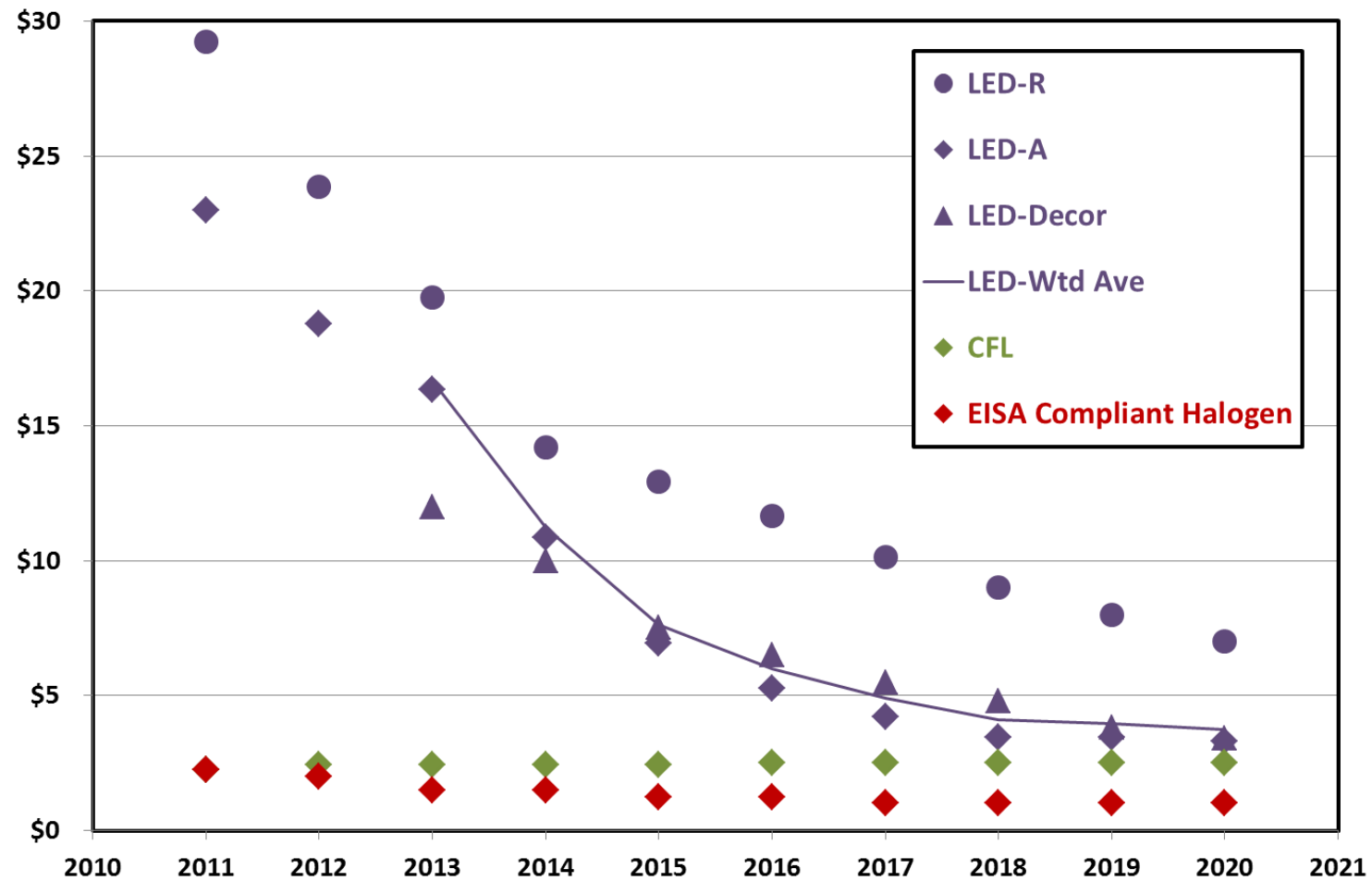


	LED	CFL	Halogen
Initial Purchase	\$6.92	\$2.45	\$ 1.25
Total	\$6.92	\$6.13	\$24.78
NPV (@5%)	\$6.59	\$4.08	\$12.67
Incremental Cost	-\$6.08	-\$5.21	

