



Next Generation Lighting Programs:

Opportunities to Advance Efficient Lighting for a Cleaner Environment

Peter Banwell
ENERGY STAR Partner Meeting
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Charlotte, NC



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New Report



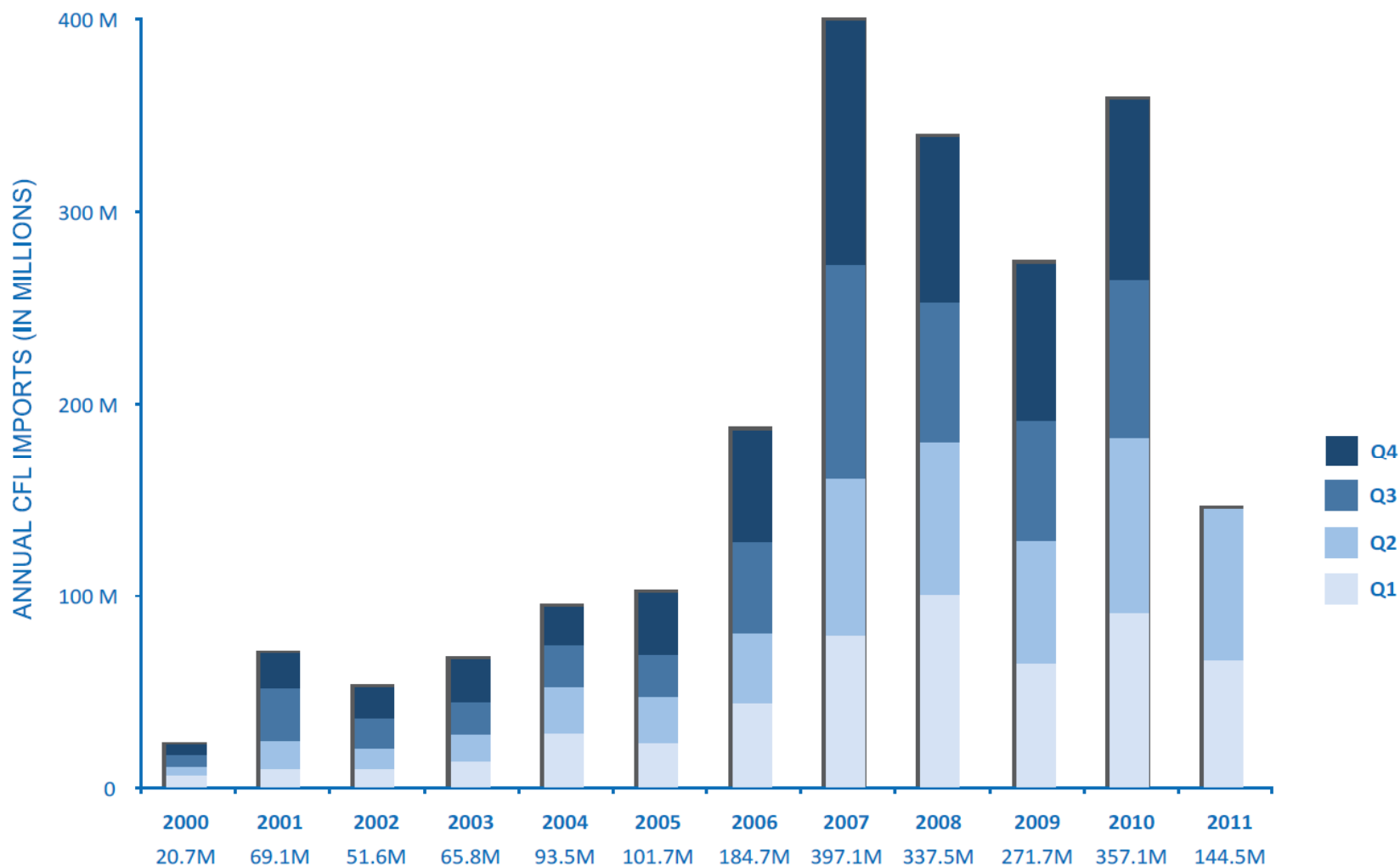
www.energystar.gov/lightingresources

Overview



- Approximately three out of four light sockets in the U.S. still contain inefficient light bulbs.
- Residential lighting programs will continue to offer cost-effective savings well into the future.
- LED reflector bulbs represent a new opportunity for efficiency programs.
- Future lighting programs should use a portfolio approach to incorporate a variety of efficient lighting technologies in addition to CFLs.
- Increased budgets for consumer education will be needed to mitigate consumer confusion.
- Significant savings remain in the market.

2011 CFL Imports Lower Compared to Last Year



EISA Requirements & Market Factors



EISA Effectiveness	Typical Incandescent Replacement	Typical Incandescent Light Output	Typical Incandescent Efficiency	EISA Replacement	EISA Light Output Ranges	EISA Minimum Efficiency Ranges
1/1/12	100 W	1690 lm	17 lm/W	72 W	1490-2600 lm	21 – 36 lm/W
1/1/13	75 W	1170 lm	16 lm/W	53 W	1050-1489 lm	20 – 28 lm/W
1/1/14	60 W	840 lm	14 lm/W	43 W	750-1049 lm	17 – 24 lm/W
1/1/14	40 W	490 lm	12 lm/W	29 W	310-749 lm	11 – 26 lm/W

- Numerous factors will affect the “baseline” during transition period
 - Inventory after implementation date
 - Lamp hoarding
 - Option to purchase exempt lamp types (e.g. rough service)
 - Bin jumping

