Northeast Energy Efficiency Partnerships

NEEP Residential Lighting Workshop

Highlighting Opportunities of the NE Residential Lighting Strategy to Achieve High Efficiency Lighting Solutions

June 13, 2012

Hilton Stamford Hotel—Stamford, CT

Facilitated by Linda Malik, Residential Program Manager, NEEP

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

"Accelerating Energy Efficiency"

MISSION

Accelerate the efficient use of energy in the Northeast and Mid-Atlantic Regions

APPROACH

Overcome barriers to efficiency through

Collaboration, Education & Advocacy

VISION

Transform the way we think about and use energy in the world around us.

MAKE EFFICIENCY HAPPEN - **ACTION PLAN**

COLLABORATE

Bring together a very fragmented group of people, industries, interests, and issues.

EDUCATE

Raise Awareness & Share Learning with Business, Consumers, Communities, and The Media

ADVOCATE

Connect Policy Makers with Information to make informed decisions

HIGH EFFICIENCY RESIDENTIAL LIGHTING PRODUCTS – WHERE ARE WE IN 2012?

NEEP Residential Lighting Workshop
Stamford, Connecticut

June13, 2012

ENERGY FUTURES GROUP

Glenn Reed, Energy Futures Group

Panel Presenters

- **Cheryl Ford – Osram Sylvania**
- **Scott Kessler – NYSERDA**
- **Taylor Jantz-Sell – EPA**
- **Glenn Reed – Energy Futures Group**

What's Changed in the Past Year?

What's Changed in the Past Year?

- EISA standards have begun "to kick in"
- EISA halogens widely available in all lumen categories
- Increased LED availability
- Decreasing LED prices
- CFL prices flat and/or rising

What's Changed in the Past Year? (cont.)

- FTC *Lighting Facts* label
- L Prize A-lamp winner and PAR lamp competition
- ENERGY STAR Lamp specification
- Industry and Program Administrator (PA) efforts to educate consumers on EISA and proper product choice

Residential Lighting Technology Shift from a Manufacturer's Perspective

Cheryl Ford, LC
June 13, 2012

OSRAM SYLVANIA

Topics

- Impacts on Residential Lighting Technology Shift
- Medium Screw Base Socket Penetration Revisited
- Latest Incandescent Product Replacements

Impacts on Residential Lighting

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Impacts on Residential Lighting
How does this impact Lighting Efficiency Programs?

Impacts on Technology Shift

- **Legislation**
  - EISA
  - DOE IRL Rule Making
  - IECC 2012
- **Performance**
  - FTC Labeling
  - Energy Star Certification
  - DOE Caliper Testing
- **Incentives – Why buy?**
  - Utility Rates & Rebates
  - Education...Education...Education

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Impacts on Residential Lighting
4th Annual SYLVANIA Socket Survey – Fall 2011

Overview of Survey Results

- **More Americans are now aware of the incandescent light bulb phase-out**
  - 55% Vs. 36% previous year
- **Americans are embracing new lighting choices**
  - CFL 68%
  - LED 13%... Christmas lights?
  - Made in America important 78%
- **Most consumers are optimistic about the lighting transition to more efficient technologies - 56%**
  - Concerned with phase out 24%
  - 100W elimination/Switch to new technology 53%
  - 100W elimination/Switch to lower wattage 30%

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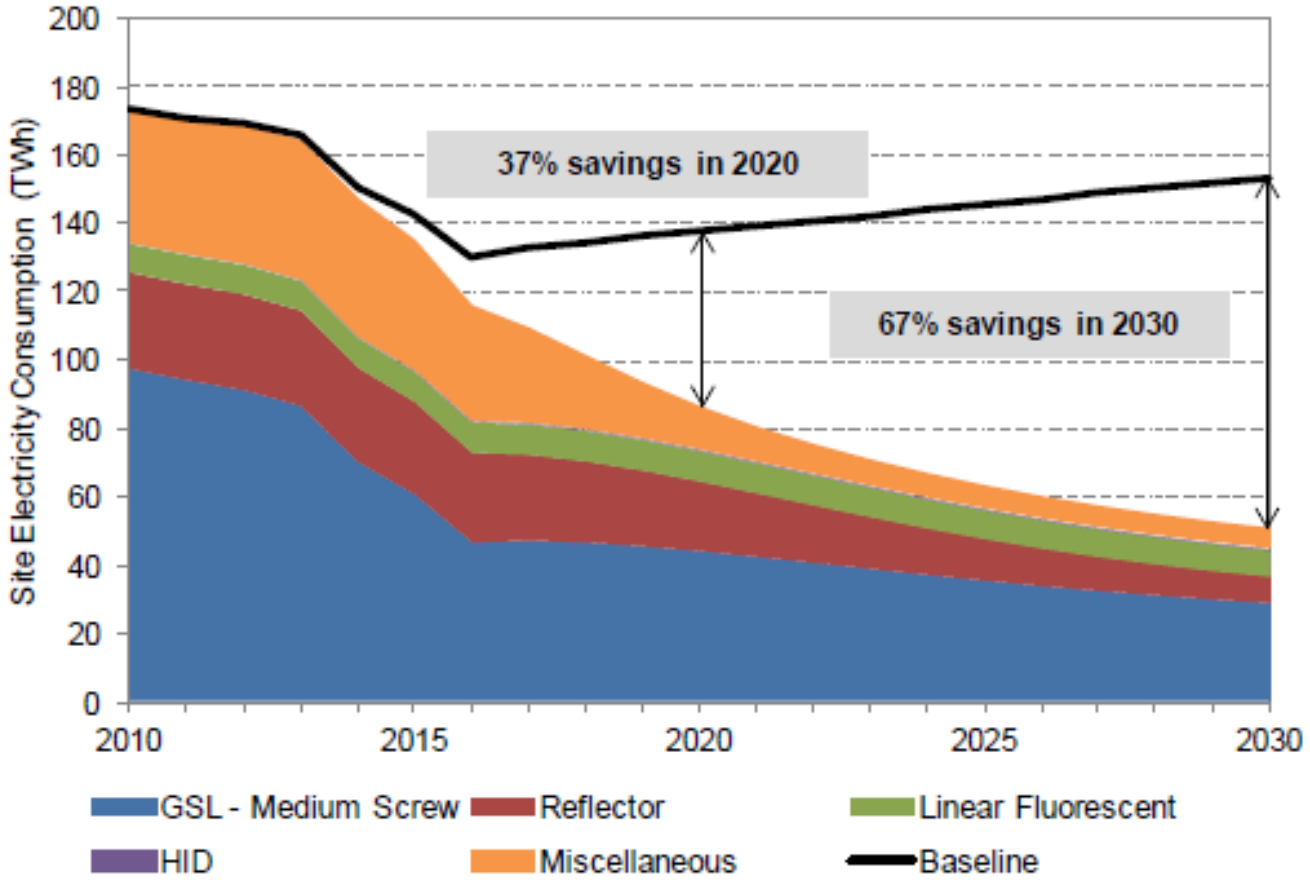
Impacts on Residential Lighting
How does this impact Lighting Efficiency Programs?

Residential Lighting Energy Consumption Forecast



Removal of Technology Barriers

- Cost
- Efficiency improvements
- Color quality
- Dimming

Source: DOE - US Energy Savings Potential of SSL in General Lighting Applications , January 2012

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Medium Screw Base Socket Penetration Revisited

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Residential Medium Screw Base Socket Model– Installed Base

41 Sockets Per Household
(4.8B Sockets / 117M HH)

Table 4.1 Estimated Inventory of Lamps in the U.S. by End-Use Sector in 2010

	Residential	Commercial	Industrial	Outdoor	All Sectors
Incandescent	**3,602,809,000**	**77,597,000**	**402,000**	**17,814,000**	**3,698,622,000**
General Service - A-type	2,028,184,000	42,930,000	387,000		2,071,501,000
General Service - Decorative	980,054,000				980,054,000
Reflector	433,929,000	19,421,000	15,000		453,365,000
Miscellaneous	160,642,000	15,246,000		17,814,000	193,702,000
Halogen	**256,990,000**	**47,596,000**	**71,000**	**4,021,000**	**308,678,000**
General Service	26,785,000	969,000	3,000		27,757,000
Reflector	168,876,000	19,499,000	63,000		188,438,000
Low Voltage Display	19,348,000	25,644,000			44,992,000
Miscellaneous	41,981,000	1,484,000	5,000	4,021,000	47,491,000
Compact Fluorescent	**1,322,525,000**	**216,183,000**	**406,000**	**12,053,000**	**1,551,167,000**
General Service - Screw	1,121,452,000	40,498,000	91,000		1,162,041,000
General Service - Pin	5,386,000	136,207,000	201,000		141,794,000
Reflector	114,754,000	39,478,000	114,000		154,346,000
Miscellaneous	80,933,000			12,053,000	92,986,000
Linear Fluorescent	**572,897,000**	**1,654,753,000**	**128,625,000**	**29,124,000**	**2,385,399,000**
High Intensity Discharge	**1,434,000**	**34,851,000**	**14,155,000**	**93,087,000**	**143,527,000**
Other	**55,114,000**	**38,326,000**	**592,000**	**22,275,000**	**116,307,000**
LED	9,175,000	38,029,000	592,000	19,219,000	67,015,000
Miscellaneous	45,939,000	297,000		3,056,000	49,292,000
TOTAL	**5,811,769,000**	**2,069,306,000**	**144,251,000**	**178,374,000**	**8,203,700,000**

Source: DOE – 2010 US Lighting Market Characterization January 2012

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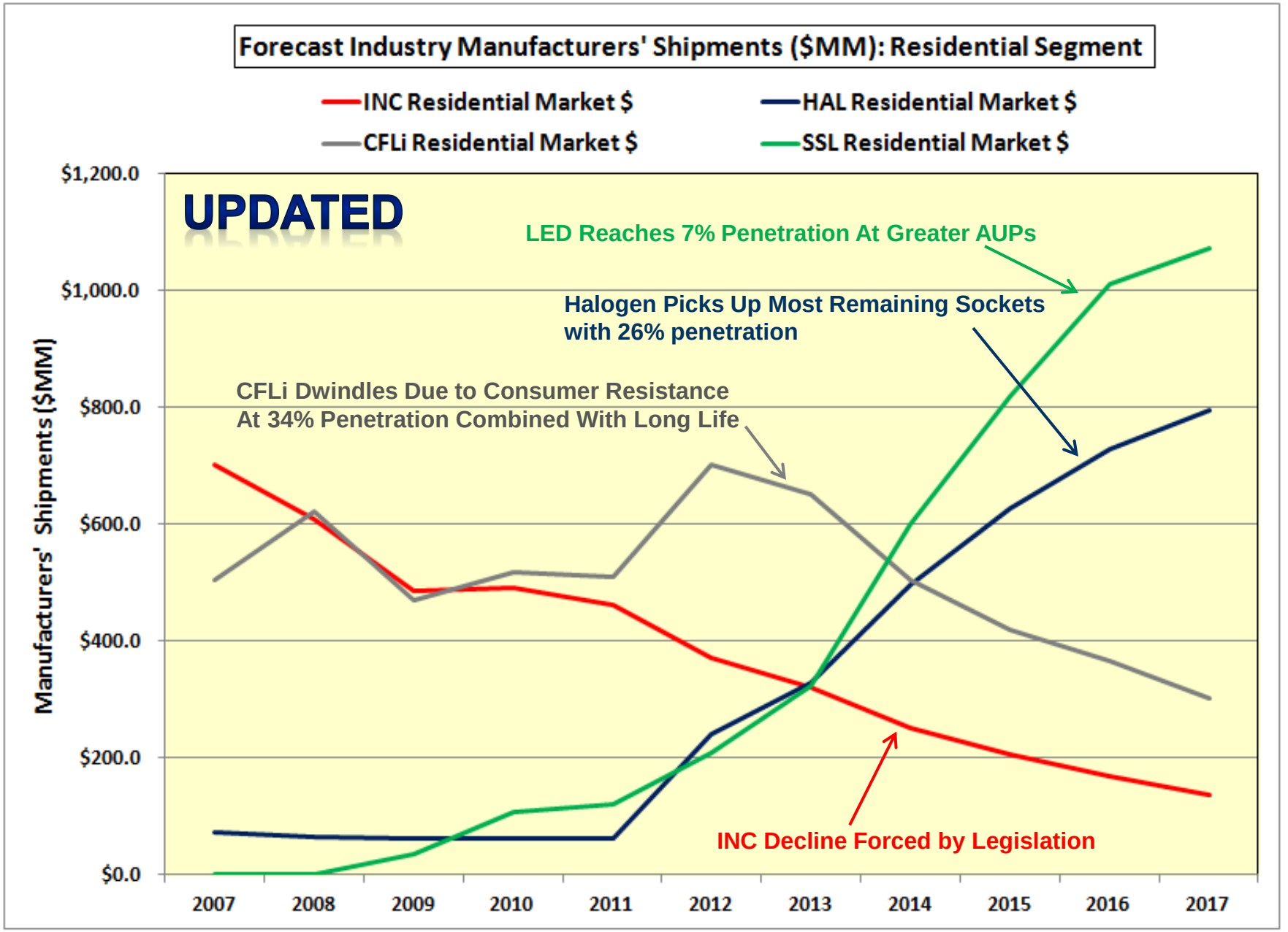

Source: NEMA & OSI Estimates

Residential Lighting
Medium Screw Base Socket Model Revisited

Bedroom

Kitchen

Living

Bathroom

Dining

Basement & Attic

*41 Sockets**

2017 Socket Penetration

Incandescent
33% penetration
13 sockets

Halogen
26% penetration
11 sockets

CFL
34% penetration
14 sockets

LEDr
7% penetration
3 sockets

Total US

4.8B Sockets Increasing To ***5.1B***

Source: NEMA & OSI Estimates

* Average number of estimated MSB sockets per DOE model

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Latest Incandescent & Halogen Product Replacements

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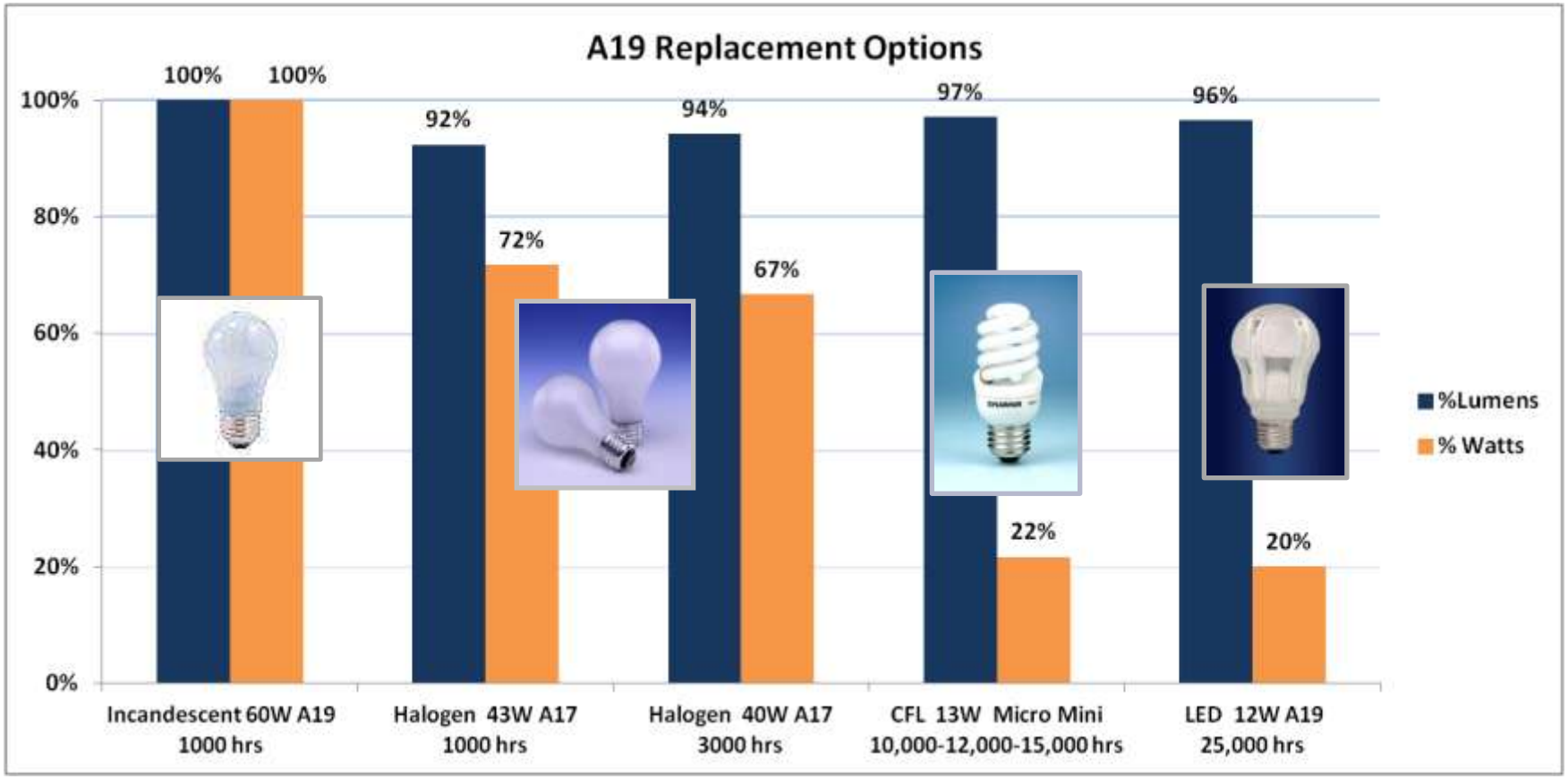
Incandescent A-Lamp Replacements