Refining the Cost Comparison

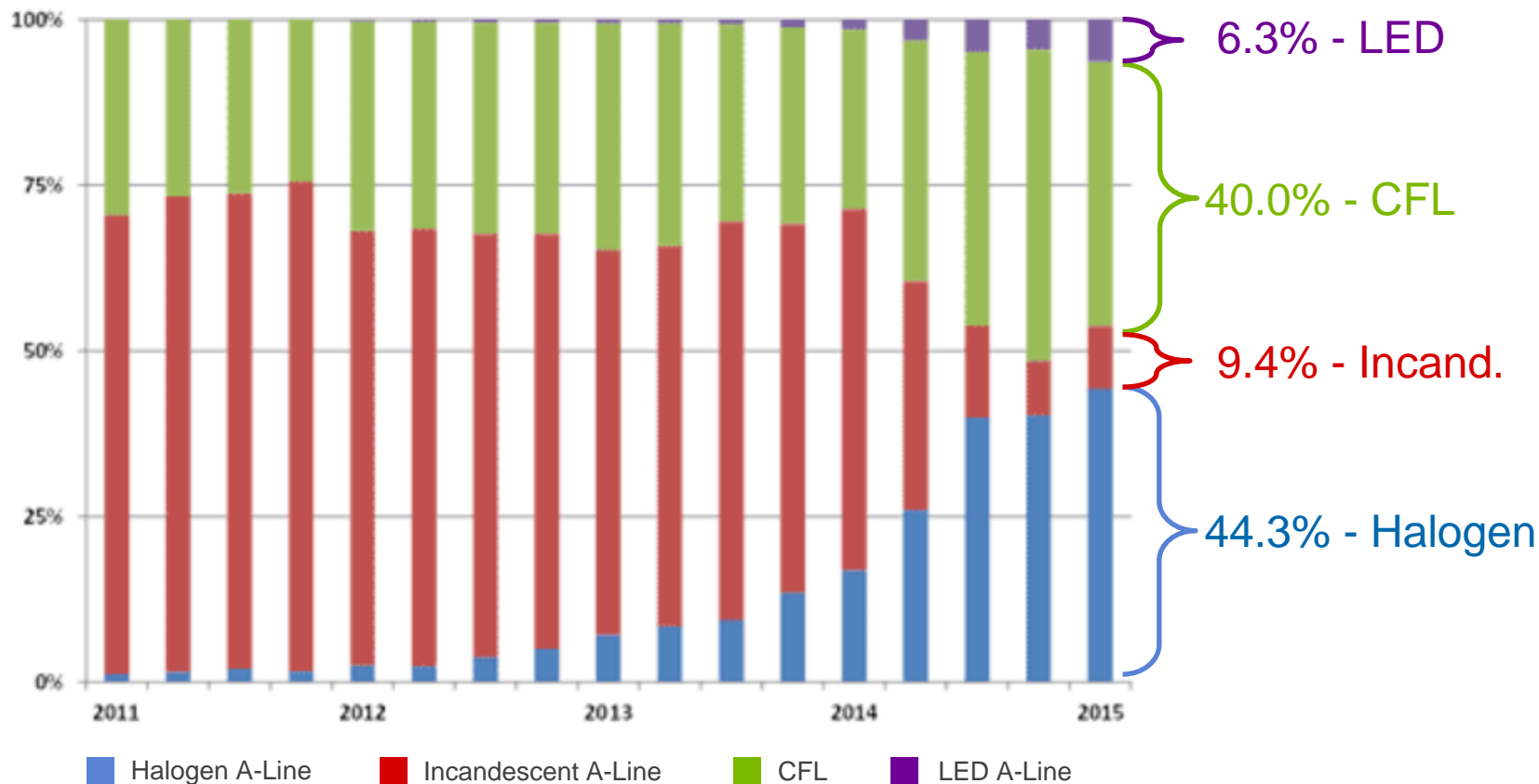
- Retail Price Forecasts
- Baseline Considerations
 - EISA 2020 Backstop Provision? ← Not Likely
 - Implies: Baseline EISA Compliant Halogen Bulbs Remain Available
- What Will Baseline Customers Buy?
 - Halogen to CFL; Halogen to LED
 - When?
 - Individual vs. Program

Retail Price Forecasts



Source: Personal Communication, Stan Mertz, Director of Retail Strategy, based on industry estimates, May 26, 2015.

What Will Consumers Buy?



Source: NEMA (2015). <http://www.nema.org/news/Pages/First-Quarter-Proves-to-be-a-Mixed-Bag-for-Consumer-Lamp-Indexes.aspx>, May 28, 2015.

Refined Incremental Costs

Replacement Schedule	NPV of Initial LED Purchase	NPV of Replacements	Incremental Cost
Year 1:Halogen; Year 2: LED	\$6.59	\$5.76	\$0.83
Years 1-2:Halogen; Year 3: LED	\$6.59	\$5.84	\$0.75
Years 1-3:Halogen; Year 4: LED	\$6.59	\$4.78	\$1.81 ←
Years 1-4:Halogen; Year 5: LED	\$6.59	\$5.43	\$1.16
Years 1-5:Halogen; Year 6: LED	\$6.59	\$5.91	\$0.68
Years 1-6:Halogen; Year 7: LED	\$6.59	\$6.44	\$0.15
Years 1-7:Halogen; Year 8: LED	\$6.59	\$6.35	\$0.24
Years 1-8:Halogen; Year 9: LED	\$6.59	\$6.84	-\$0.25
Years 1-9:Halogen; Year 10: LED	\$6.59	\$7.30	-\$0.71

Negative Incremental Costs

- They represent a benefit
- If they ARE NOT larger than the program costs (in absolute terms), nothing need be done.
- If they ARE large enough to offset program costs ...
 - Allow them to offset all but the smallest amount of costs → *very* HIGH B/C ratios
 - All them to offset only a portion of the program incentives

“ ... freeridership refers to program participants who presumably would have conserved regardless of the program.”

Haeri & Khawaja, 2012, “The Trouble With Freeriders”, Public Utilities Fortnightly.

Free-Rider Incentive Payments

- Accounting Varies by Test and Jurisdiction
- Program Administrator Cost Tests Count them as a cost.
- Total Resource Cost Tests, it varies...
 - e.g.: Illinois, Wisconsin, and Massachusetts DO NOT count them as a cost
 - e.g.: California DOES

Free-Rider Incentive Payments

- They Are a Direct Benefit to the Free-Rider
 - Can be Sizeable on the Program Level – A Typical Upstream Program: \approx \$390k out of \$1.2M Incentive Budget.
 - Actually a Transfer Payment from Ratepayers to Program Participants.
 - The money tends to stay within the service territory
- These Payments Should NOT be included in a TRC Test.

Seth Craig-Snell, Ph.D.
Director of Research, Consumer
Products

seth.craig-snell@clearesult.com

502.290.9136

Thank you