Baseline Wattage Will Migrate to EISA Levels, but not Immediately



Estimated baseline wattages by year

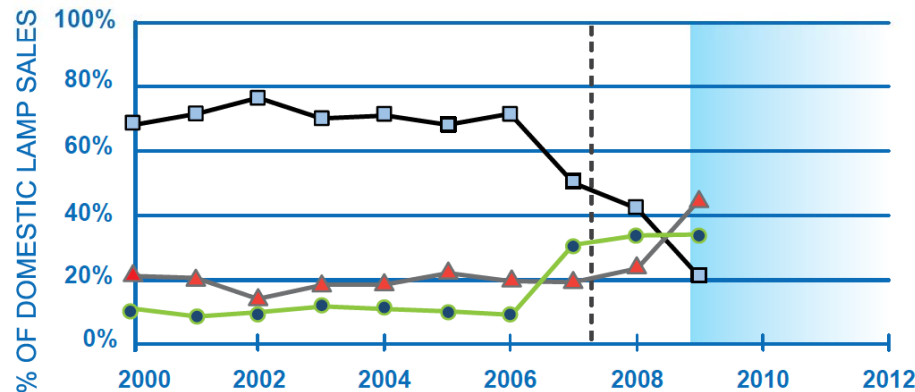
Lumen Bin	2011	2012	2013	2014
1600 lumens	94-100 W	88-93 W	78-83 W	74-78 W
1100 lumens	71-75 W	70-74 W	63-66 W	56-59 W
800 lumens	57-60 W	57-60 W	53-57 W	47-50 W
450 lumens	38-40 W	38-40 W	36-38 W	32-34 W

- As a result, programs can claim greater savings (than EISA levels) in the near term.

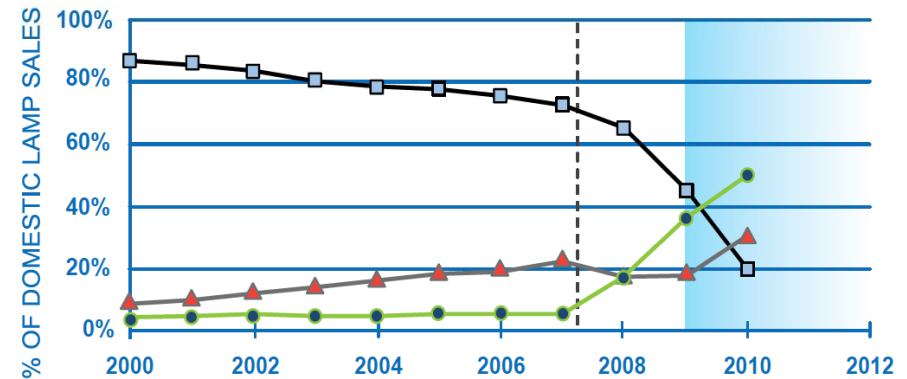
Varying Responses to “Phase-Out” Regulations Abroad



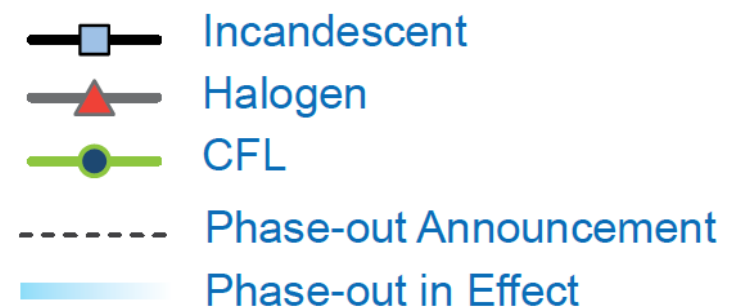
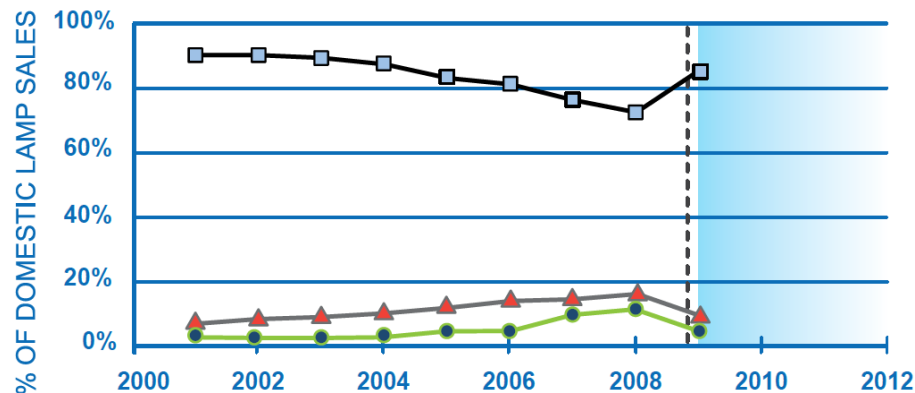
AUSTRALIA



UNITED KINGDOM



AUSTRIA



Source: IEA 4E Benchmarking Document: Draft Benchmarking Impact of “Phase Out” Regulations on Lighting Markets, July 2011

Specialty CFLs



Shatter Proof	3-Way	Decorative	Reflector
			

- Many program implementers increasing specialty CFLs in programs
 - Manufacturers continue to develop wide variety of specialty CFLs:
 - Dimmable
 - Covered
 - Shatter Resistant
 - Three-way
 - Decorative
 - Reflector Lamps
- } These lamp types will be exempt From EISA in the near term