LED Incandescent 40W, 60W, 75W & 100W equivalents available

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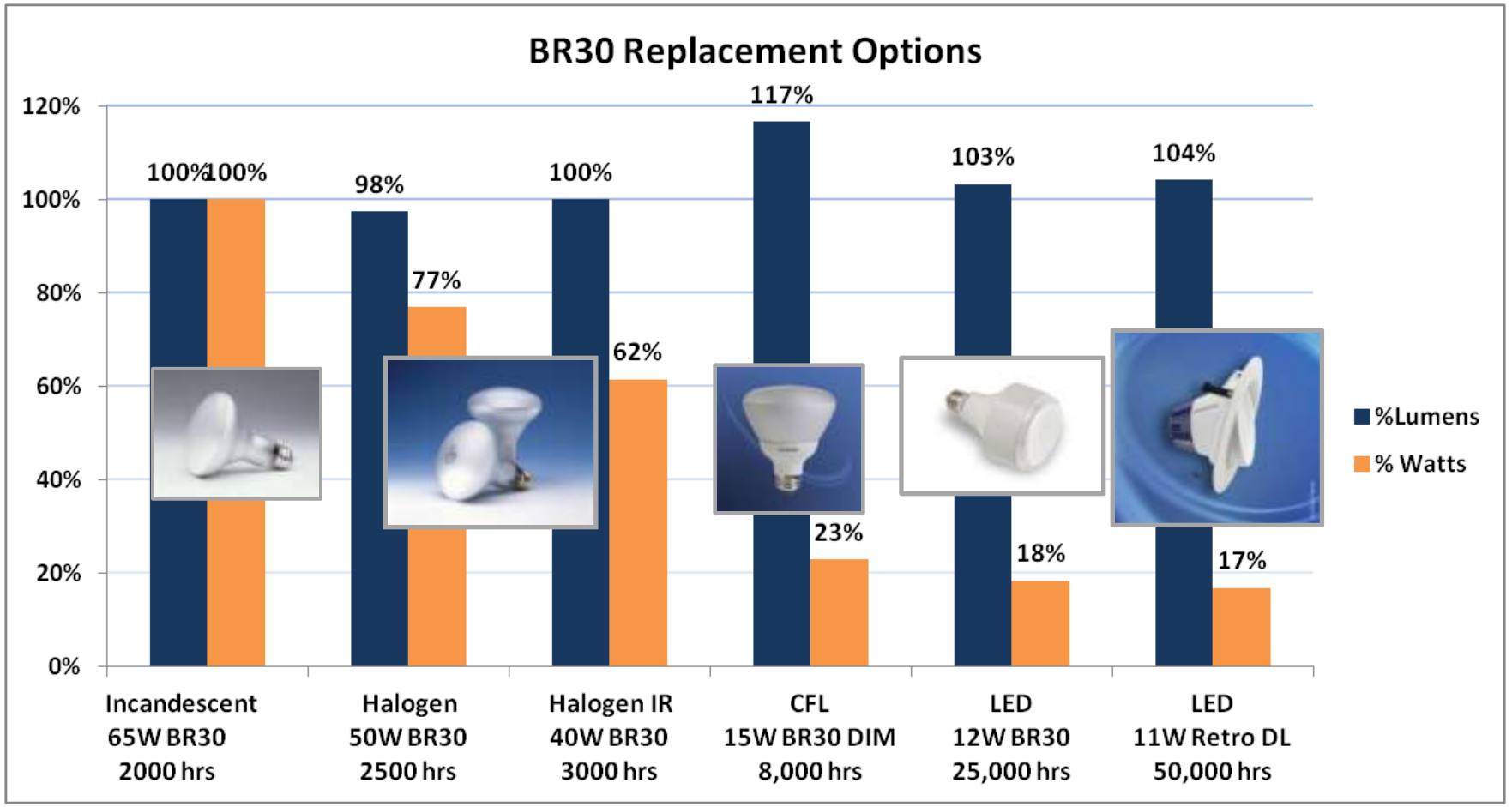
Incandescent BR30 Replacements



LED Incandescent 50WR20, 65WBR30 & 65WBR40 equivalents available

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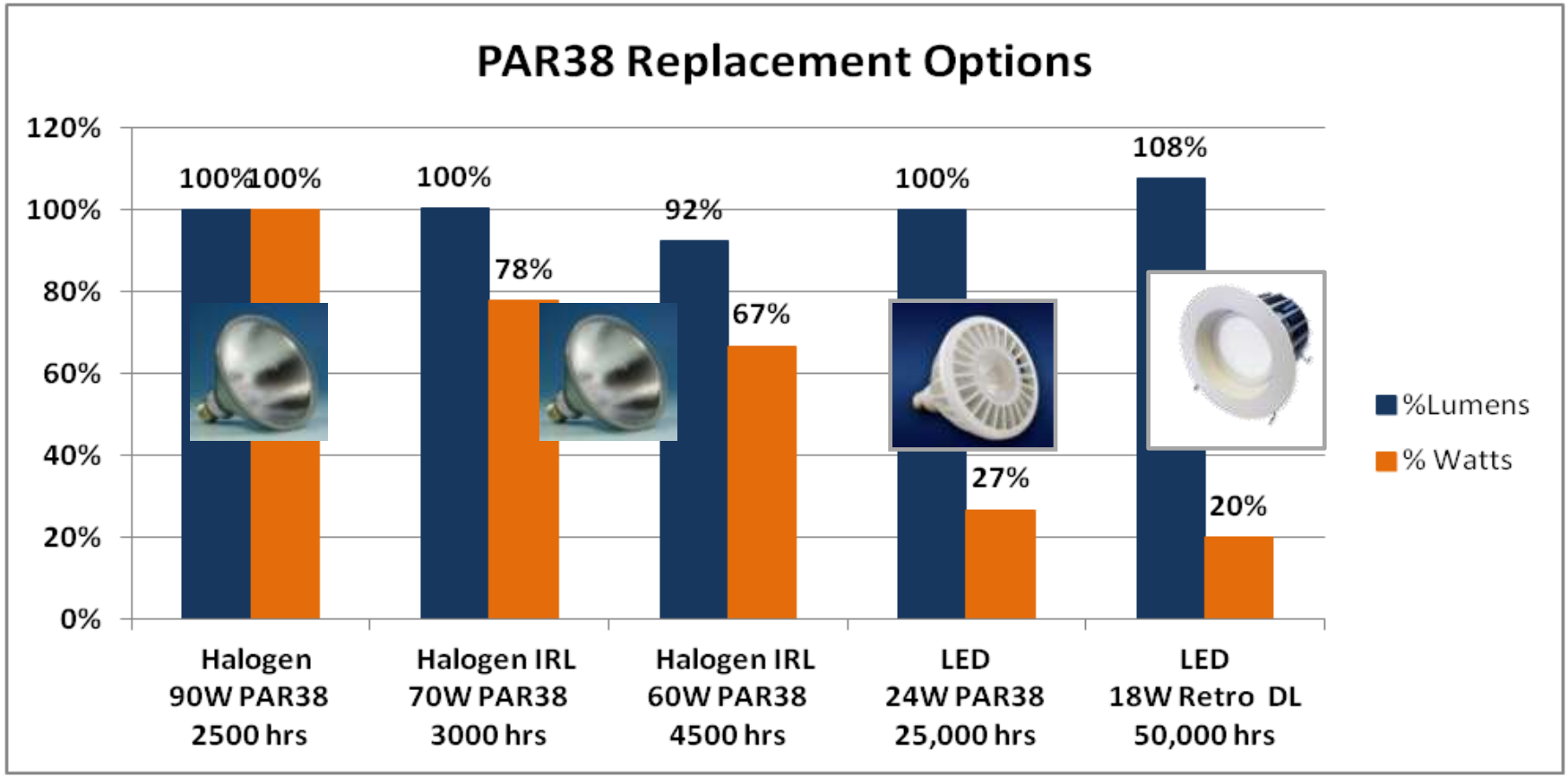
Halogen PAR Replacement Options



LED PAR20, PAR30, PARLN &PAR38 lamps available in a variety of wattages & beam angles)

Note: Hard Glass CFL 23W PAR38 available – 75W Halogen equivalent

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Thank You

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ENERGY STAR® Lighting Updates

NEEP Residential Lighting Workshop

June 13, 2012

ENERGY STAR Overview

- Luminaire V1.1 Specification Update
- Update on Lamps Specification development
- Qualified Products Lists
- Verification Testing Update
- Update on Lamp Pricing Trends

Luminaire Specification Update

- **Became effective on April 1, 2012**
  - ALL luminaires had to be re-qualified to new specification via 3rd-party certification process
    - There have been some delays in fixtures being listed on QPLS.
    - Contact Kirsten Murray to verify at kirsten.murray@icfi.com
  - No Grandfathering of luminaires
    - Manufacturers and retailers may continue to sell previously qualified and labeled product until stock is gone
  - QPL shrank but is growing!

Visit: www.energystar.gov/lightfixtures

Update on Lamps Specification

- Combining CFL and ILL specifications into one technology neutral lamp specification
- Multiple draft process with heavy reliance on stakeholders
- Draft 2 to be released soon
- Comment period to follow
  - Submit comments to lamps@energystar.gov

EPA

Visit: www.energystar.gov/testingandverification

Qualified Products Lists (QPLs)

- Two combined QPLs
  - Luminaires – combined CFL and LED lamps
    - Updated twice a month (beginning and mid-month)
  - Lamps – combined SSL and CFL fixtures
    - Update weekly
  - Archived luminaire list available at www.energystar.gov/lightingresources
- Future plans for improvement
  - Integration by the end of 2012
  - Advanced features in 2013

Verification Testing Update

- Luminaires
  - QA4 wrapping up
  - CB run verification testing
- Lamps
  - CFL
  - LED

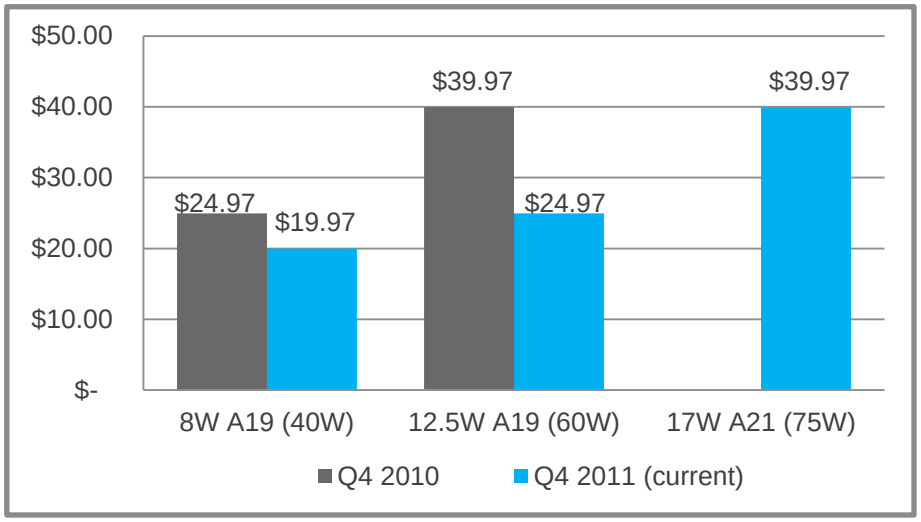
Visit: www.energystar.gov/integrity

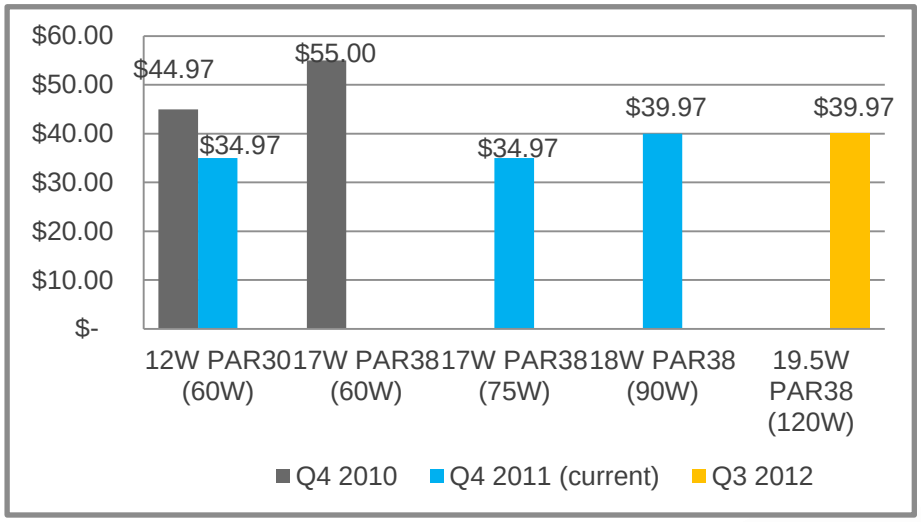
Lamp Pricing Trends

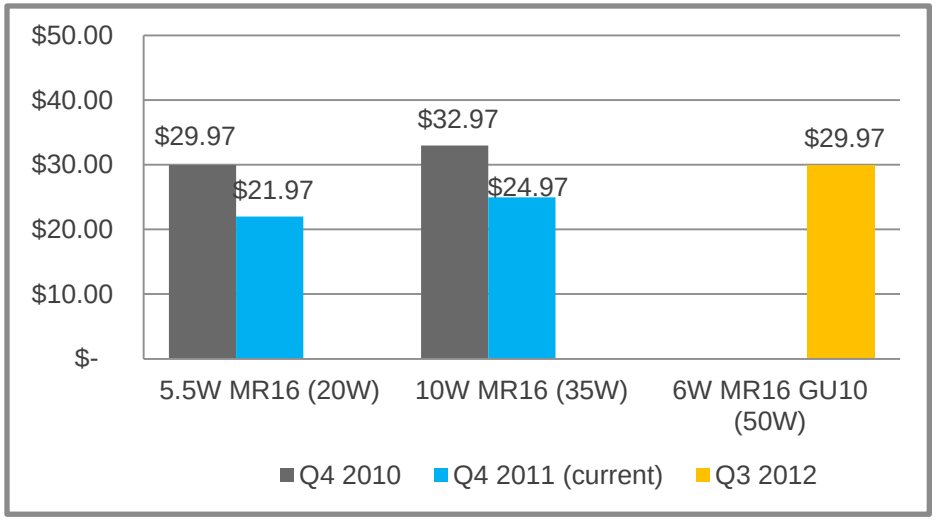
- Quarterly Updates
- Methodology
- Examples:
- Omnidirectional replacements
  - Philips 2011 $40 now $24.97
  - Ecosmart 2011 $41.25 now $23.97
  - GE 40W 2011 $50 now $25

Visit: www.energystar.gov/lightingresources

Pricing Trend from Philips







EPA

Questions?

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Marianne Graham
ENERGY STAR Account Manager
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NYSERDA's Residential Point of Sale Lighting Program

June 13, 2012

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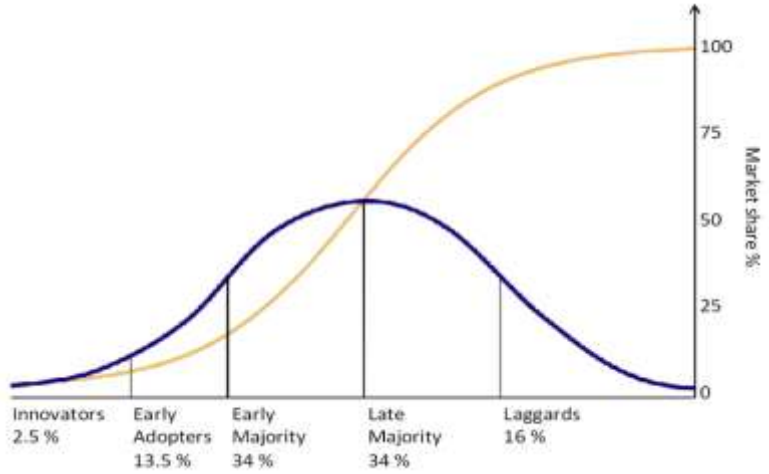
Two birds, one stone

	Market Transformation	Resource Acquisition
Goals		$ = kWh
Evaluation		

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Reduced cost-effectiveness

54 kWh + $1.50 incentive = $0.028 / kWh

54 kWh + $3.00 incentive = $0.056 / kWh

58 kWh + $8.00 incentive = $0.138 / kWh

+ decreased NTG ratios
+ increased baseline
+ increased marketing needs
  (which you will not get kWh for due to decreased NTG ratios)

