

*“Harvesting the Remaining
Massive Energy Savings in Screw
Based Sockets”*



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Where Are We?

- Most homes already have 1 or more CFLs
- CFL saturation much greater than in 2000 (sales jumped from < 25 million to 400 million/yr);

BUT

- At least 4 out of 5 screw based sockets still contain least efficient option, today's incandescent

MISSION NOT ACCOMPLISHED

- Why stop at 1 in 5 success rate? When are we satisfied with “losing” 4 out of every 5 times?
- Res lighting continues to offer dramatic energy savings oppty. quickly
- Funded T-12 to T-8 retrofits for decades. Also utility incentives for E-Star products with market share >25% quite common

Ongoing Challenges/Realities

- **Still need to compete with 25¢ inefficient incandescent. Fed standards not till 2012 (60W, which is 1/2 the market, not till 2014)**
- **Many users unwilling to put CFLs in many of their sockets. We need a more efficient “one” that they’ll buy and like for these sockets.**
- **Growth in recessed cans; dimming circuits increasingly popular in remodels and new construction.**
- **High quality, “bright” screw based LEDs not yet available**

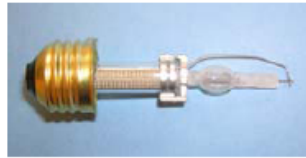
Don't Turn the Lights Out on CFL and Other Bulb Rebates!!!!

- Keep focus on harvesting the massive remaining energy savings associated with screw-based lighting
- Don't bail, simply update your approach and program designs.
- Expand portfolios to include a wider range of products including next generation incandescents, super CFLs, etc.
- Continue emerging technologies work to pull new products to the market, with emphasis on LEDs

Places everyone!

Volunteers please

The 100 watt Replacement



LED of the future

CFLs
(50-70 LPW)

Next generation
Halogens

Philips Halogena
(23 LPW)

25 ¢ light bulb
(15 LPW)

Watts

Next Generation Incand/Halogens

- Already have “Halogenas”, 30% less power (100W→70W; 60W → 40W). Meets Tier 1 Federal standards.
- Price ~\$4 today; low volume, no federal standard; few competing products yet. Price to come down in future.
- Next generation coatings can yield up to 60% savings (eg 100 → 40W).

Efficiency of General Service Lamps can be Significantly Improved

100 Watts,

1500 Lumens, 15LpW

1000 Hours

40 Watts,

1500 Lumens, 37.5LpW

1000 Hours

40 = 100
Performance

Standard Incandescent Lamp

Hybrid Electric Lamp



ADVANCED
LIGHTING
TECHNOLOGIES, INC.

DSI Deposition Sciences
INCORPORATED

Bringing Technology to Light™

“Super CFL”

- Key elements being considered by CA IOUs:
 - Faster run-up time
 - Able to withstand higher operating temp (e.g., jelly jar, recessed can)
 - Better dimming (no hum, flicker)
 - Lower mercury
 - Slightly Improved color
- Bulb not yet on market, cost unknown (~\$5?)
- Goal – today’s Super CFL becomes tomorrow’s everyday CFL (E-Star)

Super CFL Questions

- Rebate structure: x cents for regular CFL; x for Super CFL
- Need to project volume and incentive budget, and communicate this to the manuf. and retailers
- Preliminary testing needed? Through 1,000 hours enough?
- All dimmable, or dimming and “dimming safe”
- How to go beyond CA?
- *Note – super CFL does NOT save any more energy per bulb than a conventional CFL.*

Recessed Can Lamps

- Better incandescent-based reflectors could be brought to the market
- 65 W → 40 W - already exist on limited basis
- 65 W → 30 W – add improved silver reflector
- Less “first cost shock” as inefficient products are also expensive (~\$7)

Longer Life, High Efficiency IRL's Possible

65 Watts,
715 Lumens, 11.2 LpW
1750 Hours
Incandescent Filament



40 Watts,
715 Lumens, 17.8 LpW
3000 Hours
IR Halogen



30 Watts,
715 Lumens, 23.8 LpW
3000 Hours
Hybrid IR Halogen



LEDs

- Best use as directional light source
- Cost of good quality product currently very high
- Rebate unlikely to persuade consumer to buy screw-based LED bulb (e.g., go from \$25→\$20), or need even larger rebate and you further reduce cost effectiveness.
- Rebating CFLs (regular and super) and dramatically improved incandescent based products makes more sense
- Focus LED efforts in this cycle on integral fixtures (better able to manage the heat)
- Wait for “L Prize” to play out for screw based bulbs.