ENERGY STAR LED Reflector Lamps Now Available for Most Prevalent Applications



Lamp Type	Residential	Commercial	Total	Percentage	Average *
PAR	133	68	202	33%	66
BR	219	27	245	40%	65
R	48	5	53	9%	45
MR-16	42	78	120	19%	37
Total	442	178	621	100%	59

* Weighted averages based on DOE data



PAR38



BR30

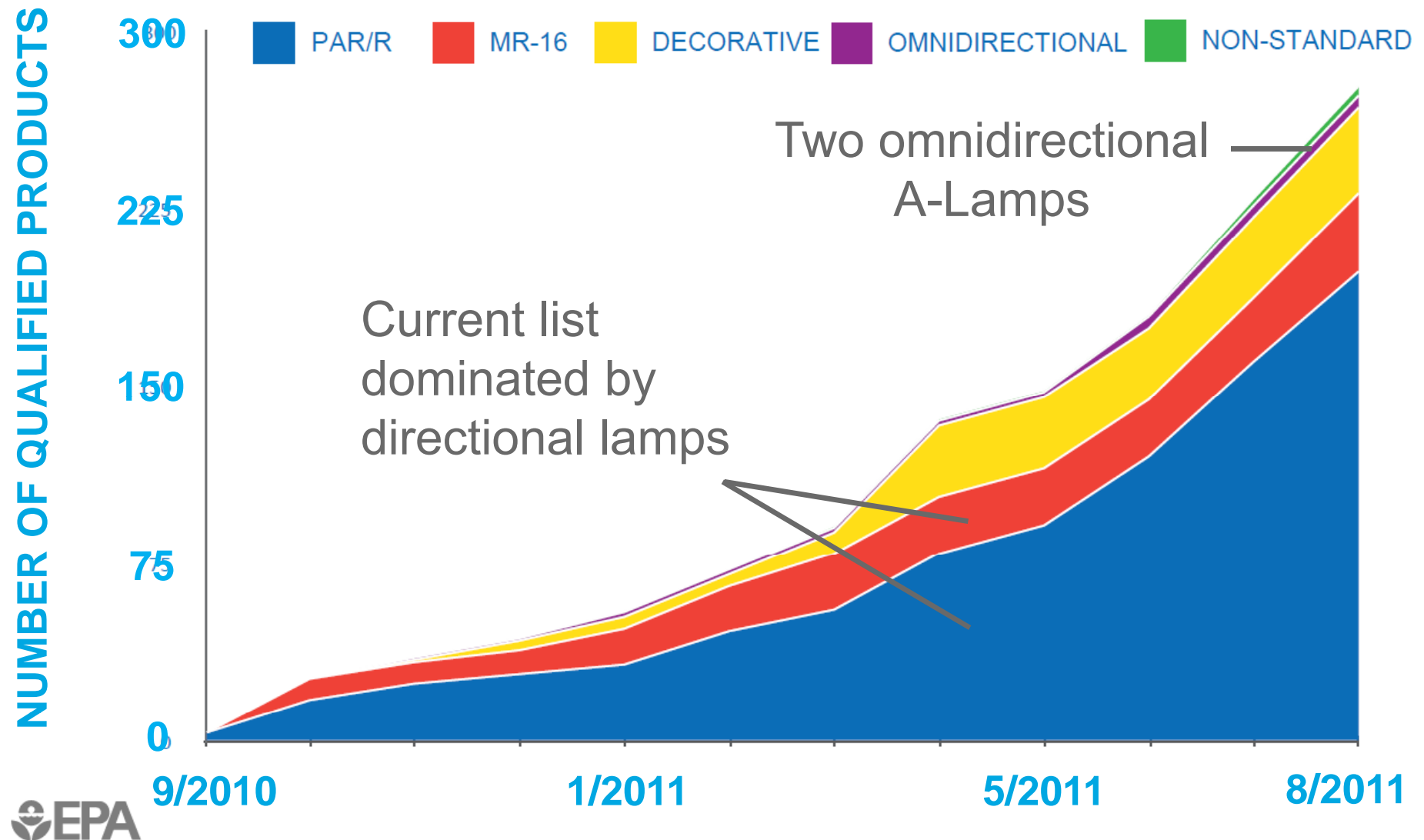


MR-16



Source: Navigant Consulting, Energy Savings Estimates of Light Emitting Diodes in Niche Lighting Applications, Jan 2011