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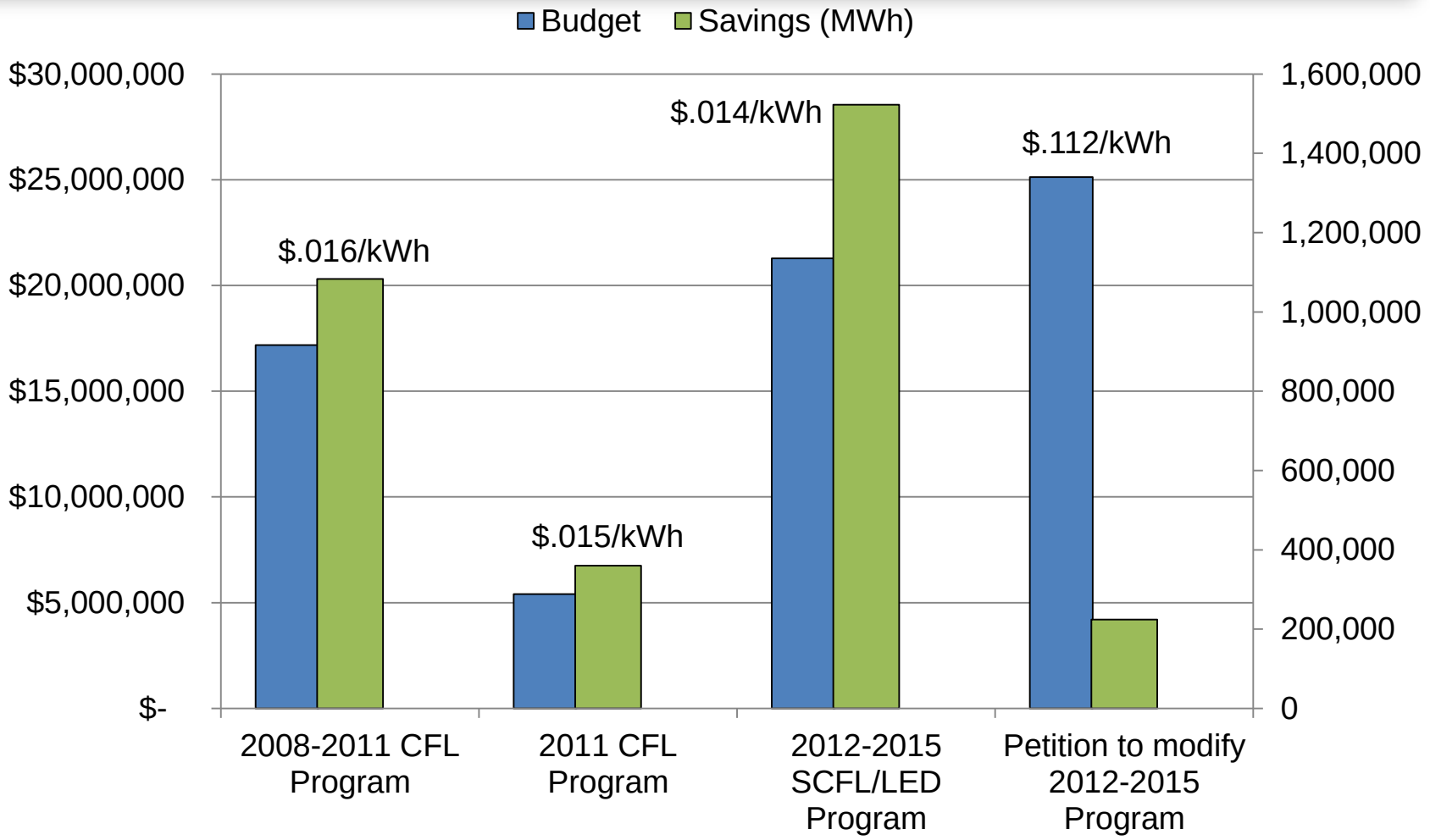
Managing Budgets, Targets, and Expectations



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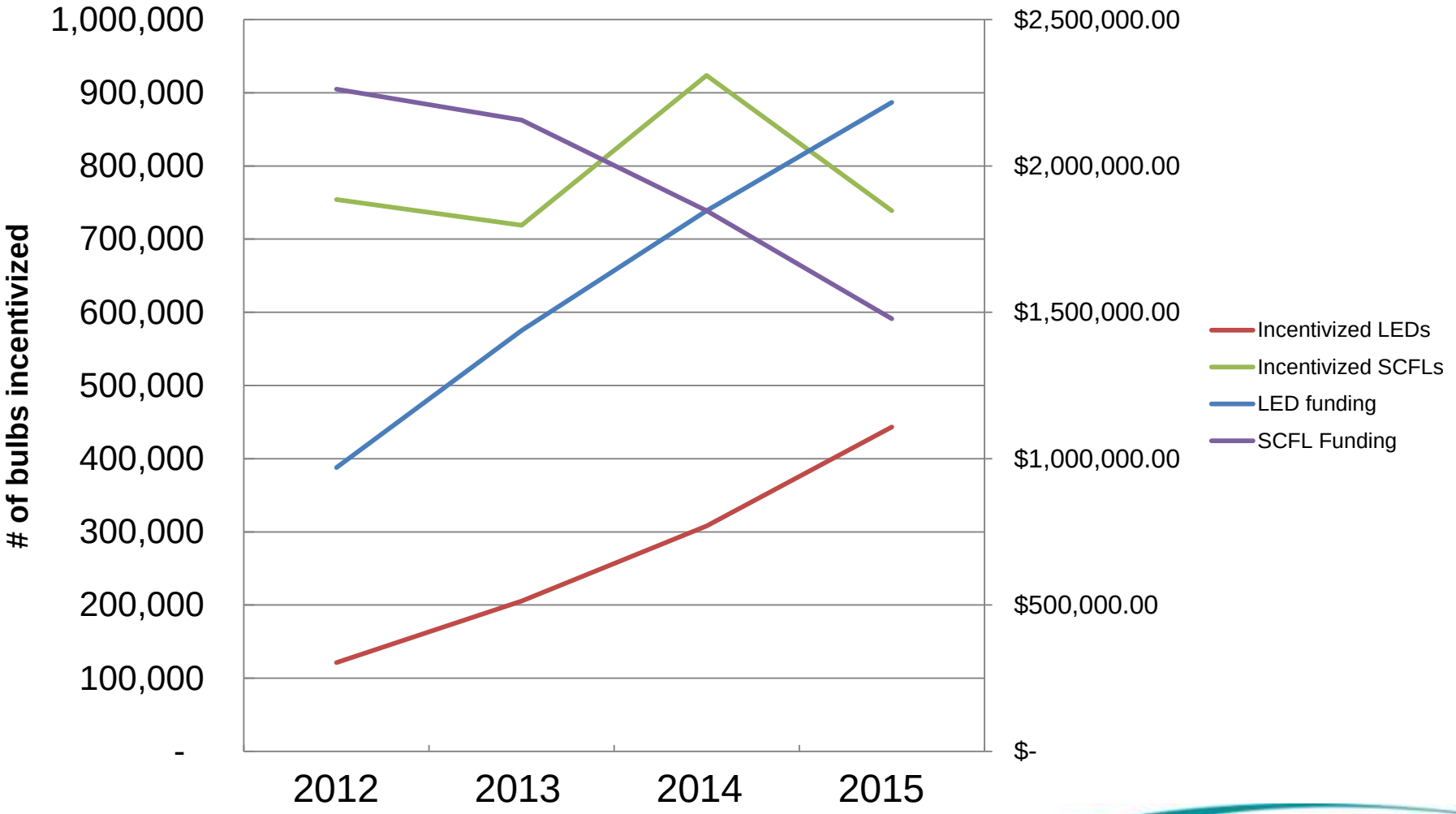
Current Program Projections



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Thank You!

Scott Kessler

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EFFICIENT RESIDENTIAL LIGHTING – EVOLUTION OF PROGRAM ADMINISTRATOR EFFORTS

NEEP Residential Lighting Workshop
Stamford, Connecticut

June13, 2012

ENERGY FUTURES GROUP

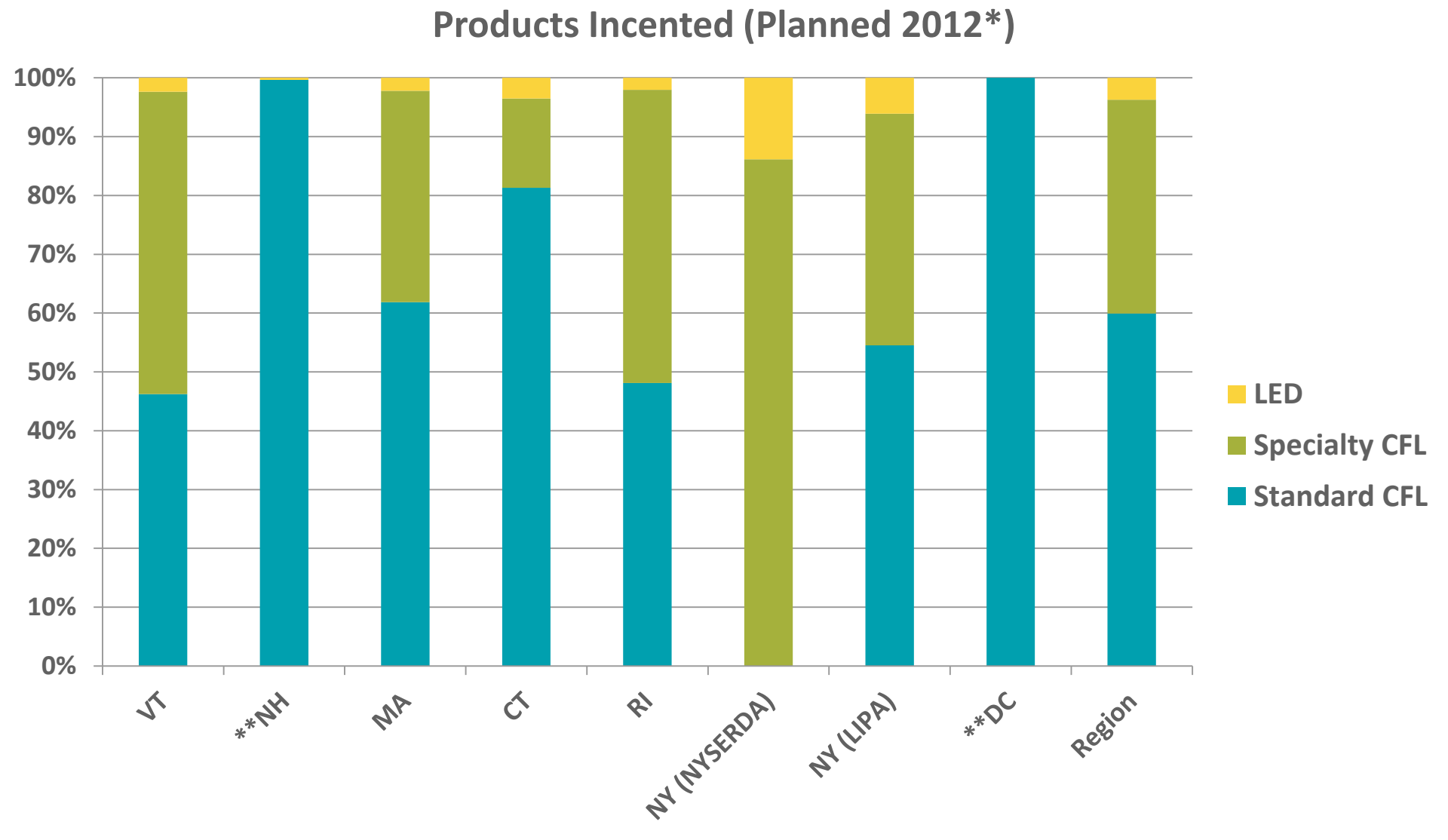
Glenn Reed, Energy Futures Group

Evolution of Program Administrator Efforts

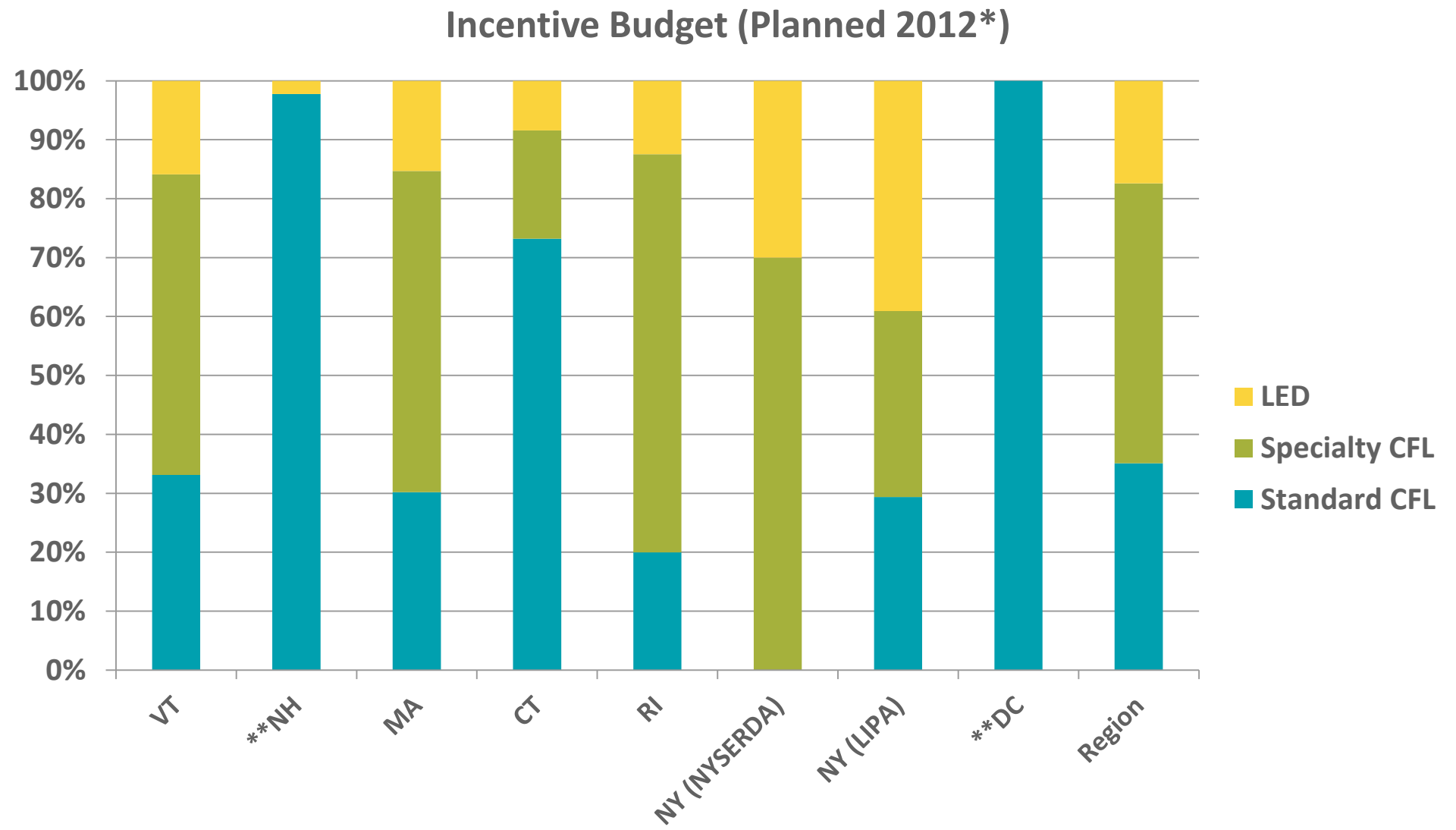
Evolution of Program Administrator Efforts

- Nearly all programs in region are supporting LEDs at retail
- Several states looking to support LEDs in Existing Homes, RNC & Income Eligible Programs
- Exploring alternative implementation models
  - Market Lift
- CFLs continue to be strongly supported in most states, but…
  - NYSERDA no longer planning to support standard CFLs
- Increased consumer education efforts

