

Lighting Market Transformation: A California Perspective





Overview

- **PG&E Background**
- **California Lighting Strategic Plan**
 - **Lighting Action Plan**
 - **Lighting Market Transformation**
- **Product Methodology/Roadmap**
- **Transition Challenges**



Pacific Gas and Electric Company



Energy services to 15 MM people:

- 5.1 MM Electric customer accounts
- 4.3 MM Natural Gas accounts

70,000 square miles with diverse topography and climate zones

20,000 employees

A regulated investor-owned utility



Ranked the greenest utility in the United States in 2009 and 2010





PG&E Energy Efficiency Portfolio

Since 1976, PG&E's energy efficiency programs have:

- **Saved 155 million MWH and 12.5 billion therms**
- **Helped California avoid building 24 large power plants**
- **Saved customers over \$24 billion**
- **Avoided 155 million tons of CO₂ emissions**



Our services include:

- Financial incentives and rebates
- Training and education
- Energy audits and technical assistance
- Energy codes and standards support
- Low income energy efficiency programs

Channels:

- Utility programs
- Local government partnerships
- Third-party implementers

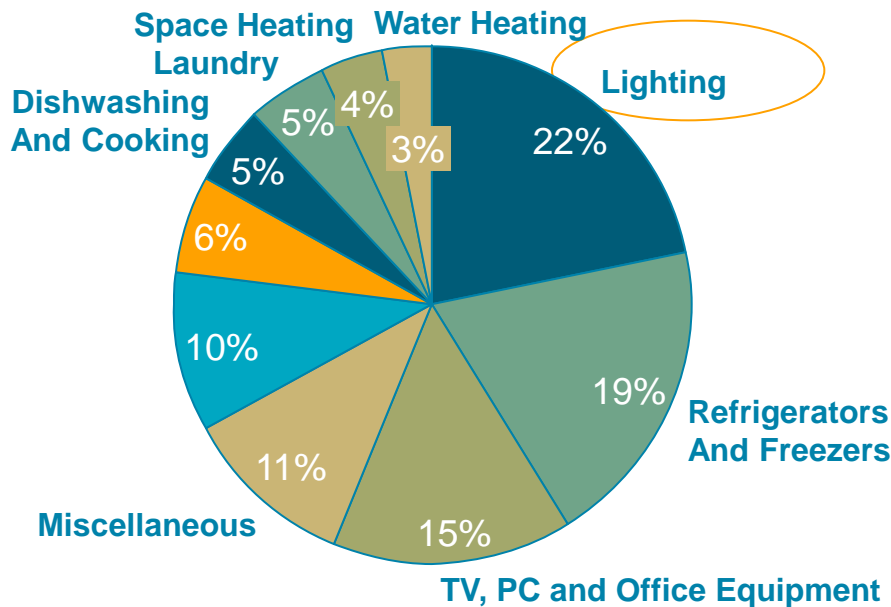


California Lighting Use Profile

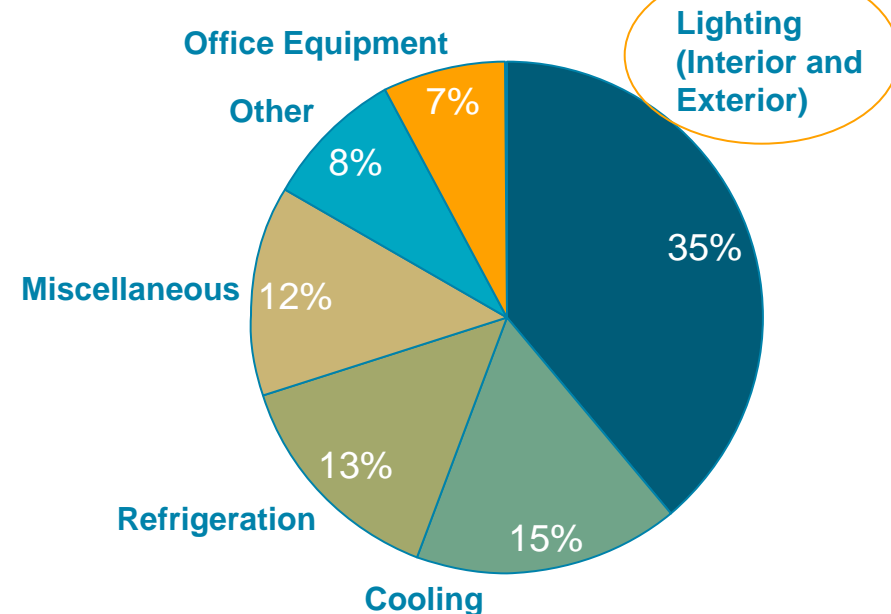
Overview:

- Lighting comprises ~25% of California electricity use.¹
- Significant code impacts to major drivers of program energy efficiency savings (linear fluorescent and CFL)

Residential¹



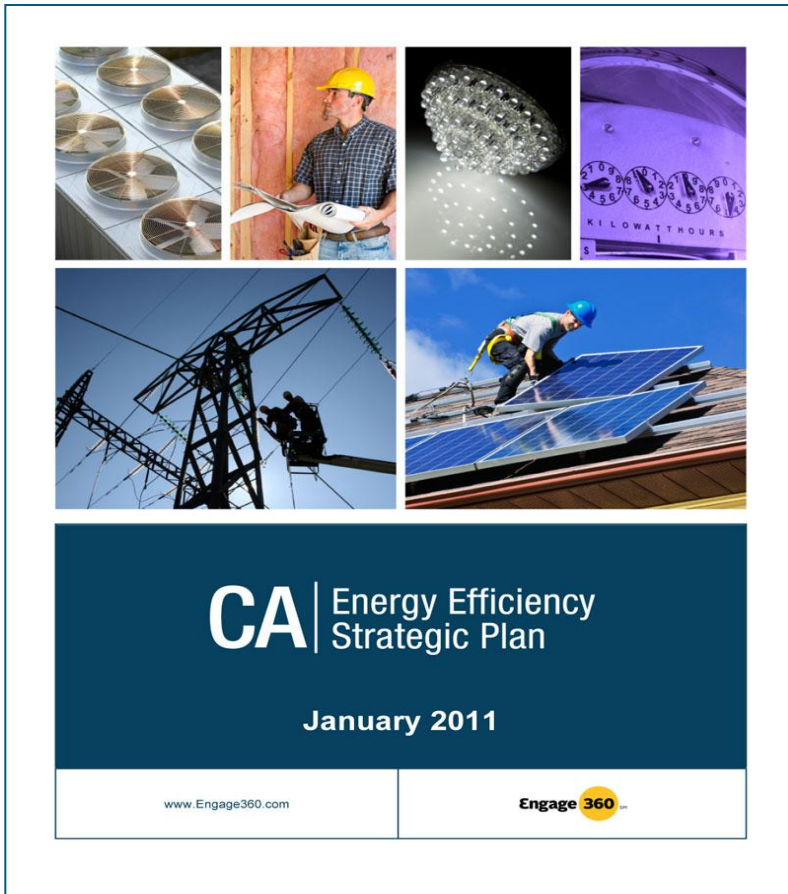
Commercial¹



¹Source: California Energy Efficiency Strategic Plan, 2008



California Strategic Lighting Plan



Overview:

- **Adopted 9/23/2010**
- **Goal of reducing lighting energy use by 60-80% by 2020**
- **Lighting Action Plan Milestones**
- **Lighting Market Transformation Program**



Lighting Action Plan Champions



PHILIPS



LUMENERGI™



FINELITE



HLB

IALD



nbi

WattStopper™



Good





Lighting Action Plan: Example Strategy

Milestone	Champions	Key Actions	Timeline
1-1-4 Design and test innovative program delivery strategies (e.g., IOU pilot program) to accelerate market transformation	Dave Bend, PG&E	Design trial studies and pilot programs to test innovative delivery strategy	Complete
	Bob King, Good Company	Launch trial studies and pilot programs	Q4 2011
	Vireak Ly, SCE	Initiate evaluations of trial studies and pilot programs	Q4 2011
	Lela Manning, SDG&E	Review evaluation results	Q2 2012
		Propose/adopt changes (if any) to programs for next program cycle	Q4 2012



Pricing Test

PG&E completed a pricing test for LED PAR and MR lights in two mass market retailers.

- **Purpose**: To test different incentive levels to determine optimal price
- **Duration**: Three phases, each lasting four weeks
- **Incentive Levels**:

Product	High	Medium	Low
MR-16	\$10	\$5	\$2
PAR30/PAR38	\$15	\$10	\$5



Pricing Test-Results

For PAR 38 lamps (retail \$40), the highest rebate amount (\$15) generated the highest sales increase, but the middle incentive level (\$10) produced similar results.