ENERGY STAR LED Bulbs



ENERGY STAR as a Mark of Quality



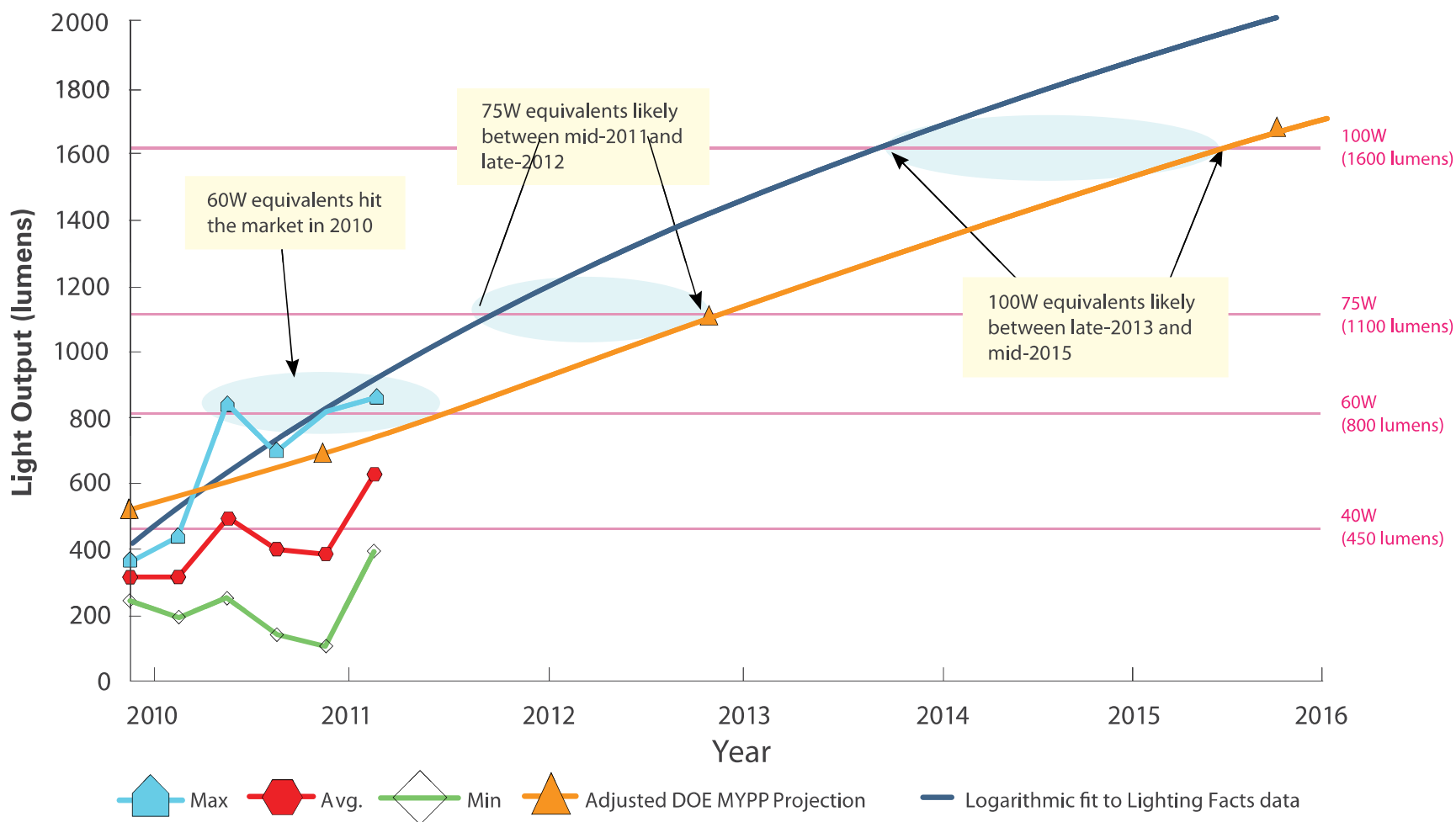
The Importance of ENERGY STAR as a Mark of Quality for LED Bulbs

Efficient lighting products can vary widely in quality; therefore, consumers benefit greatly from a quality assurance program. ENERGY STAR is known for advancing energy efficiency, but is equally strong on overall product quality since the specifications include:

- Verified compliance with 26 separate industry standards and procedures
- Third party testing of products off the retail shelf (in development for 2012)
- Rapid cycle testing of every product model, thousands of times, to find early failures
- High heat tests to stress the products in operating environments similar to actual field operation
- Verification of packaging claims
- 3 year warranties



LED A-Lamps Continue to Improve



Source: DOE Lighting Facts® Program. Product Snapshot: LED Replacement Lamps, April 2011

Non-standard Lamps



Non-Standard LED A-Lamp



Omnidirectional LED A-Lamps



Many Factors in Play Effecting Program Cost Effectiveness



- ΔW is declining, but will not drop as fast as people may think
- Net to Gross (NTG) ratios are dropping for CFLs in many regions
- Incremental costs are declining
 - Compliant incandescents cost more than traditional bulbs
 - LED bulbs dropping in price quickly