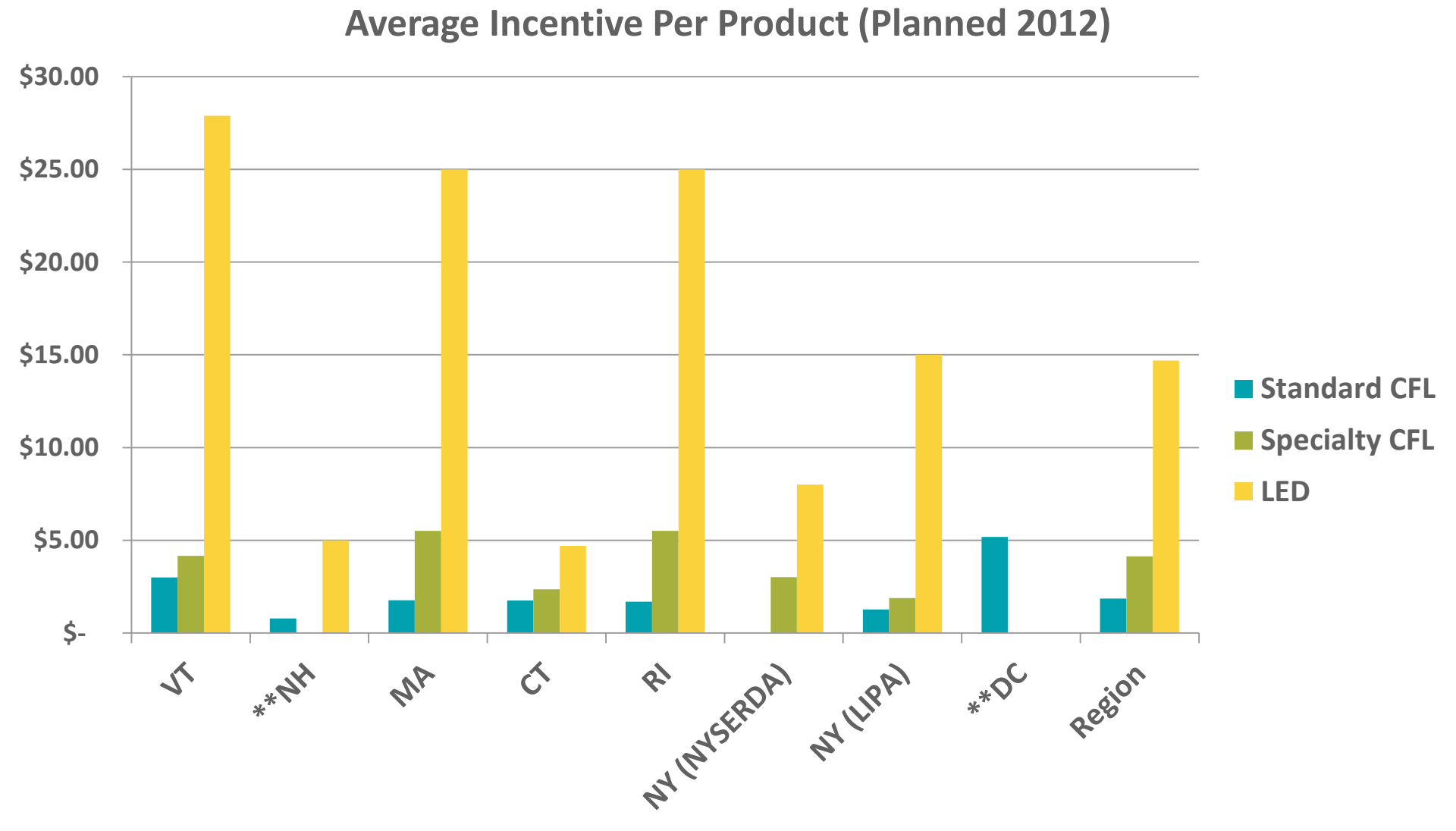
2012 Product Portfolios



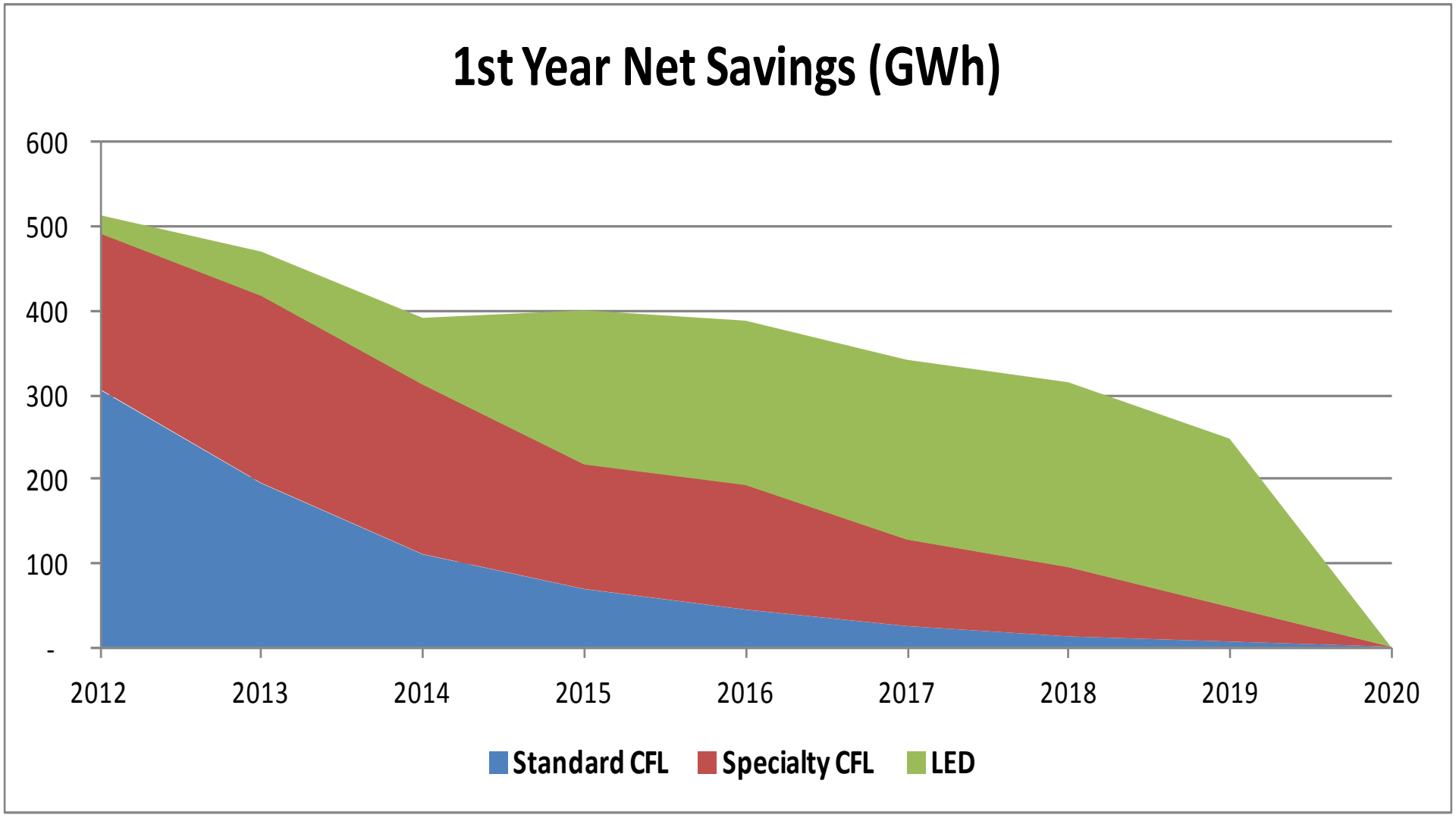
2012 Incentive Budgets



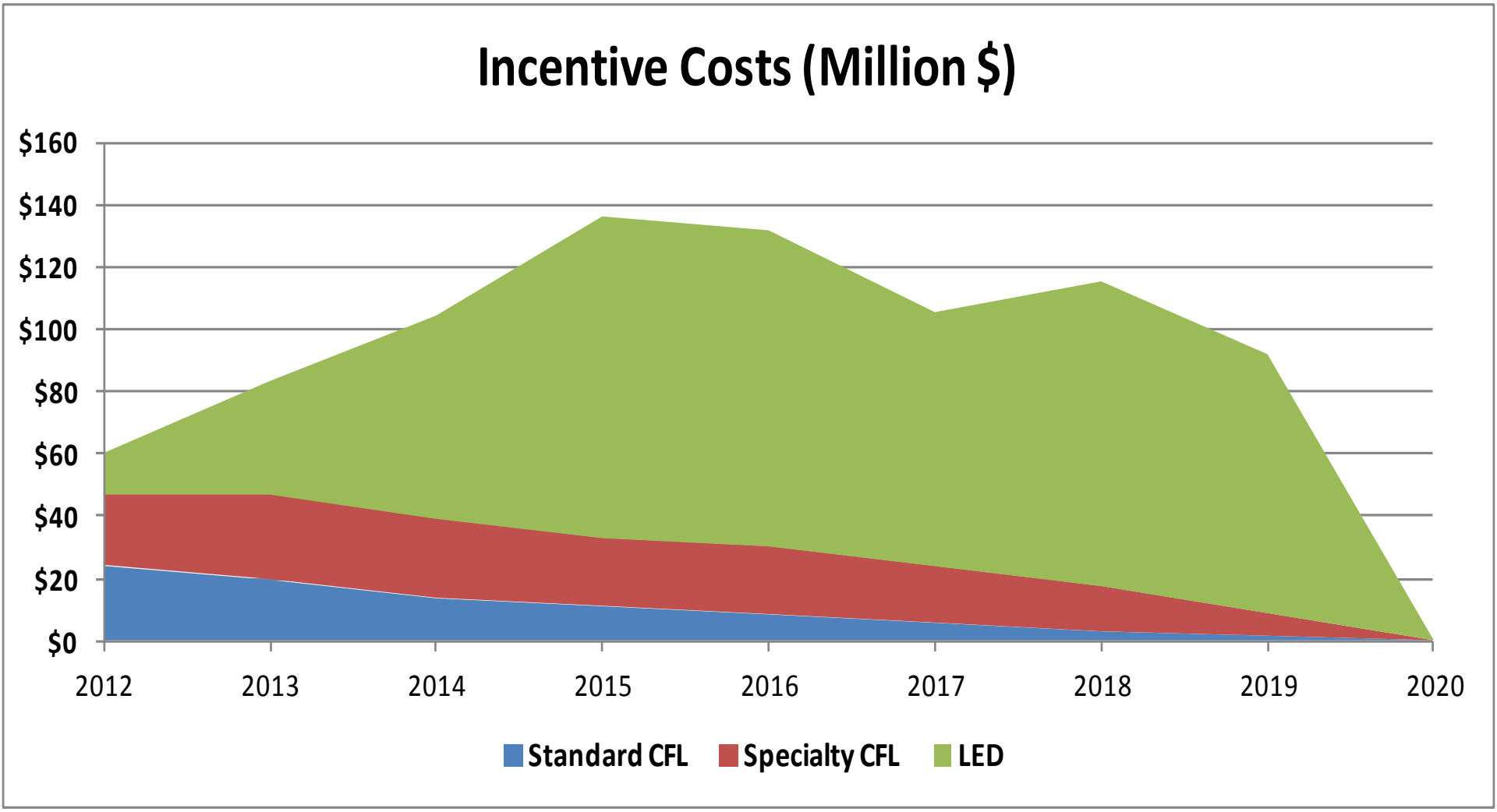
2012 Lighting Incentive Levels



What Does the Regional Residential Lighting Future Look Like?



And How Much Will it Cost?



Moving Forward

What are the Challenges that PAs Face?

- Why spend $15 on LED incentives when a $1 CFL incentive will provide the same gross annual savings?
- What are budget impacts of increased LED promotion?
- What is baseline for LEDs?
- What are near/mid-term NTGRs for CFLs and LEDs?
- How does the EISA 2020 45 lumen/watt requirement affect lifetime savings claims?

What are the Challenges that PAs Face?

- Should all ENERGY STAR LEDs be supported equally?
  - Non-standard and low lumen
- LED dimming
  - How much of an issue?
  - How best to address?

Q&A

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Residential Lighting Strategy:
Regulatory Pathways and Considerations to Support a Changing Lighting Market

Julie Michals, EM&V Forum Director

June 13, 2012

Northeast Residential Lighting Workshop

OVERVIEW

- Review of RLS Recommendations
- Update on National, Regional and Key State Efforts
- Summary of Landscape

RESIDENTIAL LIGHTING STRATEGY
Recommendations

1. Aggressively support CFLs and **ramp up** promotion of LEDs
2. Develop and implement regional systems to **track market data** to inform design
3. **Engage regulatory bodies** early to limit uncertainty
4. Regulator support for a **multi-year strategy** to support market transformation including flexible programs and new approaches to evaluation
5. **Protocol development** and **data sharing**

NATIONAL PROJECTS

ACEEE Report: A National Survey of State Policies and Practices for the Evaluation of Ratepayer-funded energy Efficiency Programs #U122 (February 2012)

- 44 states surveyed. Results show great diversity among states - vexing to policymakers seeking to make comparisons.
- Cost Effectiveness: 71% use TRC; 6 states use Societal Test; 5 use Utility Test; 1 uses RIM
- Net vs Gross Savings Reporting: 26% use gross savings; 53% use net savings; 21% use both; (30% of those using net only measure free-ridership)
- Historical policy approach in US leaves states to determine and set utility regulation and evaluation practices
- Study recommends development and adoption of guidelines for evaluation reporting and disclosure. Notes no federal mandate for national protocols

NATIONAL PROJECTS

US DOE State Energy Efficiency Action (SEE Action):

- Updating of NAPEE Model Impact Evaluation Guide
- Developing Uniform EM&V Methods for evaluating gross savings for priority measures (Phase 1); develop Net Savings methodology (Phase 2)
- Coordinating with EIA Form 861 DSM/EE reporting
- http://www1.eere.energy.gov/seeaction/evaluation.html

Regulatory Assistance Project: Cost-Effectiveness Research (July 2012)

- White paper that reviews c/e approaches, pros and cons, and makes recommendation on preferred approach(es)

National Home Performance Council:

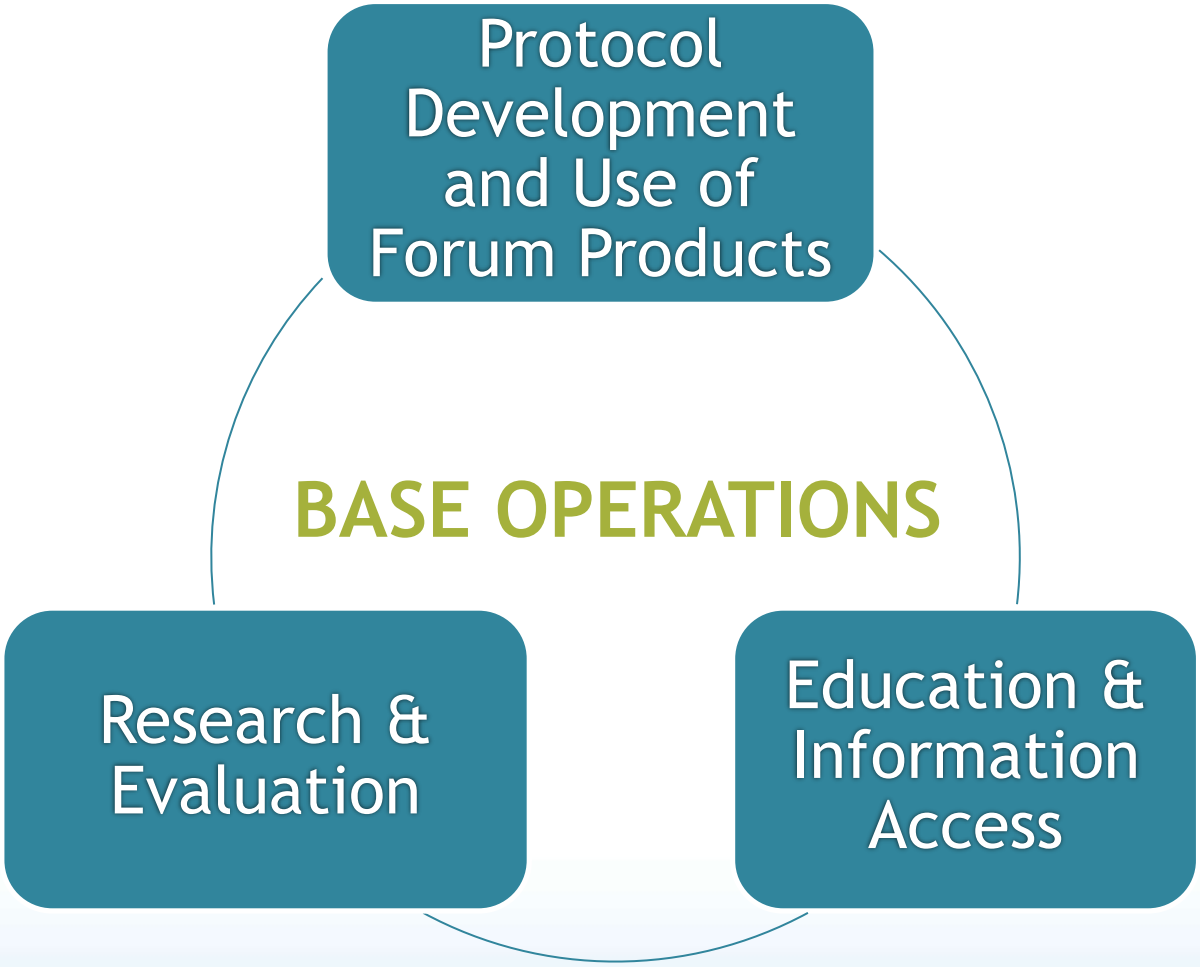
- Cost-Effectiveness Paper, similar in scope to RAP paper but higher level. Forthcoming presentation to MACRUC in June

REGIONAL PROJECTS

REGIONAL EM&V FORUM

Goals and purpose to support evolving lighting programs in many ways

REGIONAL EM&V FORUM
3 Core Functions



KEY FORUM PROJECTS :

Residential Lighting Market Lift Project: Concept

- Introduced in 2011 by D&R International
- Promotions of efficient lighting products by cooperating retailers in which
  - a) incentives are paid to retailers for product sold above a pre-established baseline ;
  - ‘b) “full category sales data” (i.e. detailed sales data on all lighting products are provided to participating program administrators, and
  - c) data are collected from comparison locations/states and analyzed as part of the project.

FORUM PROJECTS

Residential Lighting Market Lift Project: Key Features and Status

- D&R International building on learning from WI pilot
- Market Lift expected to launch in August and run 4 months with frequent updates; negotiations now underway with retailers
- "Lift" participants: PAs in VT, MA and RI (and Oregon)
- Comparator states/co-funders: DC Sustainable Energy Utility, Maryland PAs, New York Power Authority (and possibly CT PAs)
- Baselines based on historical data from retailers
- Results will include assessment of lift impacts and analysis of post-EISA market

FORUM PROJECTS

Net Savings Scoping Study (2010)

Conclusions

- The issue is complicated, nuanced, with conflicting perspectives
- There are opportunities to improve measurement of net savings
- No policy exists that enables the region to move from status quo

Recommendations

- The Forum should lead process of developing consistent definitions of gross and net for the region
- Advocate for legally requiring stakeholders to provide sales and shipment data for key products

FORUM PROJECTS

Net Savings Scoping Study (2010) cont.

Recommendations cont.

- PA's should keep records of standardized metrics of program activity, including possible comparison areas
- Expand criteria for program assessment (beyond net savings) to better assess MT and cumulative effects over time
- Develop guidelines on best practice methods to achieve consistency and allow for flexibility and innovation
- Where appropriate, use deemed or negotiated net savings approach for crediting savings to programs based on available evidence, e/g/ shipment data, market research, tracking data, etc.

