



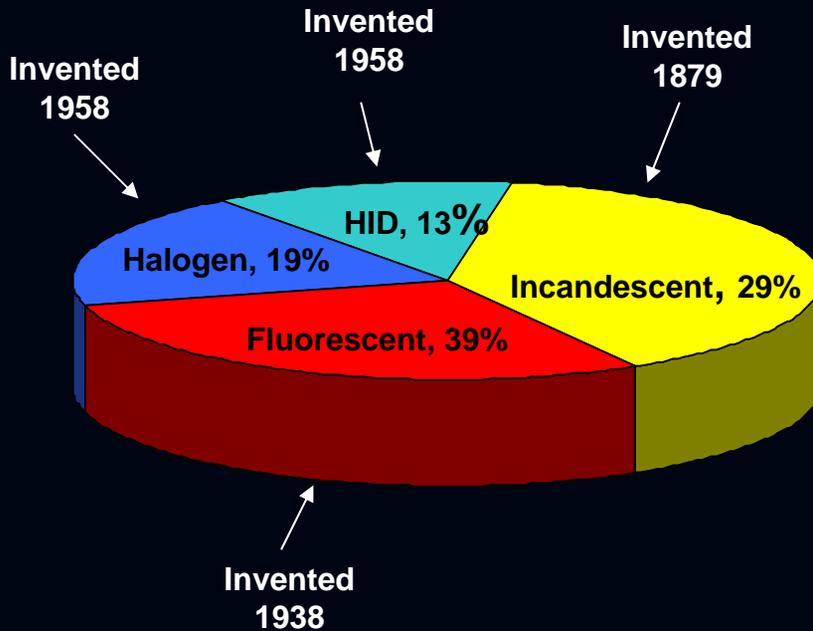
A “Real” LED Light for General Illumination

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LED Lighting Fixtures, Inc.

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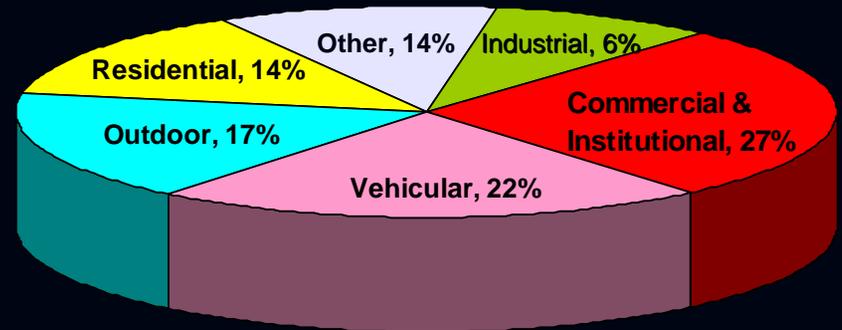
Today's Market For Conventional Lighting

Light Source as % of Revenue



Source: Strategies Unlimited 2002

Application as % of Revenue



Source: "2005-2006 Outlook for the US Lighting Fixture Industry"
Business Trend Analysts, Inc.

Why LEDs For Lighting?

Energy Efficient

LEDs use approximately 17% and 50% of the energy consumption of incandescent and compact fluorescent (CFL), respectively.

Long Life

Lasts more than 20X longer than incandescent and 5X longer than CFL, which lowers maintenance costs (e.g., no bulb to replace and lasts > 20 years).