EPA Price Tracking Database



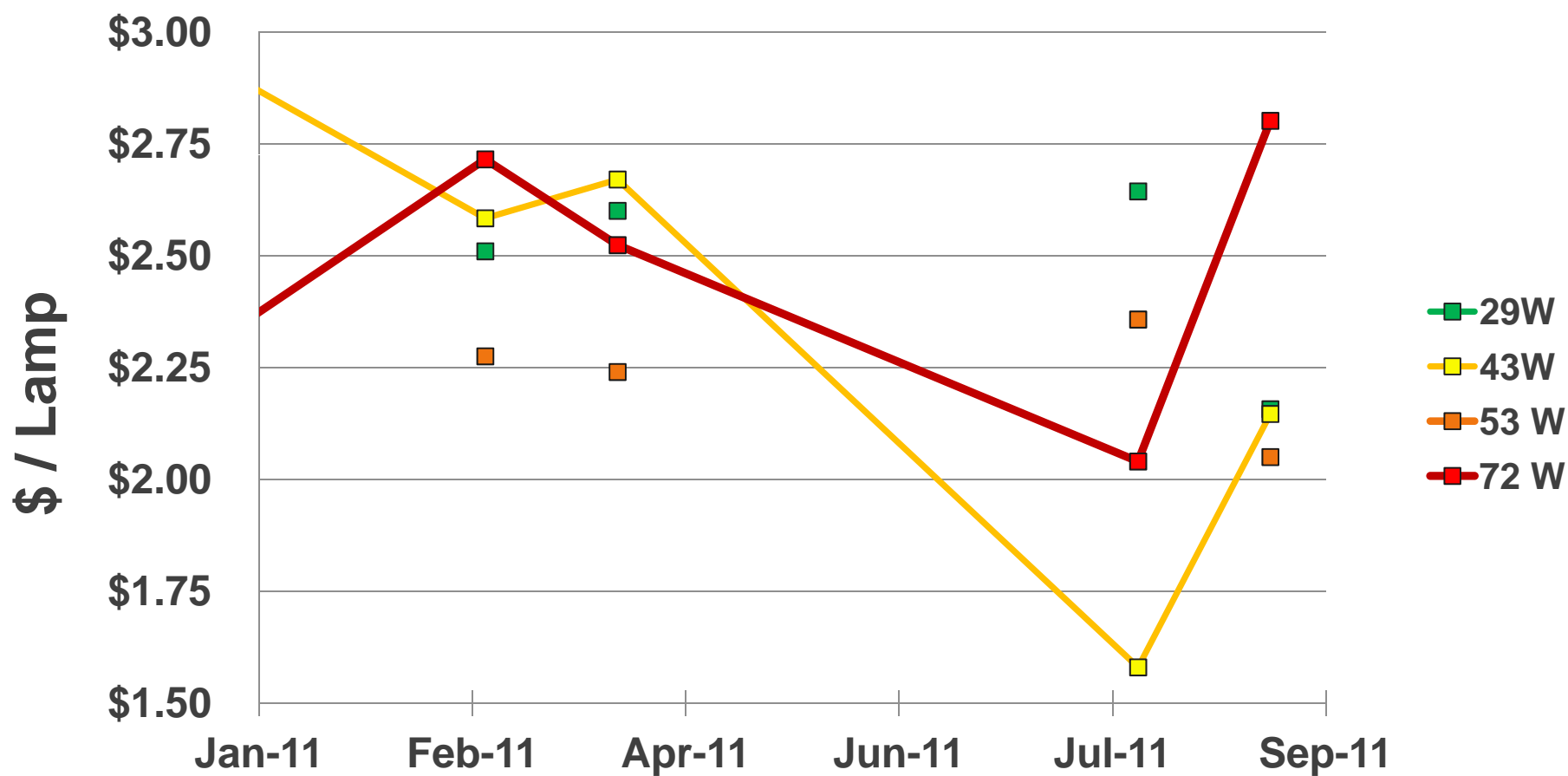
- Will be available on the Web soon!
 - www.energystar.gov/lightingresources
- Currently tracking online prices for the following lamp types:
 - EISA Compliant Halogen
 - ENERGY STAR LEDs (screw-base)
 - CFLs (In development)

EISA Complaint Halogen Incandescent			
Lumen Bin	Average Price/Bulb	High	Low
310-749 lm	\$ 2.16	\$ 2.50	\$ 1.61
750-1049 lm	\$ 2.15	\$ 2.50	\$ 1.63
1050-1489 lm	\$ 2.05	\$ 2.73	\$ 1.63
1490-2600 lm	\$ 2.80	\$ 3.04	\$ 2.63
Current Prices as of September 2011			