LED Deco Light



Retail Price : \$34.99

Lumens: 200 Lumens

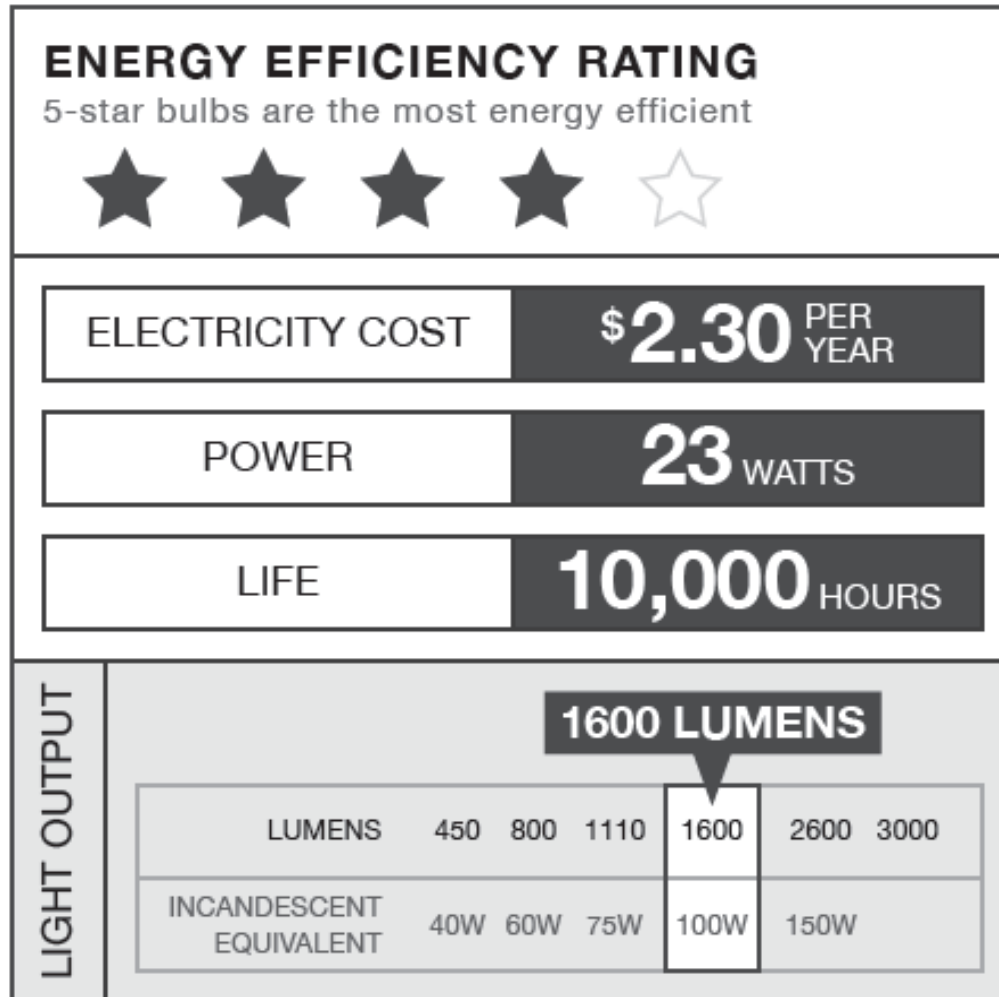
Life: 20,000 hrs

Power: 7 Watts

Consumer Labels

- Consumers used to buying lamps by wattage – get me a 100, 75, 60 or 40W
- Imagine confusion in the future – new Philips 40W really gives off as much light as old 60W. If new choice on the shelf is 40 or 70W, some will mistakenly buy the 70W (its closer to 60 😊)
- Need to find way for consumers to eventually buy lumens and consider total cost.
- See transitional label from NRDC and Ecos

NRDC/Ecos Prototype Consumer Label



The New World

- **OK** – just meet EISA, things like today's Halogena
- **Better** – dramatically improved incandescents (50% savings)
- **Best** – CFLs (today's and further improved) and LEDs of the future

*Programs should focus on **better and best.***

Doesn't make sense to rebate the "OK" as it uses roughly 3X more power than a CFL