Environmentally Safe

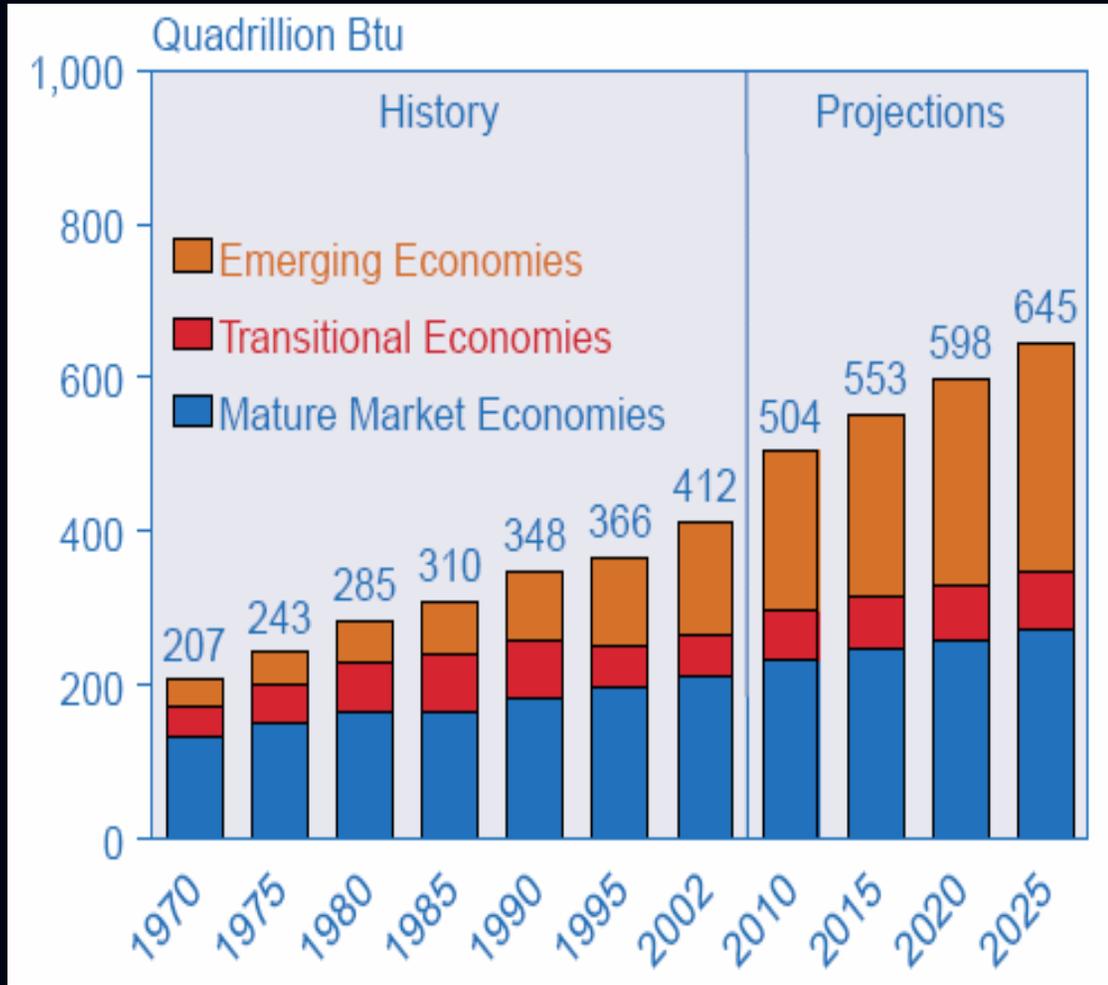
All fluorescent lamps and tubes including CFL, contain mercury (considered toxic waste). LEDs are environmentally safe.

Virtually Unbreakable & Lightweight

LED fixtures are extremely durable which is an advantage to builders and consumers. Lightweight fixtures will simplify and lower total installed cost.



Economic Benefits of LEDs



Source: DOE International Energy Outlook, July 2005

- Projected 50% increase in WW energy consumption over the next 20 years
- In U.S., lighting consumes approximately 22% of all electricity
- If LEDs were used for all U.S. lighting, total energy consumption could be reduced by more than 10%

Environmental Benefit of LEDs

Traditional lighting sources
create greenhouse gases

CFL bulbs contain mercury:

- Consumers used to throwing away incandescent bulbs.
- In California: Title 22 passed which provides guidelines for disposing of toxic waste. Proposition 65 requires builders and landlords to place warning signs on residences that use CFL.



Why LED Lighting Has Not Been Adopted

- Not enough light output from fixtures
- Costs too much
- Inconsistent color quality

Reason: Many companies take a top down approach and simply place existing packaged LEDs into a fixture



LLF Introductory Product

Q1 2007 Launch

Six-inch Down Light Product for Residential Markets

- Delivers 600+ lumens from the fixture at 10-12 watts
- Provides excellent color rendering (92-93 CRI)
- Offers color temperatures of 2700K and 3500K (warm white and cool white)
- Targeted at a distributor price of \$50 (for volume purchases) per fixture at 60 lumens per watt
- Designed with Edison socket retrofit capability



A “real” light

What Do Consumers Really Want From LED Lighting?