EPA Price Tracking Database



Price trends of EISA compliant halogen lamps



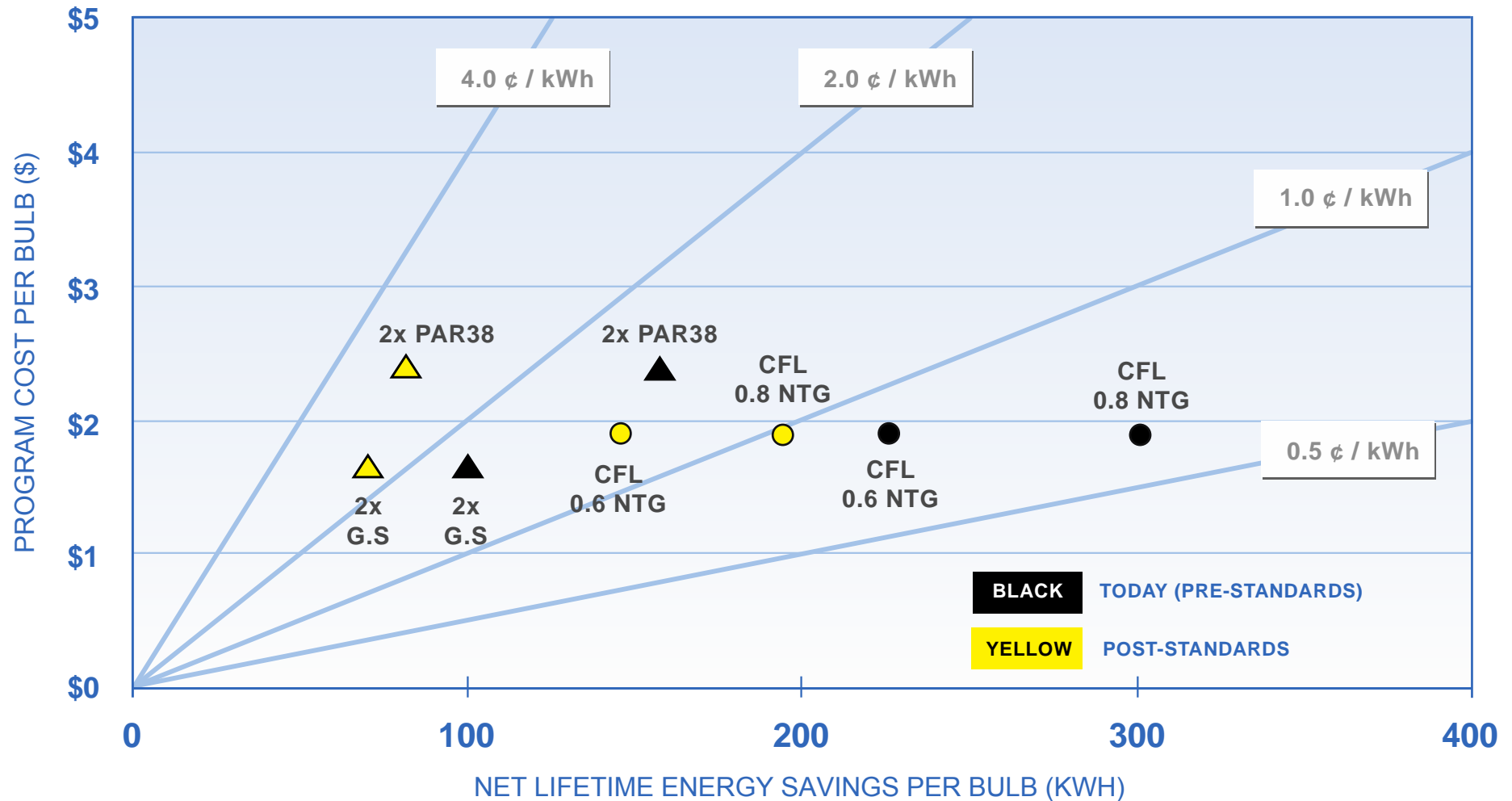
EPA Price Tracking Database



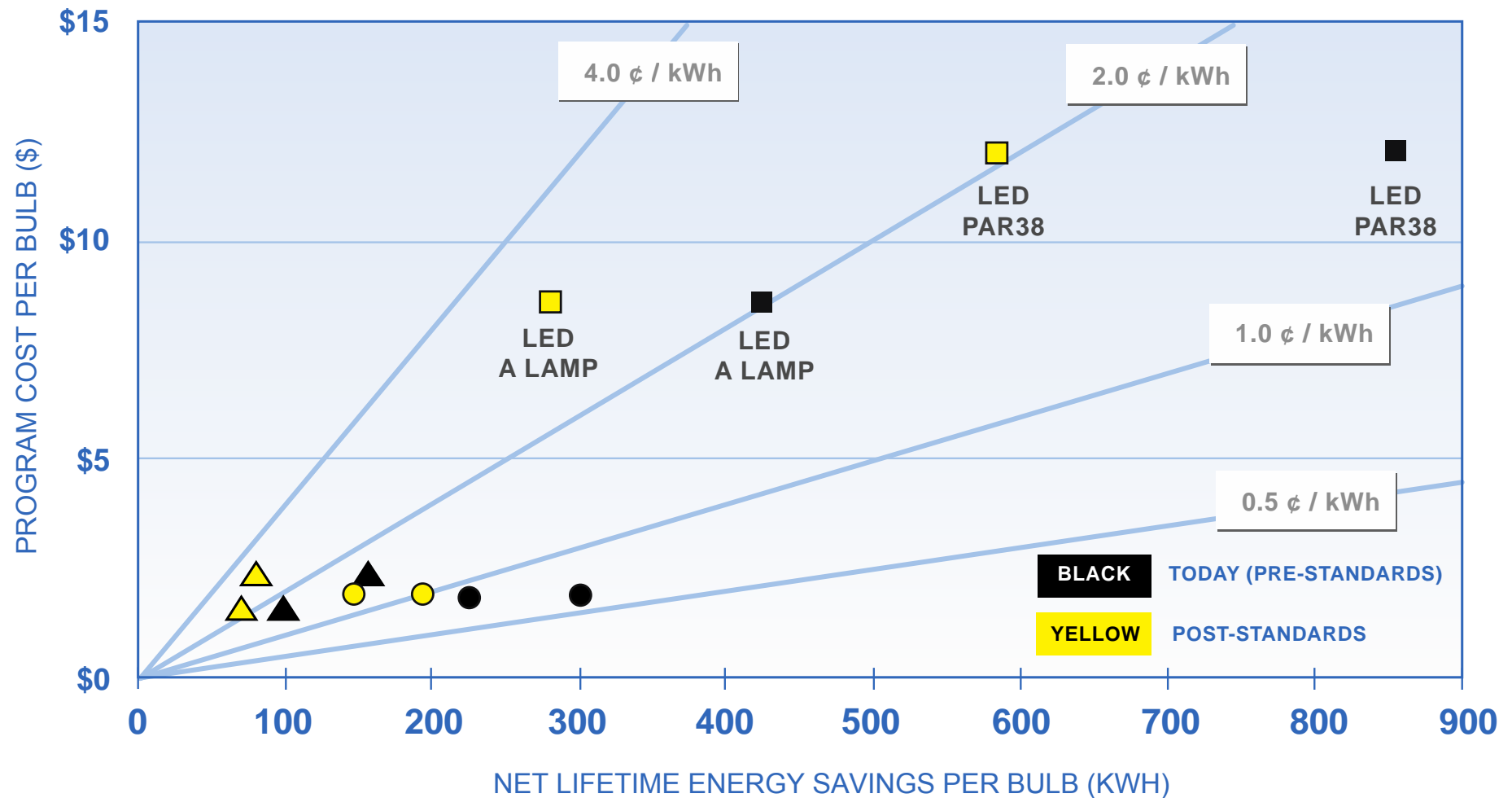
- Current prices of ENERGY STAR LED Bulbs

ENERGY STAR Qualified LED Bulbs*		
Type	Average Price	Sample Size**
Candle	\$ 16.26	n = 12
Globe	\$ 31.42	n = 9
MR16	\$ 32.10	n = 18
Omnidirectional	\$ 33.00	n = 2
PAR20	\$ 42.62	n = 17
PAR30	\$ 53.68	n = 21
PAR38	\$ 62.40	n = 23
R30	\$ 87.49	n = 1
*Screw base only		
**Currently expanding scope of tracking		
Latest Update: Oct 1, 2011		