FORUM PROJECTS

Net Savings Policy Research (Phase 2 - 2012)

Project Status

- Project underway/research complete; builds on EM&V Forum Net Savings Scoping Paper
- Scope includes:
  - Compare definitions of net savings used by programs and propose common definitions for key parameters
  - Review energy efficiency policies in region and assess alignment of policy goals with measurements of progress towards goals (e.g. net or gross savings)

FORUM PROJECTS

Other Relevant Protocols Projects

- EM&V Common Methods Guidelines: Recommended algorithms and assumptions for savings from priority measures including residential lighting
- Emerging Technologies: Secondary Research and recommended algorithms and assumptions from measures including residential and C&I LEDs (forthcoming)

STATE UPDATES

Vermont

- Residential and C&I market characterization studies near complete - to compare with results from three years ago
- Updated TRM measures, especially specialty bulbs (using RLS strategy report) and T12 lighting to per current market conditions
- Initiated LED programs
- Continued regulatory support for multi-year strategies and multiyear planning.
- A “do no harm” policy with respect to net savings updates

STATE UPDATES

New York

- NYSERDA ceased incentives for CFLs based on conclusion that market for spirals has been transformed
- LIPA continues to incent spiral CFLs based on interest in increasing socket saturation
- New York Evaluation Advisory Group considering examination of alternative ("top down") approach to net savings estimation
- "The NY utilities have lighting programs, and while we hope they have a transformative impact, they are not designed primarily as MT programs."

STATE UPDATES
Massachusetts

- Very aggressive savings goals
- 3 year plans in development
- Stakeholder proposals/efforts for regulatory consideration:
  - multi-year framework
  - application of net savings
  - new approach to determining attribution – market lift
- Jeff Schlegel to provide further details, context and perspective….

STATE UPDATES
Maryland

- Maryland PSC decision on use of gross vs net savings
- Application of c/e tests
- Greater emphasis on multi-year perspective
- Dan Hurley to provide further details, context and perspective….

SUMMARY OF LANDSCAPE…

- Perspectives on “best” regulatory framework varies and is evolving …
- Lack of consistency between states presents challenges for lighting market, but also some opportunities (e.g., lessons learned, comparing strategies, program design and implementation)
- Protocols and guidelines can be especially useful when rolling out emerging technologies or new programs
- Market characterization and comprehensive sales data are especially important in informing decisions about residential lighting programs – what role can/does the regulatory environment play in this EM&V function?

For more information:

http://neep.org/emv-forum

Julie Michals

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Northeast Energy Efficiency Partnerships

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Regulatory Frameworks to Support EE Programs (Including Res. Lighting): Massachusetts Example

Jeff Schlegel

NEEP Residential Lighting Workshop

June 13, 2012

Disclosure: these are my professional views, not necessarily the views of my clients in MA or CT

MA Introduction: Two Reasons for Discussing the Approach to Net Savings

- DPU Notice of Investigation (NOI), DPU 11-120.
  - The Department will investigate in this proceeding the extent to which the existing approaches to estimating net savings produce accurate and reliable results.
  - If the Department concludes that the existing approaches are deficient in this regard, this investigation will examine alternate ways to determine net savings estimates.
  - Comments due January 31, 2012.
- In parallel, informal discussions exploring whether the current approach to estimating net savings will accurately capture the effects of the multi-year, multi-faceted EE programs and initiatives *going forward*, and if not, what approach would be most effective?

Counting EE Impacts as if it Matters, and Syncing with Resource Plans

- Counting things right really matters when EE is a resource – stakes are *much* higher (lights must stay on, plus energy and climate objectives)
- EE impacts must be counted "right" – neither over-counted nor under-counted
- Very important to be synced with the resource plan and forecasts (the forecasts used to determine needs and resources)
- Resource planning also is a good forum to aggregate the multiple values of EE that may be disaggregated in energy markets

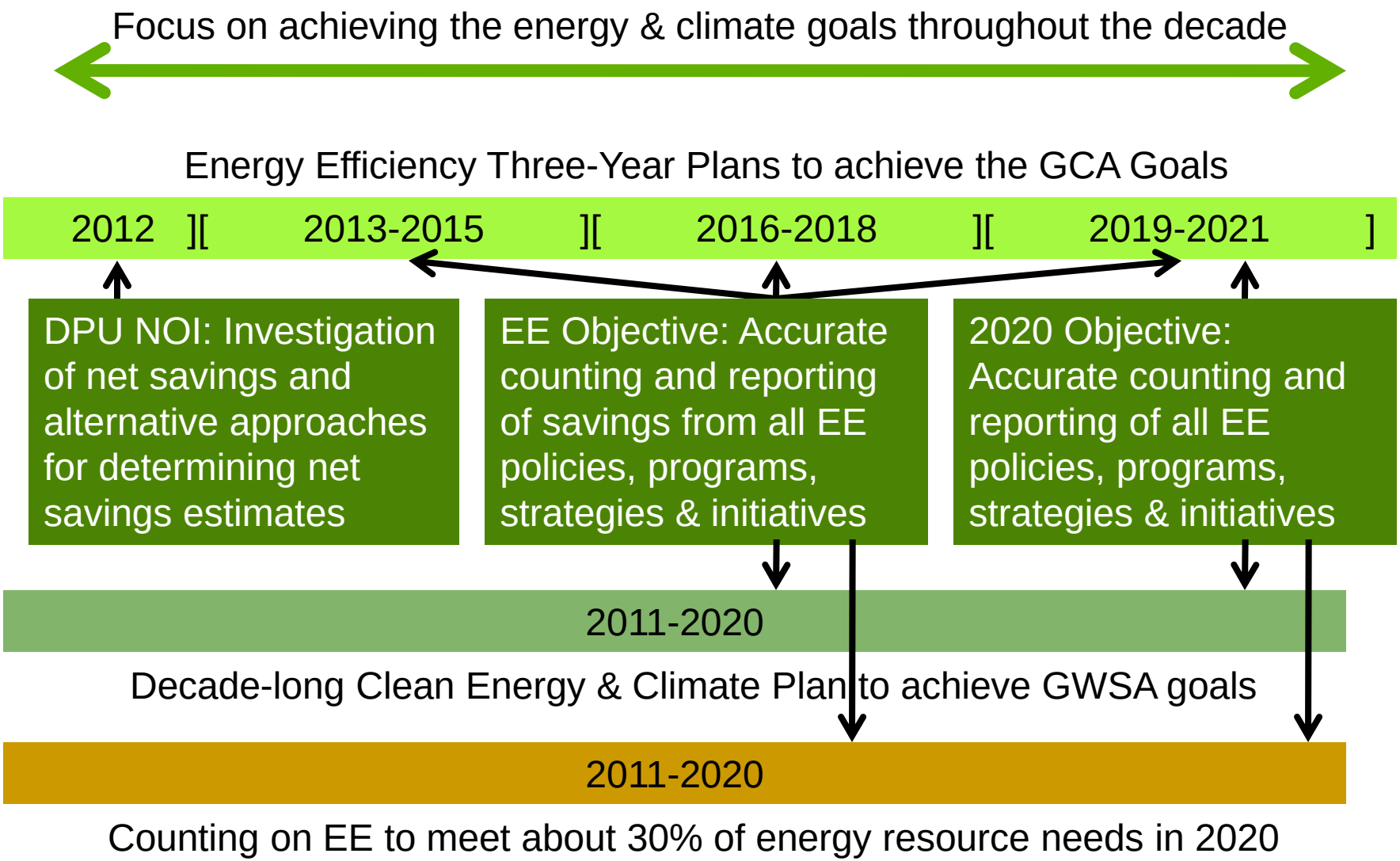
Multi-Year Focus and EE Programs: Not Your Father's Programs…

- Achieving annual energy savings of 2% or more of retail energy sales is *not* simply doing a higher volume of the same things
- Need to achieve much higher energy savings for more than 10 years to address key policy objectives (i.e., energy, economy, jobs, environment and climate)
- Multi-year, forward looking approach both *allows* and *requires* different thinking, and results in more and different strategies

Background – Why is This Important Now?

- Massachusetts has set very high goals for energy and climate policies, with energy efficiency as the primary and most important energy resource in achieving these goals, annually and through 2020 (and beyond).
- Electric savings goals in Clean Energy and Climate Plan grow from 2.4% in 2012 to 2.9% in 2018-2020.
- Energy efficiency is the fastest-growing resource in MA, and EE programs will provide about 30% of the energy resources needed to meet customer energy needs in 2020 (MA is counting on EE to be very real).
- EE is no longer in the noise, and EE programs no longer have the luxury of being in the noise.
- Opportunity exists now, for next Three-Year Plans.

Near-Term and Longer-Term Objectives



Key Principles and Objectives

Principles for any consideration (by DPU or EEAC) of changing the approach to estimating net savings:

1. Provide accurate and reliable results, which neither over-count nor under-count the effects of EE programs
2. Continue using EM&V to determine and report results
3. Ensure timely reporting (shortly after end of the year)
4. Focus on achieving the Commonwealth's *energy* and *climate* policy goals throughout the decade (and do not focus just on single-year or three-year goals)
5. Enable strategic approaches for achieving savings and benefits for customers over longer timeframes (e.g., what are the best strategies over the decade?)
6. Encourage cost-efficiency in the use and investment of ratepayer funds

RESIDENTIAL LIGHTING STRATEGY (and primary areas related to evolving MA policy framework)

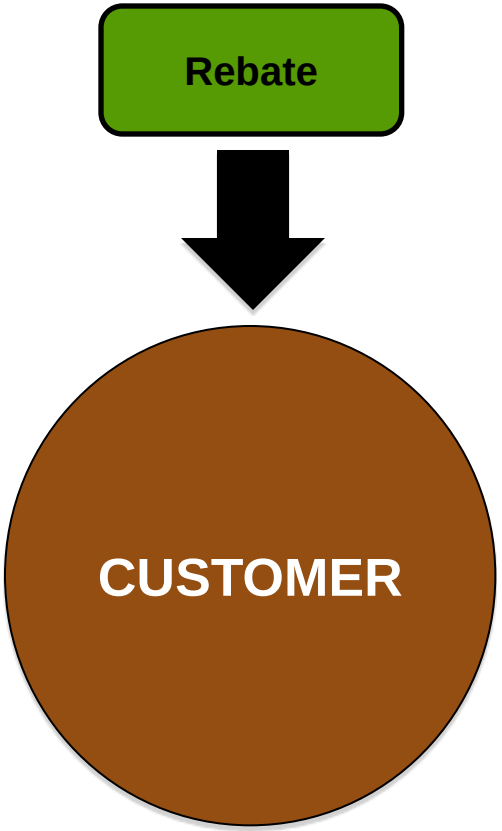
1. Aggressively support CFLs and **ramp up** promotion of LEDs
2. Develop and implement regional systems to **track market data** to inform design
3. **Engage regulatory bodies** early to limit (*"manage and address"*) uncertainty
4. Regulator support for a **multi-year strategy** to support market transformation including flexible programs and new approaches to evaluation
5. **Protocol development** and **data sharing**

What Are the Key Challenges?

- Going forward, the current approach to net savings will not adequately support or align with the energy and environmental policy goals, or the timing of the goals
- Increasingly, the current approach will not count all of the effects of the multi-year, multi-faceted, multi-initiative EE efforts, leading to "orphaned savings" (and it is best to not over-count or under-count)
- Two key concerns:
  1. ***Single-year snapshot accounting*** will not adequately support or accurately represent the multi-year, multi-faceted, multi-initiative EE efforts, and distracts focus and resources from the multi-year efforts
  2. ***Program net savings*** in the current approach, based on a snapshot of near-term program impacts within an EE program year, due to EE program efforts in that year (narrow single-year snapshot view with net-to-gross adjustments), will not count or capture all of the effects

The Evolving *EE Programs, Strategies, and Initiatives* Drive These Concerns

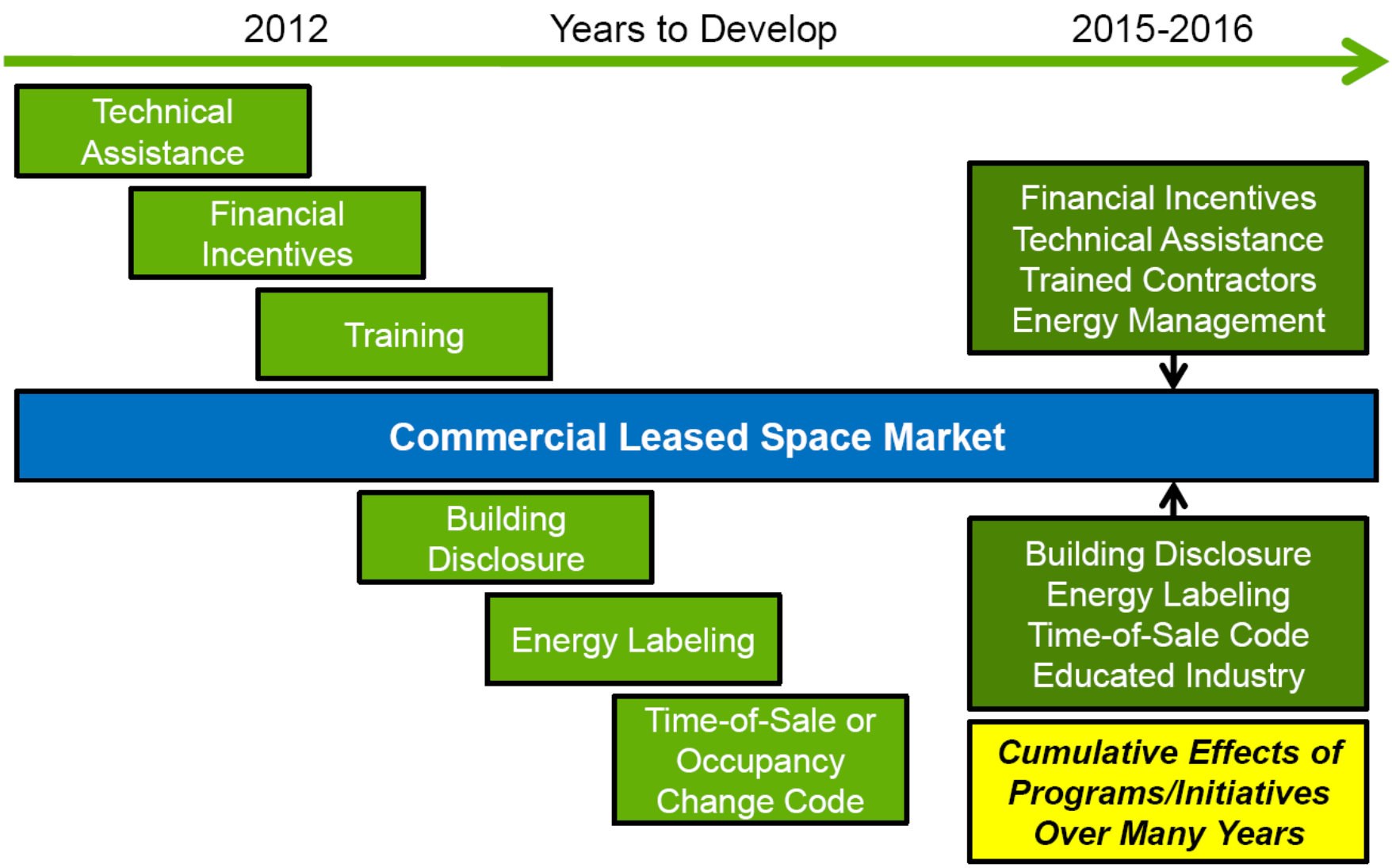
Old EE Programs



Note: original EE policies were developed when programs used rebates as sole/primary strategy

New EE Programs & Strategies

Example: Programs and Initiatives are Developed & Implemented Over Time



"Multiples" Make it Challenging

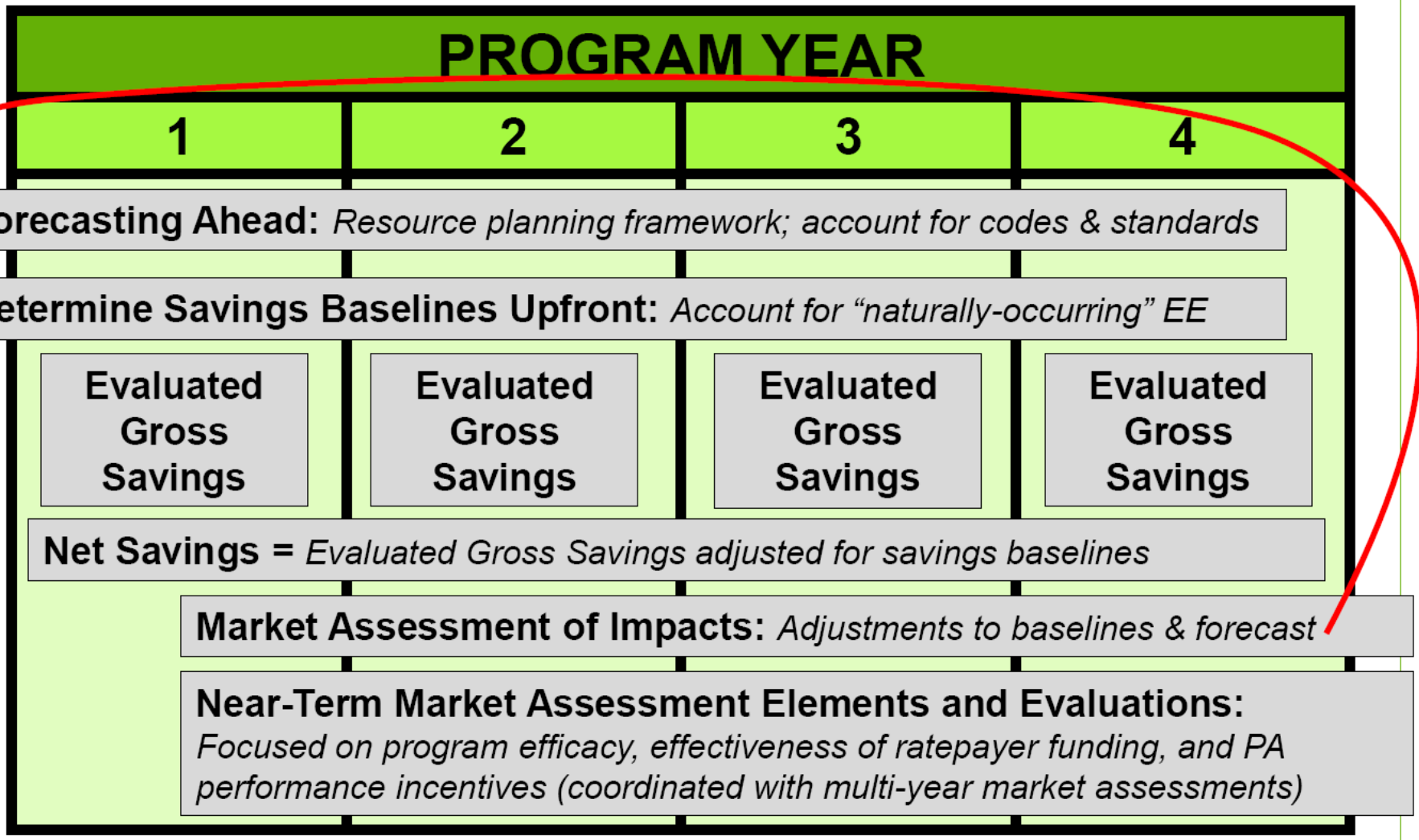
- Multiple public policy objectives (e.g., energy policies, resource planning/future resource needs, climate and air/environmental policies, economic policies, etc.)
- Multiple purposes (e.g., near-term impacts, longer-term total impacts, program efficacy, perf. incentives)
- Multiple policy initiatives for EE and clean energy (not just EE programs), e.g., codes and standards
- Multiple strategies within the EE programs
- The multi-faceted EE programs will increasingly be coordinated or integrated with other initiatives
- Multi-year time horizons to achieve multi-year goals

Desire to count all effects from all policy initiatives over the multi-year time horizons.