- Sales Increases:

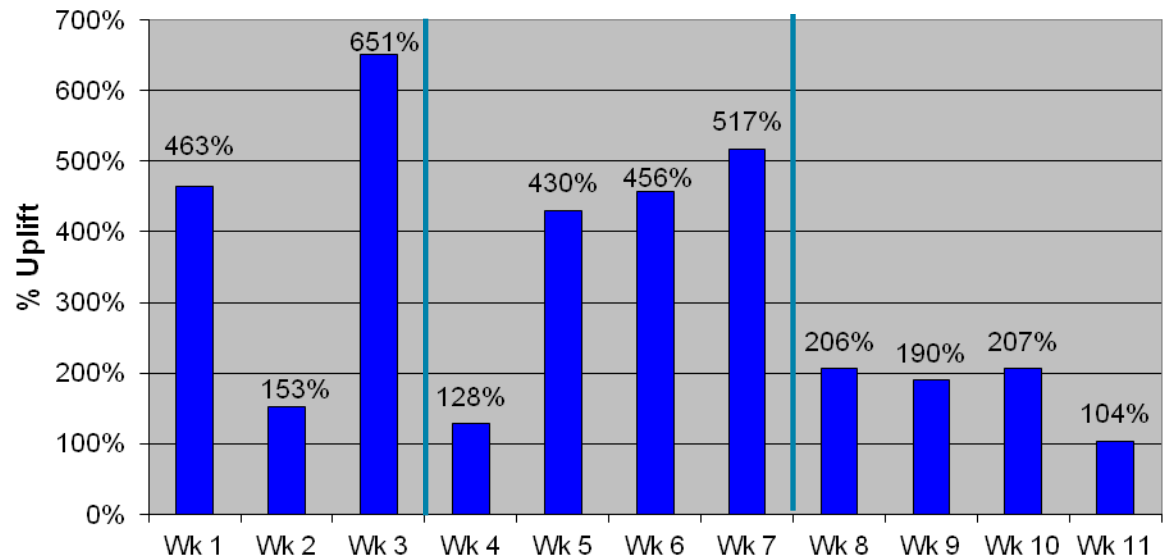
- \$15: 422%
- \$10: 383%
- \$5: 177%

- Baseline: Month of previous sales data

- Limitations:

- Insufficient Inventory
- Missing Signage
- Knowledgeable Sales Staff

Pricing Test: LED PAR38





Lighting Market Transformation Program

- Program in 2010-2012 portfolio
- PG&E, SCE, SDG&E
- Three goals:
 - Formalize a process by which the IOUs can rapidly introduce advanced lighting solutions and emerging technologies to the marketplace, improve existing lighting programs, and develop new program strategies;
 - Provide better access to education and information regarding existing and emerging lighting technologies for all market actors;
 - Formalize a process by which the IOUs can determine when a specific lighting technology has become sufficiently mainstreamed and no longer requires IOU program support.
- Key 2011/12 Activities
- Solutions Workbook
- ET Project Tracker (Under Development)



PG&E Product Roadmap Methodology

- **Three Primary Lenses**

- Technology Readiness (Quality, Application Alignment, Price)
- EE Potential (MW, Net Benefits)
- Customer Value (Bill Impact)

- **Additional Lenses**

- Codes and Standards
- Res/SMB Alignment



Product Roadmap

	2011	2012
Residential	Directional LEDs (MR-16, PAR, Recessed Downlight)	Omnidirectional (A-Line, Candelabra, Globe)
Commercial (Interior)	Directional LEDs	Omnidirectional LEDs, High Bay, 2X2 Troffer, 2X4 Troffer
Commercial (Exterior)		Area, Canopy, Wallpack



Transition Challenges

- Advanced lighting more expensive; not necessarily more efficacious
- EISA understanding
- Education and outreach
- Product quality



Marketing Efforts and Education

With so many different technologies in the market, there is consumer confusion. We feel that this is an opportunity for utilities to help lead the way and educate consumers. We are designing collateral for two main purposes: Driving Sales and Consumer Education.

☀ DIMMER BRIGHTER ☀

LUMENS		450	800	1100	1600
MOST EFFICIENT ↓ LEAST EFFICIENT	Standard Incandescents 	40W	60W	75W	100W
	New Halogen Incandescents  Save up to 28%*	29W	43W	53W	72W
	CFLs  Save up to 75%*	9W	14W	19W	23W
	LEDs  Save up to 77%*	8W	13W	17W	N/A

*Percentage of energy saved by replacing a standard incandescent light bulb; based on usage of approximately 796 hours annually and average residential rate of .15 cents/kWh.



Thank You!

Dave Bend

Principal, Lighting Products Team

Pacific Gas and Electric Company

(415) 973-7150

david.bend@pge.com