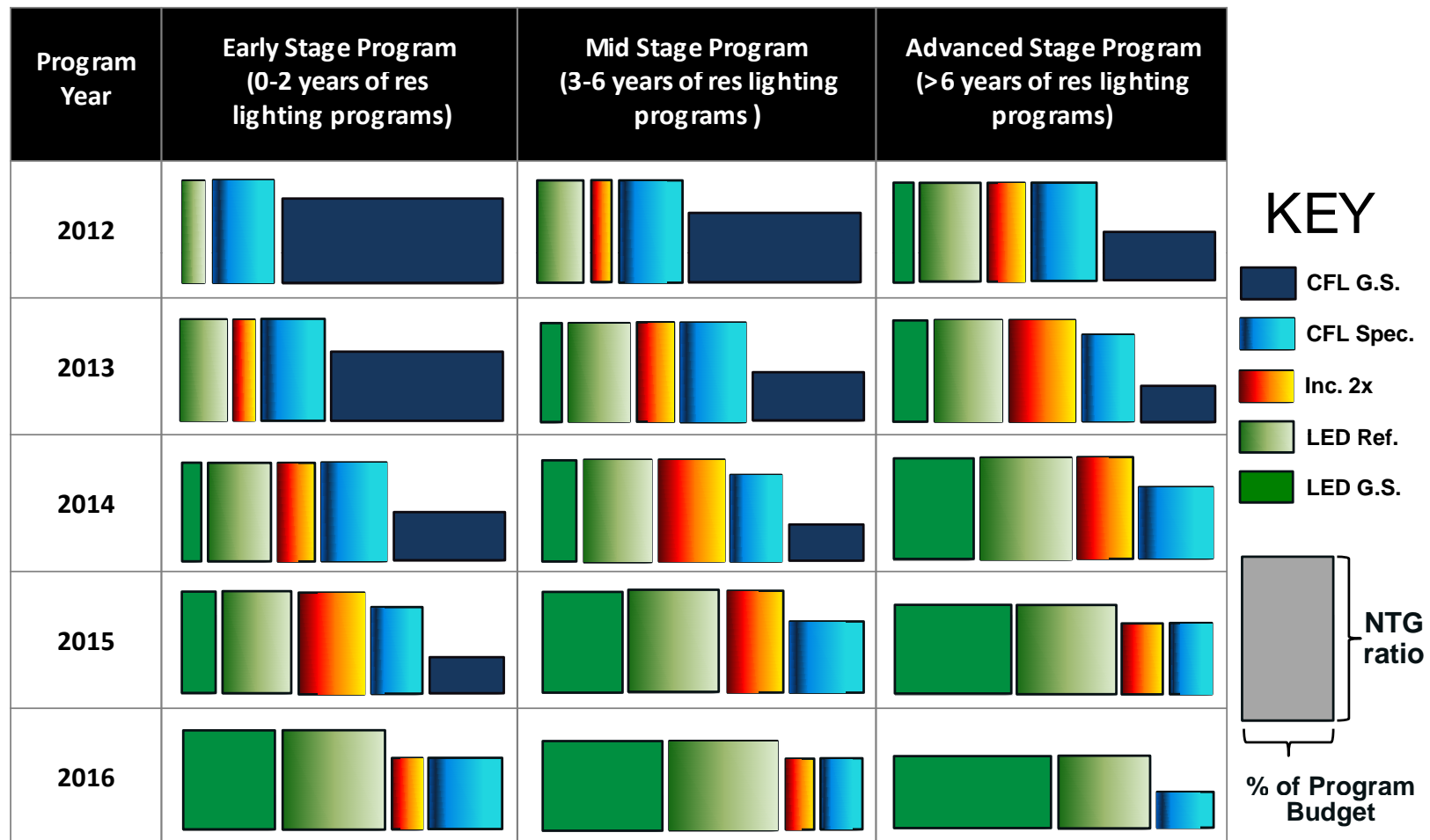
Many Cost Effective Options Remain to Save Energy (after EISA)