Recommendation for the Net Savings Approach of the Future

- Need a multi-year framework that reflects and is consistent with the vision & multi-year policy goals
- Hybrid approach is likely to be most effective:
  - Forward-looking resource planning approaches and tools, i.e., multi-year view, total impacts from all multi-faceted policies, & reference to forecasts (to make sure everything is counted and accounted for)
  - Focus on a new approach to “net savings” – hybrid of evaluated gross savings (retrospective) with the savings baselines accounting for “naturally occurring” EE and codes/standards upfront (prospective)
  - Net savings = evaluated gross savings adjusted by savings baselines
  - Periodic assessments of near-term EE program impacts (to ensure program expenditures are having an impact and ratepayer money is not being wasted by paying for things that would happen anyway)
- No silver bullet; requires development over time

One Option for a Hybrid Approach



Approach for the Next Three-Year Plans

- Set estimates of naturally-occurring EE in the **savings baselines** in Plans upfront (as Plan impact factors based on best available information and EM&V), as a *prospective* application of available data
- Analyze/report **evaluated gross savings** based on results from verification (number of measures actually installed) and in-field evaluation results (e.g., in-service rates, watts/unit, hours of operation, custom project results) in a timely manner (*retrospective*)
- **Net savings** = evaluated gross savings adjusted for naturally-occurring EE in the savings baselines
- Do not adjust evaluated gross savings or net savings for net-to-gross factors *retrospectively*

Summary of the Proposed Changes

Component of the EE Policy Framework	Current Approach	Recommended Approach
Plan timeframe	Three-year plans with annual modifications (annual prevails strongly)	Three-year plans within strategic framework to achieve decade-long goals
Savings basis	Net savings	Net savings (but different approach)
Not taking credit for or spending ratepayer money on things that would have happened without the program	After-the-fact (retrospective) net-to-gross adjustments (primarily from surveys) in single-year snapshot	Determination of savings baselines to account for "naturally-occurring" EE & codes/standards upfront, in multi-year framework
Application of evaluation (EM&V) results	Retrospective (ex post)	Mix of prospective (savings baselines for naturally-occurring EE) and retrospective (adjustments for evaluated gross savings)
Basis for PA performance incentives	Primarily net savings and net benefits (outcomes)	TBD: mix of outcomes and near-term indicators (Continue to book performance incentives annually)

NEEP Northeast
Residential Lighting Workshop

Solutions for Achieving Savings

June 13, 2012

Dan Hurley

Assistant Director, Energy Analysis and Planning Division
Maryland Public Service Commission*

phone: 410-767-8004, email: dhurley@psc.state.md.us

**The opinions expressed by Mr. Hurley do not necessarily reflect the views of the Maryland PSC.*

Overview of Presentation

- EmPower Maryland Energy Efficiency Act
- Evolution of Lighting Programs in Maryland
- Net versus Gross Savings

EmPower Maryland Energy Efficiency Act

- Established Electricity and Peak Demand Reduction Goals by 2015
  - 15 percent reduction in per capita electricity consumption
  - 15 percent reduction in per capita peak demand

- For Program Approval, the Commission shall consider
  - Cost-effectiveness
  - Impact on rates
  - Impact on jobs
  - Impact on the environment

Evolution of Lighting Programs

- "Fast-Track" Programs
  - Pre-EmPower Maryland
  - Rebate Level - $1.50 Single Pack / $3.00 Multi-Pack
- 2009-2011 Program Cycle
  - Mail-In Rebate
  - Fast-Track type Rebate
  - Mid-Market Buy Down
- 2012-2014 Program Cycle
  - Mid-Market Buy Down
  - LEDs Included

Net vs. Gross Savings 2009-2010 Evaluation Results

- Electricity Savings Lower Than Projected
  - Poor Economic Conditions
  - Delay in Program Roll-out
- Updated Net-to-Gross Ratios
  - Lower Energy Savings due to Lower NTGs
  - Concern with meeting 2015 EmPower Goals
  - Revised NTGs to be used for future program evaluation and future program design
- Cost-Effectiveness
  - Measured on Program-by-Program Basis
  - Concern about programs that are not cost-effective

Net vs. Gross Savings 2012-2014 Program Cycle

- Recommendations
  - Define Programs
    - Best Practices
    - Market Transformation
    - Research and Development
  - Different programs will take longer than others to become cost effective
  - Program Evaluation Protocols
  - Cost Effectiveness Protocols

Net vs. Gross Savings Commission Order

- Primary Directives
  - Net Savings Used to Determine
    - Program Evaluation and Design
    - Cost Effectiveness Analysis
  - Gross Savings Used to Determine Progress Towards EmPower Goal
  - Cost Effectiveness Measures at the Portfolio Level
    - Low TRC programs can be “carried” by Higher TRC programs

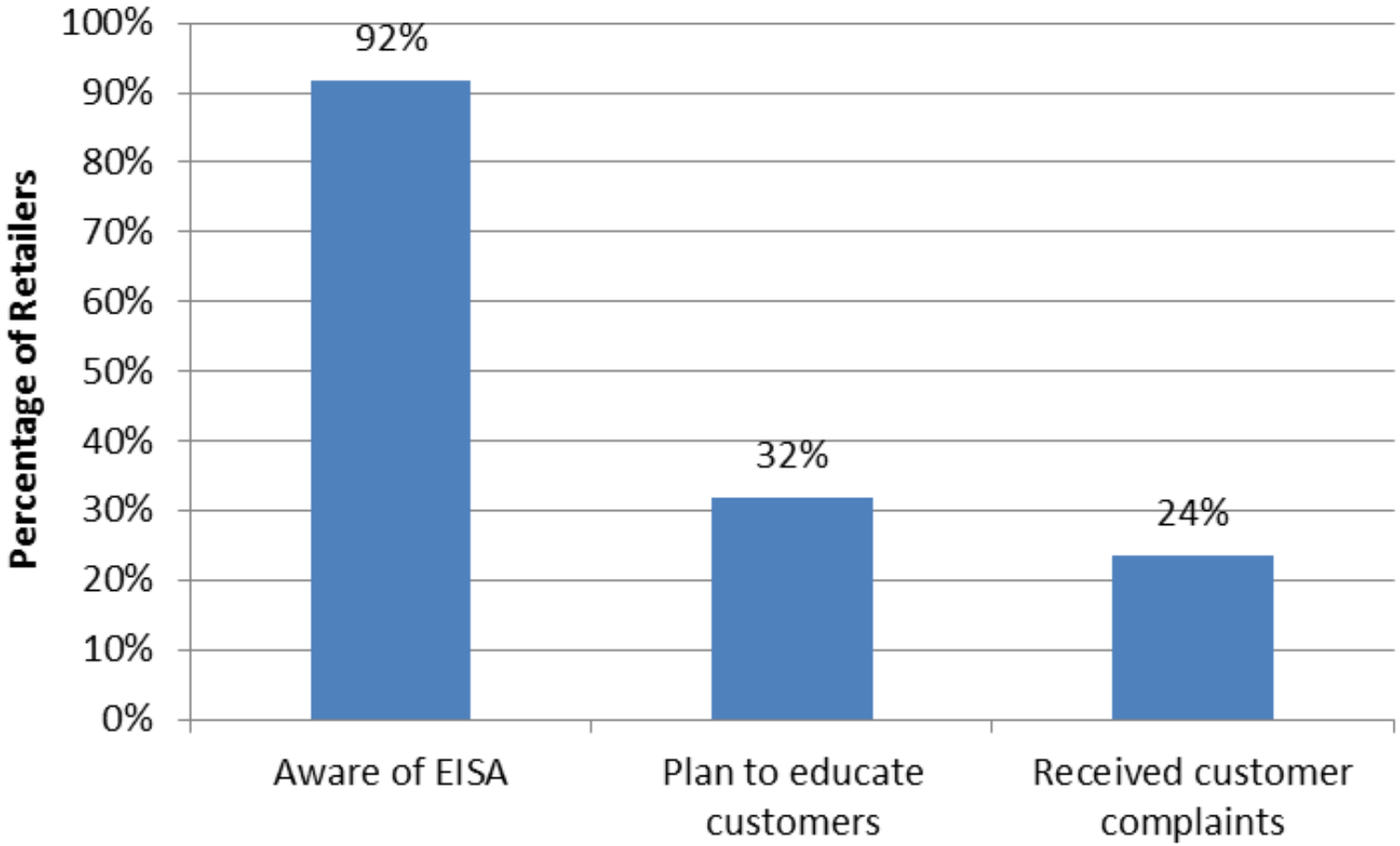
Questions?

Marketing Efficient Lighting in 2012

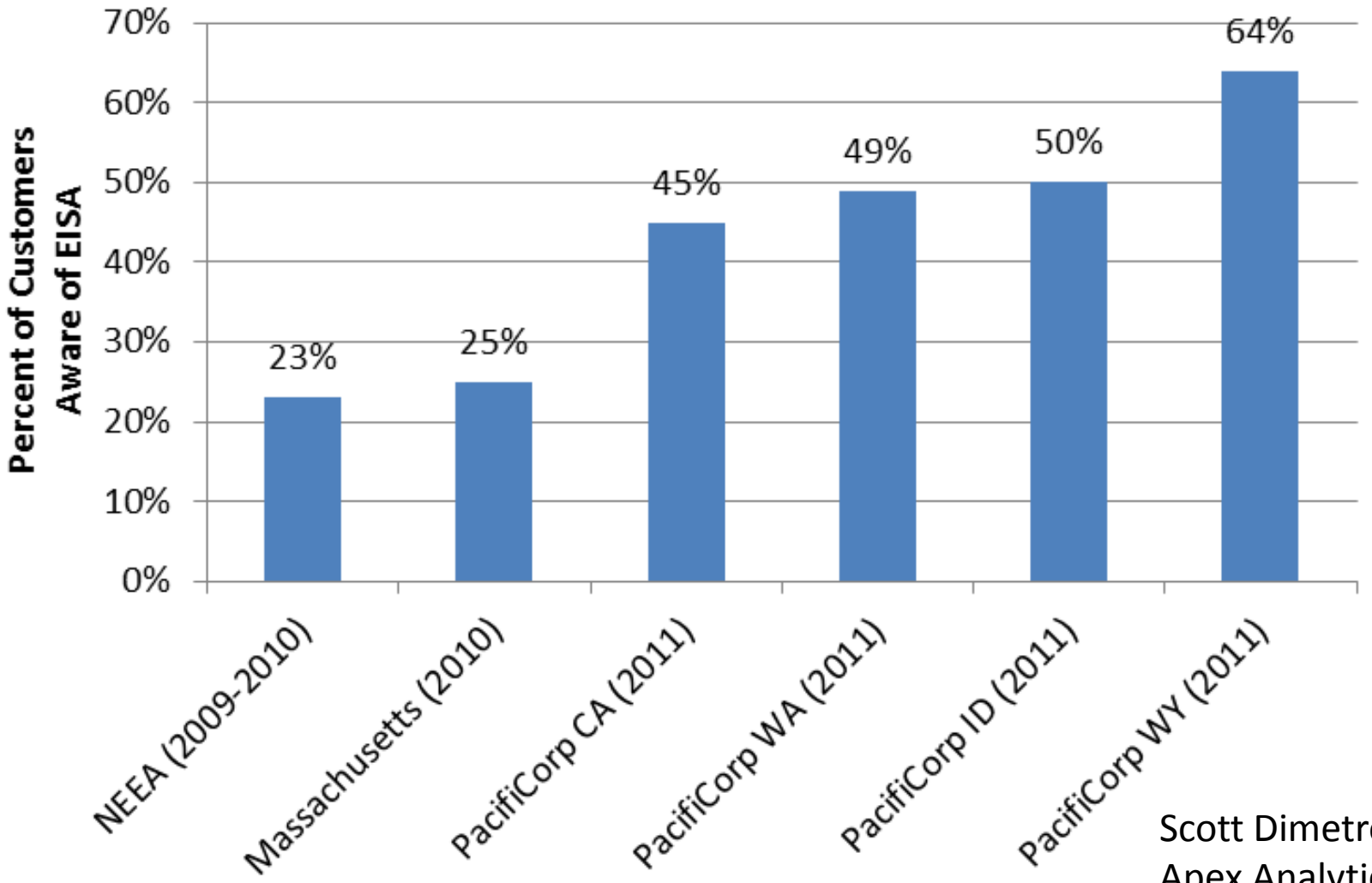
EISA Who?