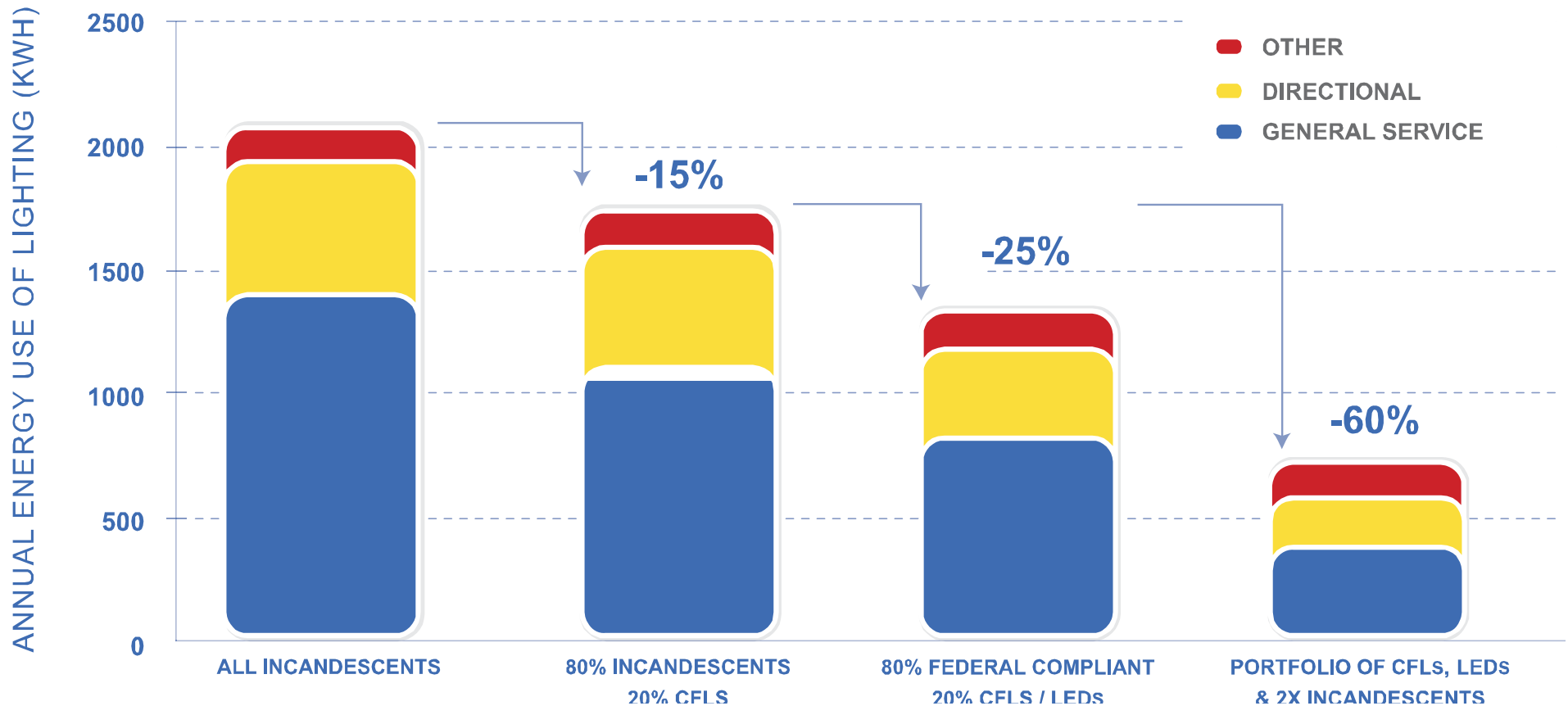
Many Cost Effective Options Remain to Save Energy (after EISA)



The Portfolio Approach



Significant Savings Remain

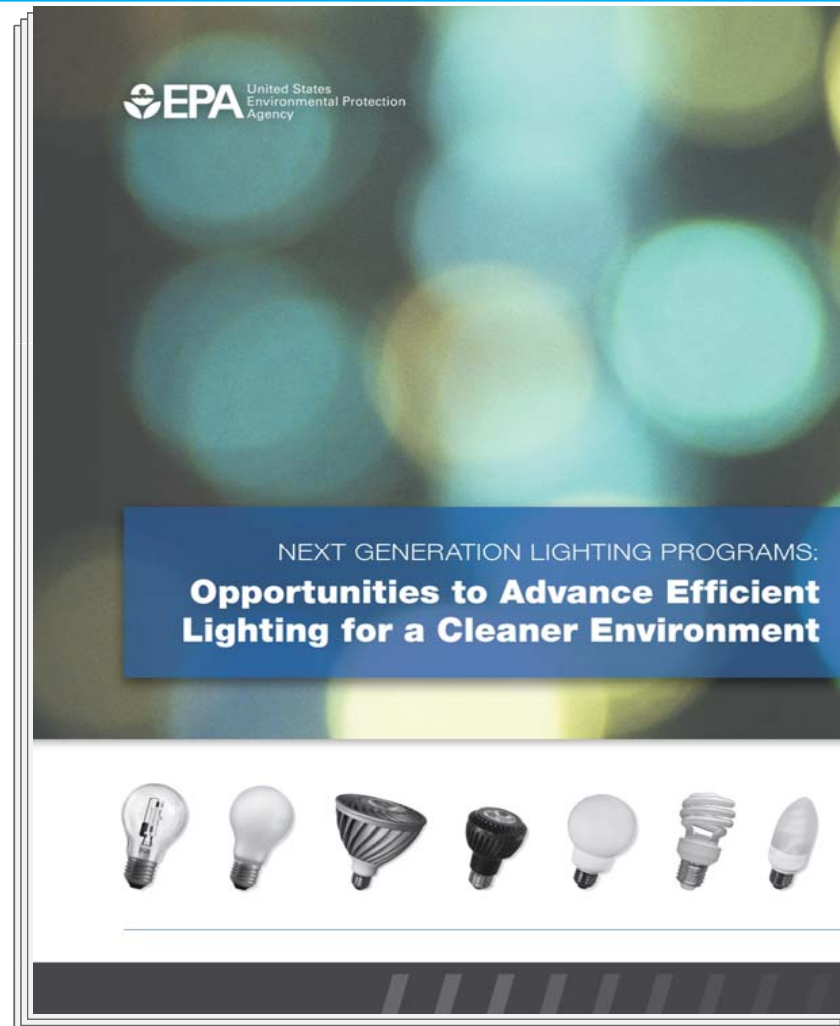


Conclusions



- Upcoming standards will not eliminate the need for lighting efficiency programs.
- New technologies like LED are more expensive, yet can still be a cost-effective option for programs.
- ENERGY STAR is a mark of quality.
- Careful planning can allow lighting efficiency programs to extend far into the future.
- The opportunity to save more energy than CFLs have in the last 20 years is now!

For more information:



Peter Banwell
Banwell.peter@epa.gov
202 343 9408



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