- 2010 MA study: Only 48% of retail store managers aware of EISA
- 2011 PacifiCorp studies: 92% of store managers aware

Scott Dimetrosky
Apex Analytics



Scott Dimetrosky
Apex Analytics



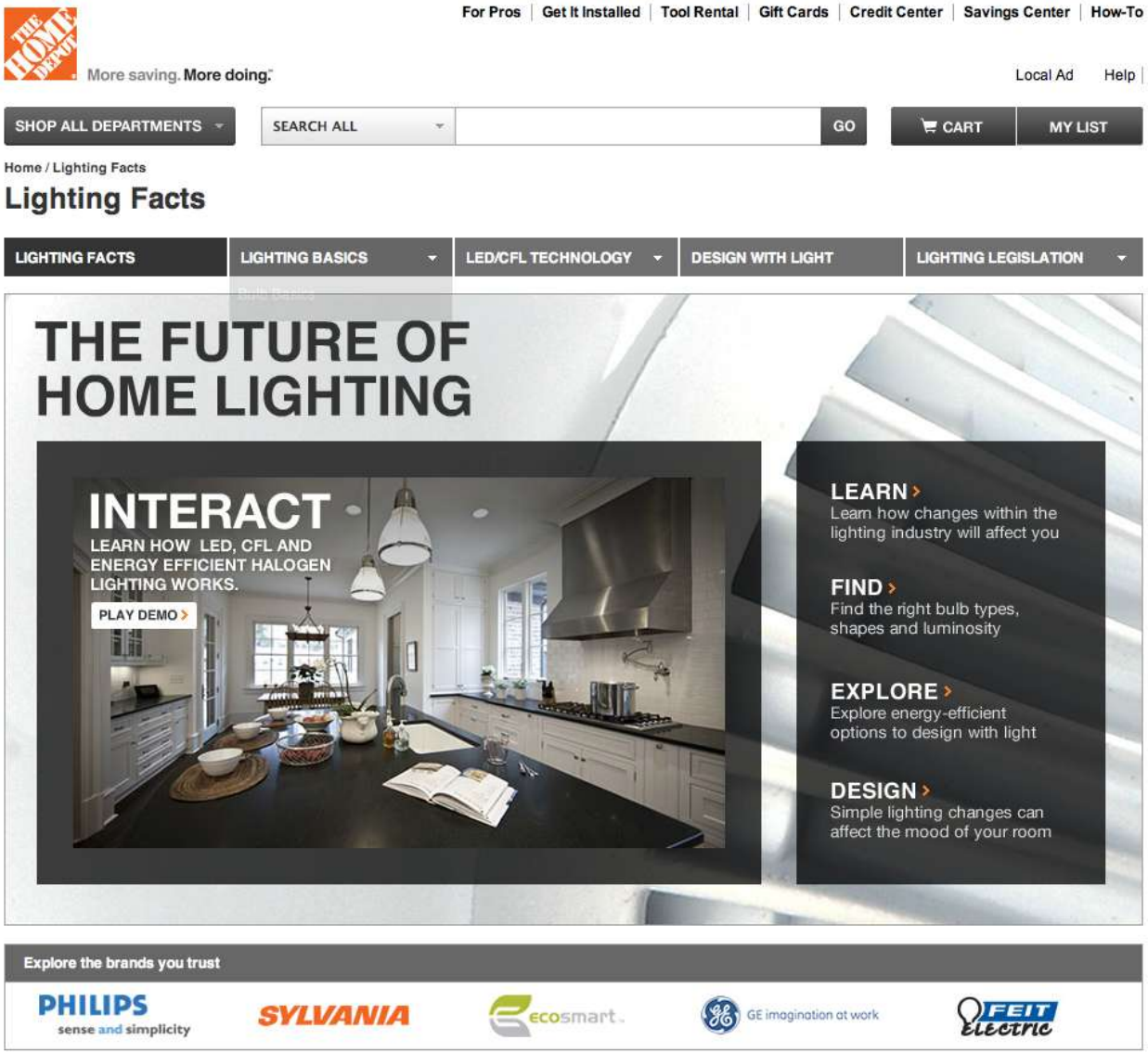
Scott Dimetrosky
Apex Analytics

DoE Projected LED Market Share

	2010	2015	2020	2025	2030
LED market share (% of lm-hr)	-	**9.5%**	**35.8%**	**59.0%**	**73.7%**
Residential	-	8.1%	37.6%	60.7%	72.3%
Commercial	-	5.0%	27.8%	52.5%	70.4%
Industrial	-	8.8%	36.0%	59.2%	72.3%
Outdoor Stationary	-	29.0%	64.2%	81.6%	87.2%

DoE Report

Compact Fluorescent Lighting in America: Lessons Learned on the Way to Market


For Pros | Get It Installed | Tool Rental | Gift Cards | Credit Center | Savings Center | How-To
More saving. More doing.
Local Ad | Help
SHOP ALL DEPARTMENTS
SEARCH ALL
GO
CART
MY LIST
Home / Lighting Facts
Lighting Facts
LIGHTING FACTS
LIGHTING BASICS
LED/CFL TECHNOLOGY
DESIGN WITH LIGHT
LIGHTING LEGISLATION
THE FUTURE OF HOME LIGHTING
INTERACT
LEARN HOW LED, CFL AND ENERGY EFFICIENT HALOGEN LIGHTING WORKS.
PLAY DEMO
LEARN
Learn how changes within the lighting industry will affect you
FIND
Find the right bulb types, shapes and luminosity
EXPLORE
Explore energy-efficient options to design with light
DESIGN
Simple lighting changes can affect the mood of your room
Explore the brands you trust
PHILIPS
sense and simplicity
SYLVANIA
ecosmart
GE imagination at work
FEIT electric

Summary

Use all the tools

- Education
- Advertising
- Social media
- Incentives
- Emotional appeal

Enlightening Sales Associates on Lighting

Presented to:
Northeast Energy Efficiency Partnership (NEEP)
Residential Lighting Workshop, Stamford CT June 13, 2012
Monique O'Grady, V.P. of Communications
The Alliance to Save Energy

What is the Alliance to Save Energy?

Mission:

- To promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security.

Organization:

- Staffed by 80+ professionals
- 35 years of experience
- $15 million annual budget
- Recognized as the premier energy efficiency organization in the world

DOE Partnership

Education on energy efficient lighting choices

- Choosing new lighting choices
- Highlighting the energy and money savings
- Shopping by lumens and not watts
- Understanding the new lighting facts label

Who?

People and organizations that consumers seek out for information on new lighting options

- Retail Sales Associates
- Non Profit Organizations
- Utilities

New Bulbs Choices

- More Choices
  - Three types of new bulb choices
- Energy and Money Savings
  - Energy saved between 25% and 75%+
  - Help save on utility bills
- Last Longer
  - Over their lifetime the bulbs are typically less expensive than traditional bulbs, even with the higher purchase price added in.

New Bulb Costs

Lighting Choices SAVE YOU MONEY

Bulb Choice	Annual Bulb Energy Cost	Savings
Traditional	$6.00	Zero
Energy-Saving Incandescent 	$4.50	$1.50
CFL 	$1.50	$4.50
LED 	$1.50 or less	$4.50 or more

Cost of electricity only, replacing a 60W incandescent used 2.5 hrs./day at $0.11kWh

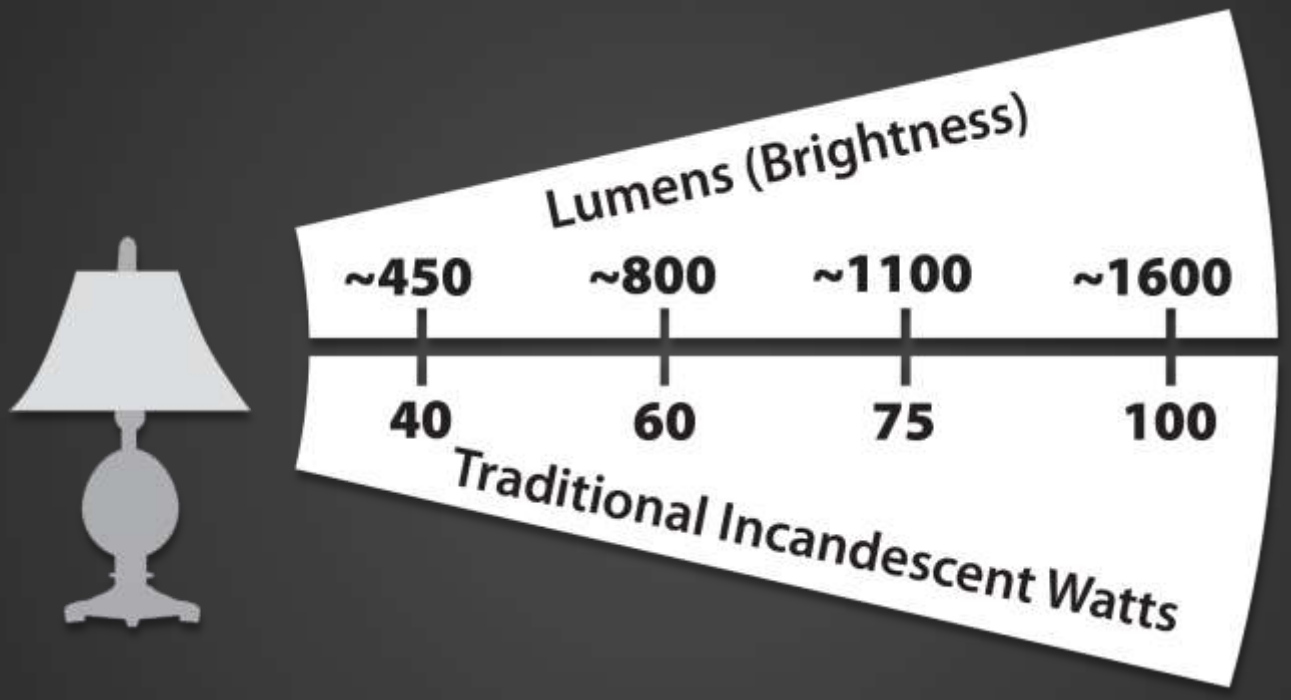
New Way to Shop

Lumens = Brightness

Watts = Energy Used

More lumens means brighter light!

Lumens vs. Watts



When replacing a 60-watt traditional bulb, look for a new bulb with about 800 lumens.

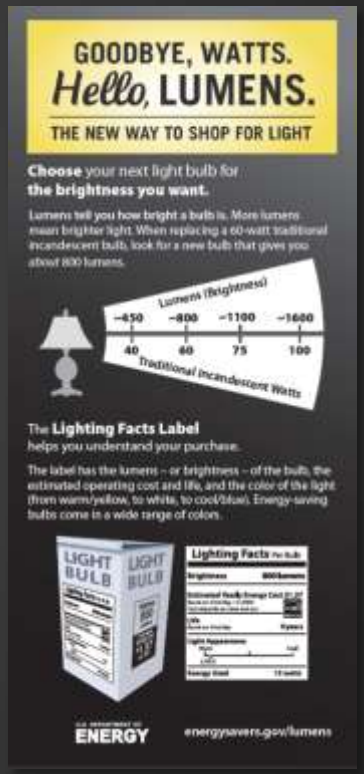
Lighting Facts Label

- New label helps consumers understand their purchase

Tools to Help You

Tip Card

- For sales associates
- Go to Alliance website to order tip cards
- www.ase.org/lighting



Website Help

- Department of Energy
  www.EnergySavers.gov/lumens
- Federal Trade Commission
  www.FTC.gov (search lighting)
- Environmental Protection Agency
  www.EnergyStar.gov/lighting
- Alliance to Save Energy
  www.ase.org
- LUMEN Coalition
  www.lumennow.org

Video Help

Videos to help explain:

- New choices
- Labeling
- Lumens
- Go to www.ase.org
  - Search Lighting Videos
- Go to www.EnergySavers.gov/lumens
  - Click on Learn More

Thank You!

To download a copy of this presentation

www.ase.org/lighting

35 years ALLIANCE TO SAVE ENERGY

Monique O'Grady

Alliance to Save Energy

V.P. of Communications

mogrady@ase.org

PHILIPS

sense and simplicity

Driving Energy Savings

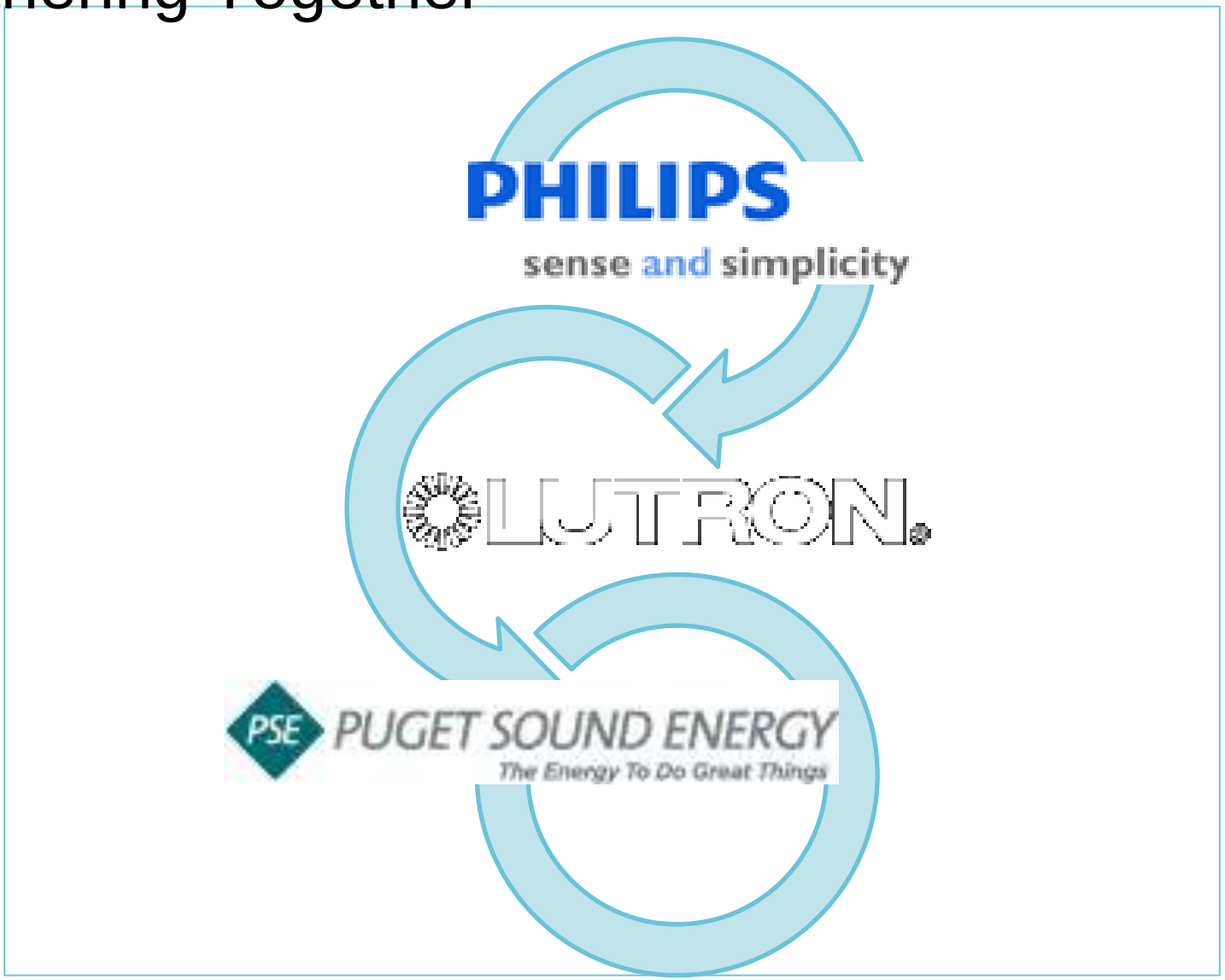
Rene Burger –Senior Marketing Manager Utility Program
Philips Lighting - North America
June, 2012

PHILIPS

Marketing Partnerships

PHILIPS

Partnering Together



PHILIPS

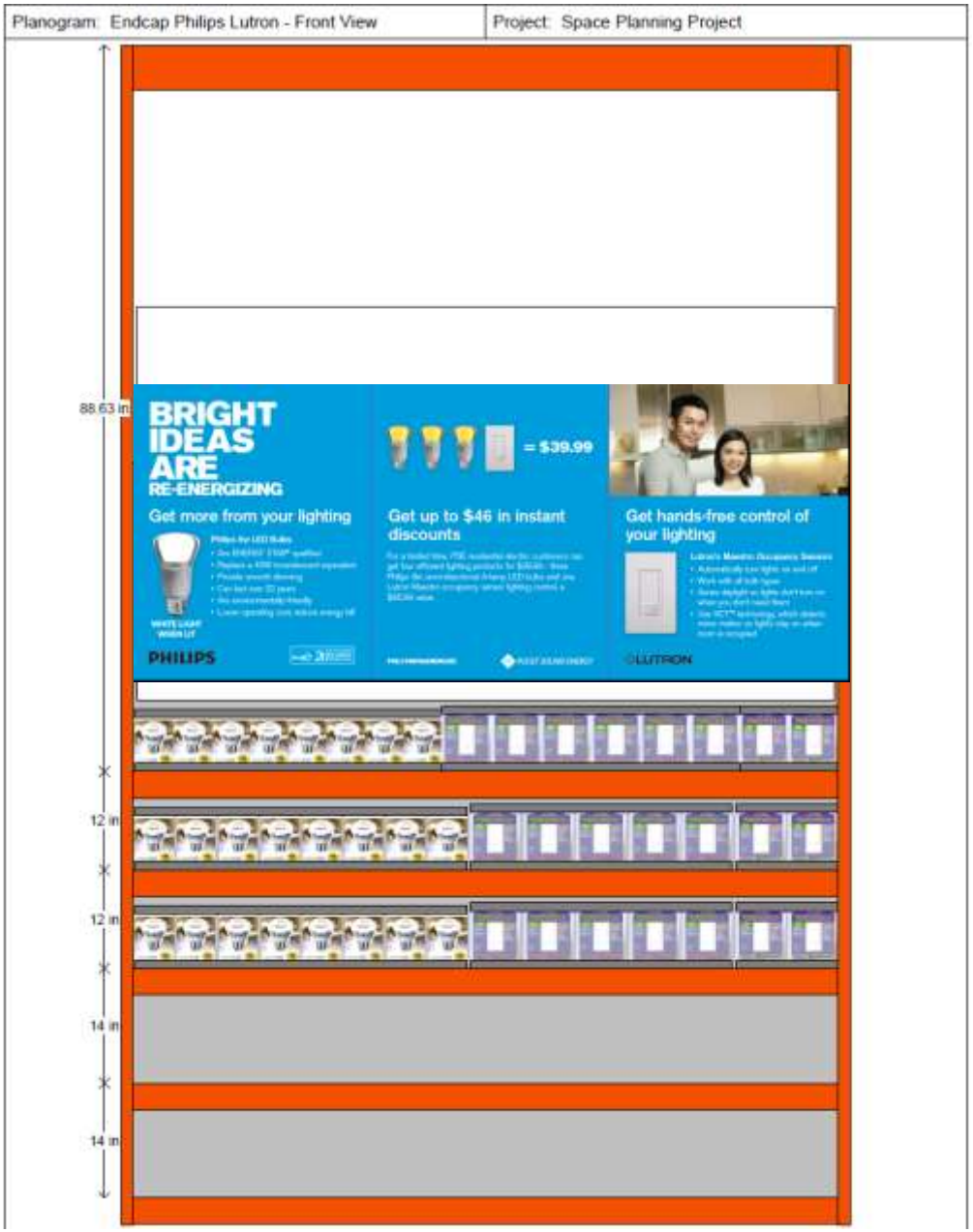
Consumers are encouraged to purchase multiple products to drive energy savings. The reduction takes place at the register with an instant rebate, with the savings billed to all three sponsors

PHILIPS

Philips/Lutron End Cap

- Timing: Ship May 15th
- In-Store: June 1st –July 31st
- Merchandising: End Cap
- Host order: Sensors 24-48 pieces per store
- Lamps: 72-144 per store
- Tri Fold Signage

Philips will be shipping product to fill end caps continuously for a 60 day period .



PHILIPS

Why a Utility Program Survey??

PHILIPS

Utility Program Perception/Understanding

- Philips utility program is relatively new
- Changes to the program have been put in place to streamline the process
- Changes in personnel
- Understand competitive programs and how they go to market
- What's new in utility programs
- Where are utility programs going
- Opportunities

PHILIPS

Utility Program Partner Survey e-mail

1. Sample questions
2. Agree/Disagree examples
3. Program development questions

https://survey.qualtrics.com/SE/?SID=SV_9zVv7GHqGb5WDE8

PHILIPS

What did Philips learn?

PHILIPS

How well does Philips utility program do at various tasks?

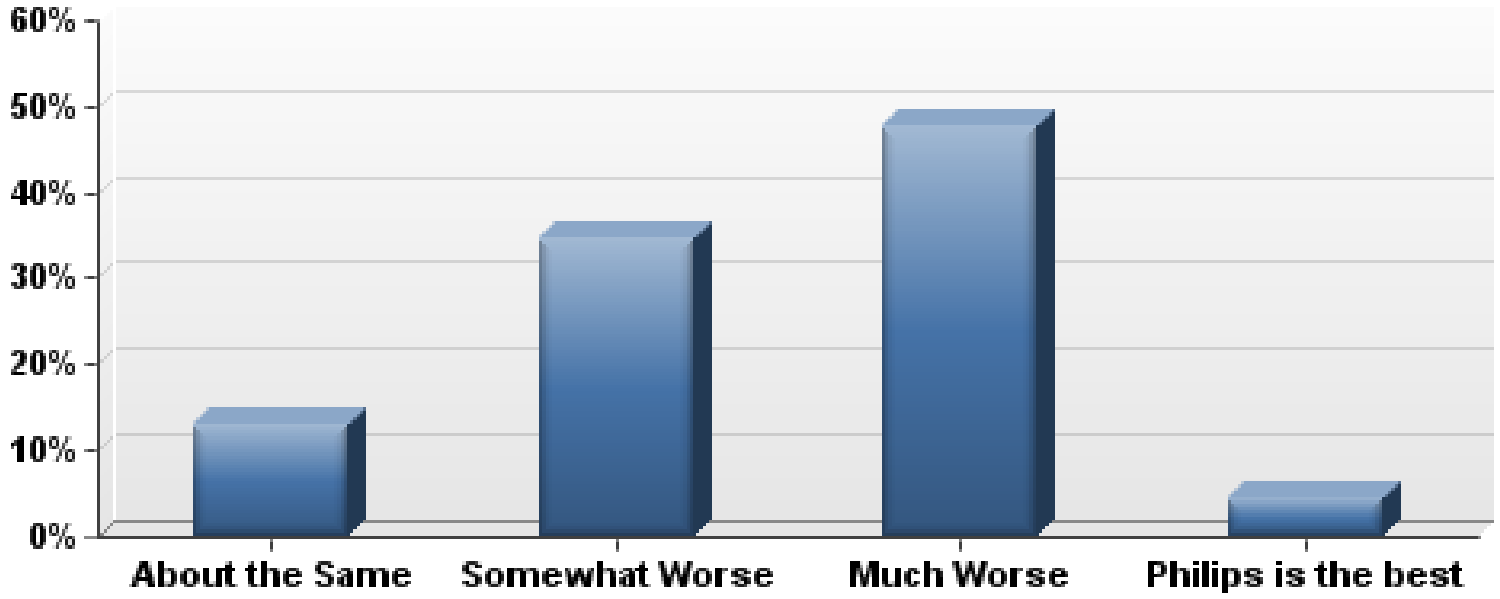
Philips does a good job of keeping customers aware of new Energy Star products but doesn't seem to be proactive in identifying potential issues before they occur or accurate in invoicing.

	Completely Agree	Somewhat Agree	Somewhat Disagree	Completely Disagree	Agree index
Philips responds to issues in a timely manner	23%	27%	23%	27%	**0%**
Philips is accurate in their invoicing of programs	19%	24%	19%	38%	**-14%**
Philips is proactive in identifying potential issues prior to them occurring	14%	27%	32%	27%	**-18%**
Philips keeps us aware of new Energy Star approved products, de-listed items, etc.	36%	36%	18%	9%	**45%**
Philips has shared essential business knowledge across your organization	14%	33%	19%	33%	**-5%**
Philips has focused employees who identify and meet customer expectations	14%	33%	38%	14%	**-5%**

N = 28

How does Philips stack up against the “best in class” utility programs?

More than 4 out of 5 respondents felt that Philips utility program was either somewhat worse or much worse than their idea of a “best in class” utility program.



Philips is a relatively new program, with the learning's we can make adjustments now to improve

N = 23

PHILIPS

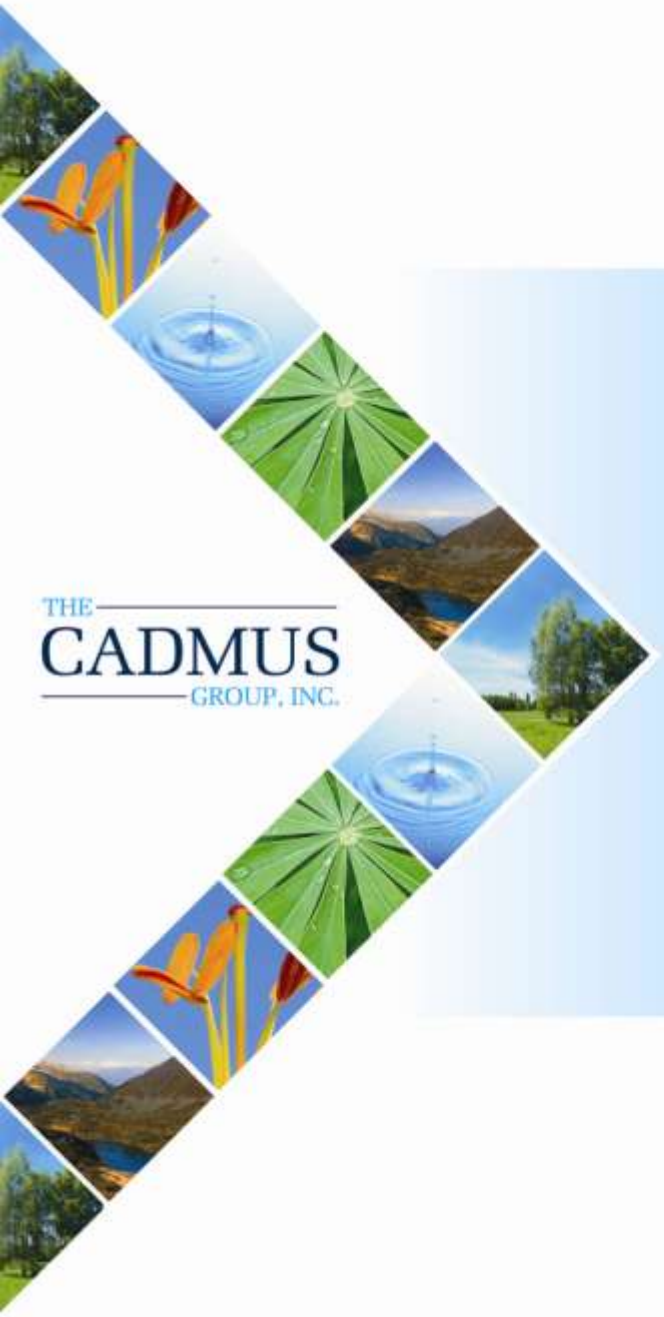
Philips Next Steps…

1. Meet with utility administrators on a monthly basis
   - Conference calls
   - On site visit
2. Review invoicing process to streamline
3. Improve accuracy
4. Improve communication
5. Review competitive programs and how they go to market
6. Resend survey in 4th quarter to check progress

QUESTIONS?

Rene Burger
Rene.burger@philips.com

Survey link:
https://survey.qualtrics.com/SE/?SID=SV_9zVv7GHqGb5WDE8



THE CADMUS GROUP, INC.

A Market in Transition: The New England Response

NEEP Lighting Summit

June 13, 2012

EE Lighting Market Snapshot – June, 2012

The EE residential lighting market is transitioning:

1. EISA:
   - In effect, but **not** enforced
   - Too early to determine legislation's impact
2. LEDs:
   - Omni-directional lamps entering the market
   - Consumers are experiencing sticker shock
3. Consumer Education:
   - Significant need for lumen education exists

Industry's Response

- Retail:
  - Stocking of CFLs, LEDs, and EISA-compliant bulbs varies by store segment
  - 92% of retailers are aware of the EISA transition, but only 32% intend to educate their customers about it[1]
- Manufacturers:
  - Focusing on providing consumers with choice
  - Developing educational tools for lumens, color, and FTC labeling
    - Many program administrators require education as part of incentive programs

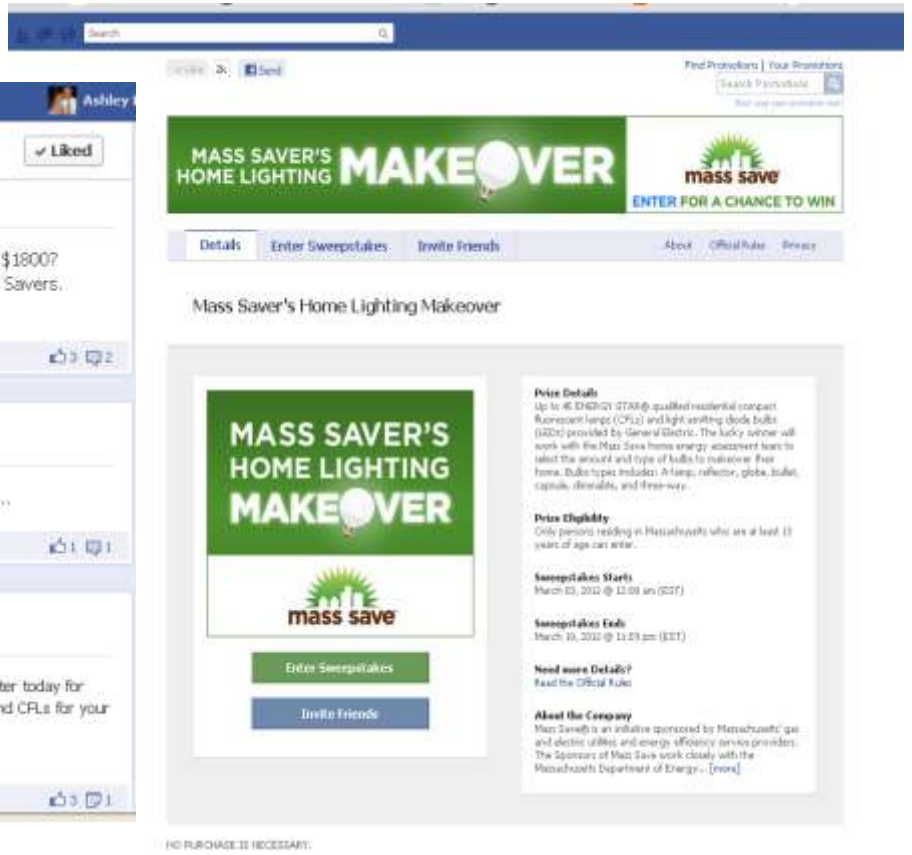
[1] Apex Consulting, May 2012

Example of select manufacturer education tools

The Northeast Response

- Massachusetts & Rhode Island
  - Implemented EISA consumer education advertising campaign:
    - Radio Ads
    - GE retail promotion
    - Facebook sweepstakes
  - Developed video explaining lumens and CCT
  - Planning major fall, retail promotion on LEDs

Mass Saver's Home Lighting Makeover



THE CADMUS GROUP, INC.

MA/RI Lighting Video

The Northeast Response

- Efficiency Vermont
  - Developing education campaign focusing on explaining lighting technologies and how to select the right bulb
- NYSERDA
  - Developing web-based tool to explain various lighting technologies and their benefit to consumers
  - Developed fact card to educate customers on lumens and the Lighting Facts label
- United Illuminating
  - Implemented media campaign to educate consumers on energy-efficient lighting
  - Developed fact card explaining EISA transition, CCT, and right application for LED and CFLs
- Efficiency Maine
  - Using retail events to educate consumers on lumens, CRI, and CCT

Where do we go from here?

- Not business as usual - programs need deeper engagement strategies:
  1. Protect CFL market share and grow when possible
  2. Grow market share for LED replacement bulbs, strategically
- Use tactics that will continue to spark behavior change
  - In-store displays & events, online advertising, retail POP, blogs, videos, social media

Mark Michalski
The Cadmus Group, Inc.
617.673.7249
mark.michalski@cadmusgroup.com


Message to Consumers:
See Yourself in the Best Light


the 70s
Called
AND THEY WANT THEIR HEATER BACK.
Discover Ductless.
Sweepstakes ends 12/31/11
GoingDuctless.com

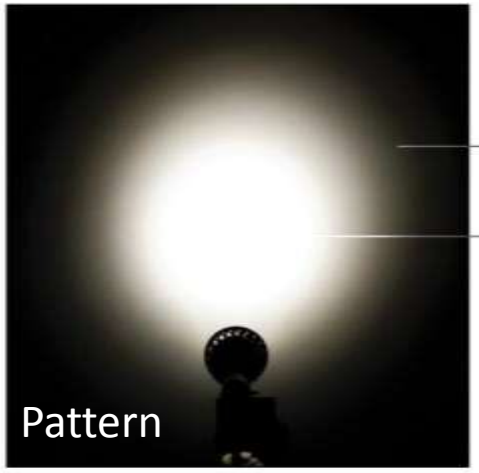

DISCOVER DUCTLESS AND PLAY TO WIN
$10,000!
CLICK HERE

TopTen: Finding the Best Light

- Lab data + human evaluation is key to success
- Consumer Reports also uses panels of human subjects to assess products

<< More Preferred

Less Preferred >>



Smooth edge

Bright center

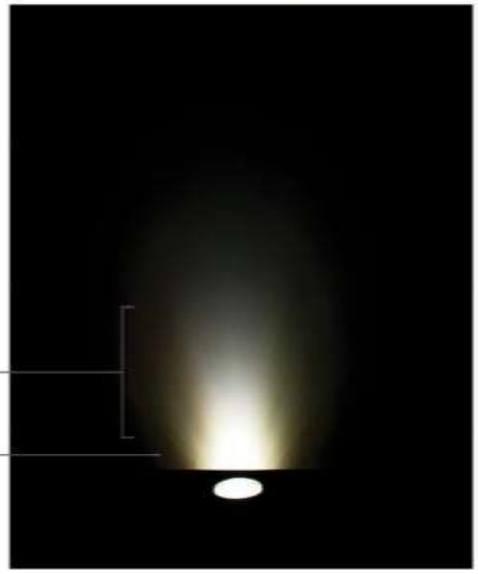
Patterns and other irregularities

High intensity

Most light in beam

Low intensity

Streaks



1 SCREENING

ENERGY STAR data

Sort by category

Confirm availability

2700-3000K CCT

Identify unique models

Sort on efficacy

2 TESTING

Active power
Beam angle
Beam appearance
CBCP
CCT
CRI
Dimming
Efficacy (beam)
Efficacy (overall)
Lamp appearance
SPD
System integration
Thermal
Total luminous flux

3 SCORING

Energy
- Efficacy
- Beam efficacy
- Power factor

Economics
- Simple payback
- Lifetime cost

Photometrics
- SPD variance
- CRI variance
- DUV (delta UV)

Light appearance
- Human factors
- Beam imagery
- Dimming behavior

ENERGY STAR

lamp candidates

TopTen PAR38 LEDs

SORT BY Top Ten Rank | Price

Browse

- TopTen PAR38 LEDs
- TopTen PAR30 LEDs
- TopTen PAR20 LEDs

TopTen tips

- How to Choose an LED Reflector Bulb

Share this list

Ranking Criteria: Energy Efficient LED lights, chosen for efficiency, price, and performance

How We Evaluate Our TopTen PAR38 LEDs

#1

TCP
LED17E26P3830KFL

This is a 17W PAR38 LED floodlight. It replaces a 90W halogen flood.

Hide Energy Details

- Energy Efficient LED lights, chosen for efficiency, price, and performance: 1
- Lifetime energy savings (kWh): 1,817 kilowatt hours
- Lifetime cost savings vs. halogen, including bulb costs: $200
- Years to payback with typical use: 4.1 years (expected lifetime: 23 years)

Price It
View prices from Pricegrabber:
As low as $43.13 from 4 retailers

#2

Osram Sylvania
LED18PAR38/DIM/830/FL40

This is an 18W PAR38 LED floodlight. It replaces a 75W halogen flood.

Hide Energy Details

- Energy Efficient LED lights, chosen for efficiency, price, and performance: 2
- Lifetime energy savings (kWh): 1,434 kilowatt hours
- Lifetime cost savings vs. halogen, including bulb costs: $158
- Years to payback with typical use: 7.7 years (expected lifetime: 23 years)

Price It
View prices from Pricegrabber:
As low as $44.99 from 2 retailers

#3 **Philips EnduraLED** Price It


Message to Consumers:
See Yourself in the Best Light

THANK YOU!

NEEP Residential Lighting Workshop

Highlighting Opportunities of the NE Residential Lighting Strategy to Achieve High Efficiency Lighting Solutions

June 13, 2012

Hilton Stamford Hotel—Stamford, CT

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