- It must look like a “real” light
- Cost must be justifiable compared to existing solutions
- Must have an easy installation solution



What Makes a Fixture a “Real” Light

	Incandescent (65W BR30)	CFL (18W)	LLF LED
Delivered light output (measured in lumens)	550-650	600-720	600-700
Color temperature: Neutral light (commercial) Warm white (residential)	N/A 2700	3500 2700	3500 2700
Color quality (CRI) (sunlight is 100)	100	80	92-93
Optimized distribution of light (measured in foot candles) Counter tops Walls	27.1 fc 10.5 fc	33.1 fc 14.3 fc	29.2 fc 16.7 fc

Technical Advantage of LLF LED Down Lights

- Uses a “bottoms up” approach to technology. Experts in LED die and systems integration. As a result, LLF invented an optimal way to maximize light extraction while maintaining quality color.
- Creates light output using attributes of LEDs rather than running LEDs at high current levels.
- Brings a unique solution to respond to thermal, binning and system integration issues usually found in LED sources.
- Invented intellectual property in these areas – over 40 patent applications.



Other Challenges For LED Fixture Designs

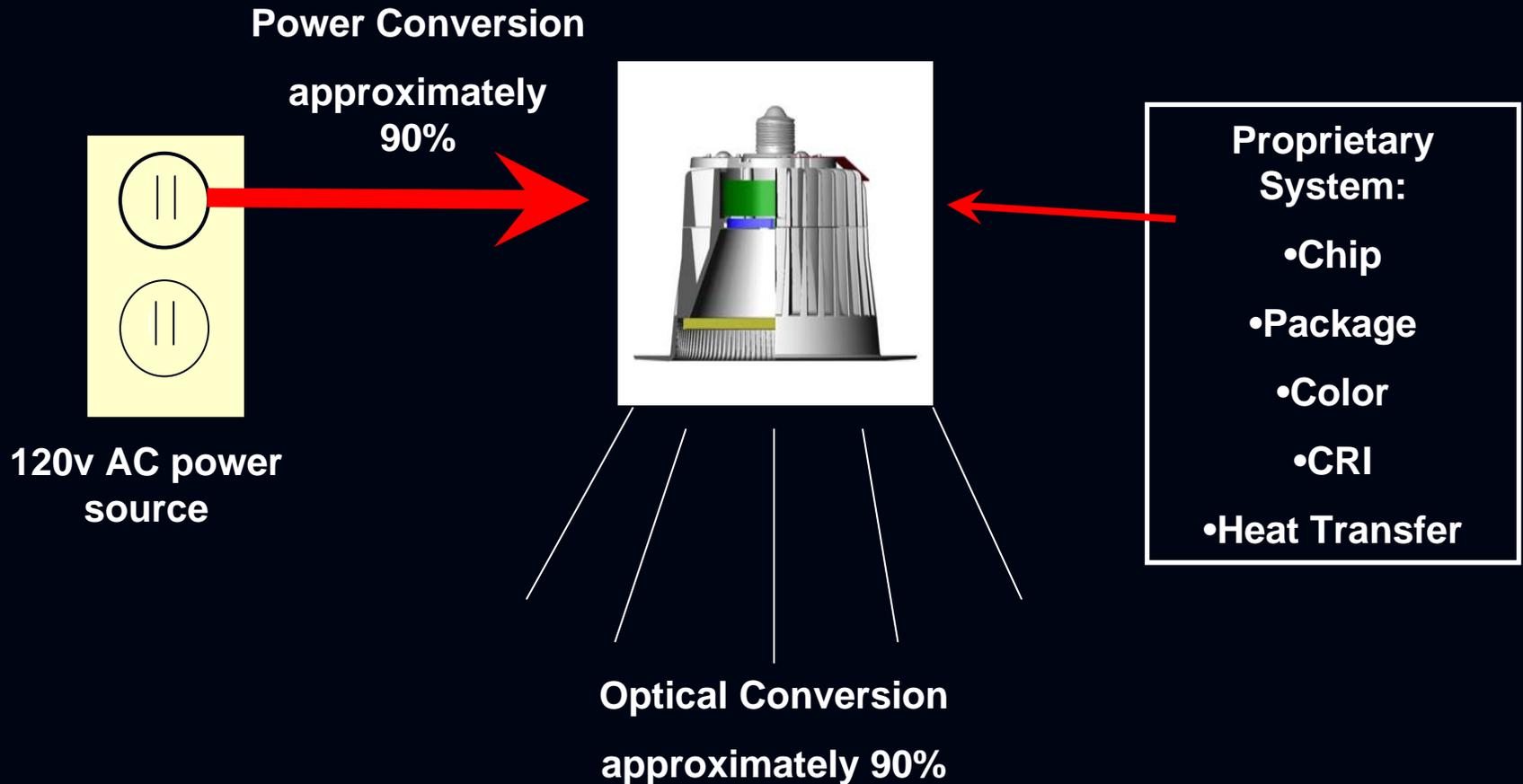
Power Supply Considerations:

- LEDs operate differently than incandescent and CFL applications and efficient power conversion must occur
- Product must be dimmable

Optics:

- Very important to maximize light extraction from the source. This is not trivial for LEDs.
- Minimizing pixelation is critical to the appearance of the product

Optimized LED System



Technology Innovator.....Not Simply a Box Builder

Cost: Must Be Justifiable

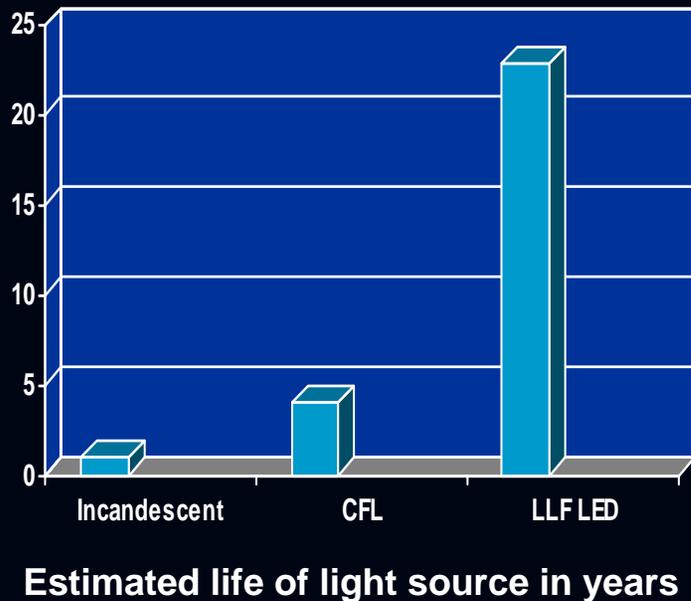
EFFICACY is most important - Leads to lower energy cost

	Incandescent	CFL	LLF LED
Lumens\watt from fixture (usable light)	9	32.5	60
Wall plug energy consumption	65 watts	20 watts	10 watts
Lumen output from fixture	600 lumens	650 lumens	600 lumens
Annual energy cost per 6" can*	\$ 19.93	\$ 6.13	\$ 3.07
LLF LED energy savings	6.5 X	2.0 X	

*At \$0.14 per kWh (California residential) based on 6 hours per day

Cost: Must Be Justifiable

Long Life Drives Lower Cost



	Incandescent	CFL	LLF LED
Number of light sources needed in 22.8 years	23	6	1
Cost per replacement	\$ 4	\$ 6	\$ 50
Total replacement cost	\$ 92	\$ 36	\$ 50

This analysis does not include the lower maintenance costs of not changing a light source

Cost: Must Be Justifiable

Residential Pay Back Analysis



	Incandescent	CFL	LLF LED
Annual energy cost per can*	\$ 19.93	\$ 6.13	\$ 3.07
Energy cost over 5 yr	\$ 99.65	\$ 30.65	\$ 15.35
Fixture cost (including light source)	\$ 15	\$ 35	\$ 50
Cost of light source replacement	\$ 4	\$ 6	\$ --
Cost of light source replacement 5 yr	\$ 20	\$ 6	\$ --
Total cost of ownership 5 yrs	\$ 134.65	\$ 71.65	\$ 65.35

* At \$0.14 per kWh (California) based on 6 hours use per day

Builder and contractors also save money, LED product is durable and non breakable

What Are Other Challenges

Manufacturing- low cost high quality:

- Use outsourced partners with a core competency in LEDs
- Procure quality raw materials, specify certain vendors

Protect intellectual property:

- Keep designs close to the company
- File patent applications for every significant idea

Logistics:

- Customs importation experience imperative with off shore manufacturing, there may be domestic opportunities when all costs are considered
- Optimize the number of SKUs, and the amount and timing of inventory to lower cost and minimize scrap and inventory locations

Financing:

- Raise money before you need it and get more than you think you need
- Optimize working capital (inventory and receivables)

How LED Lighting Will Change The Industry

Traditional Lighting

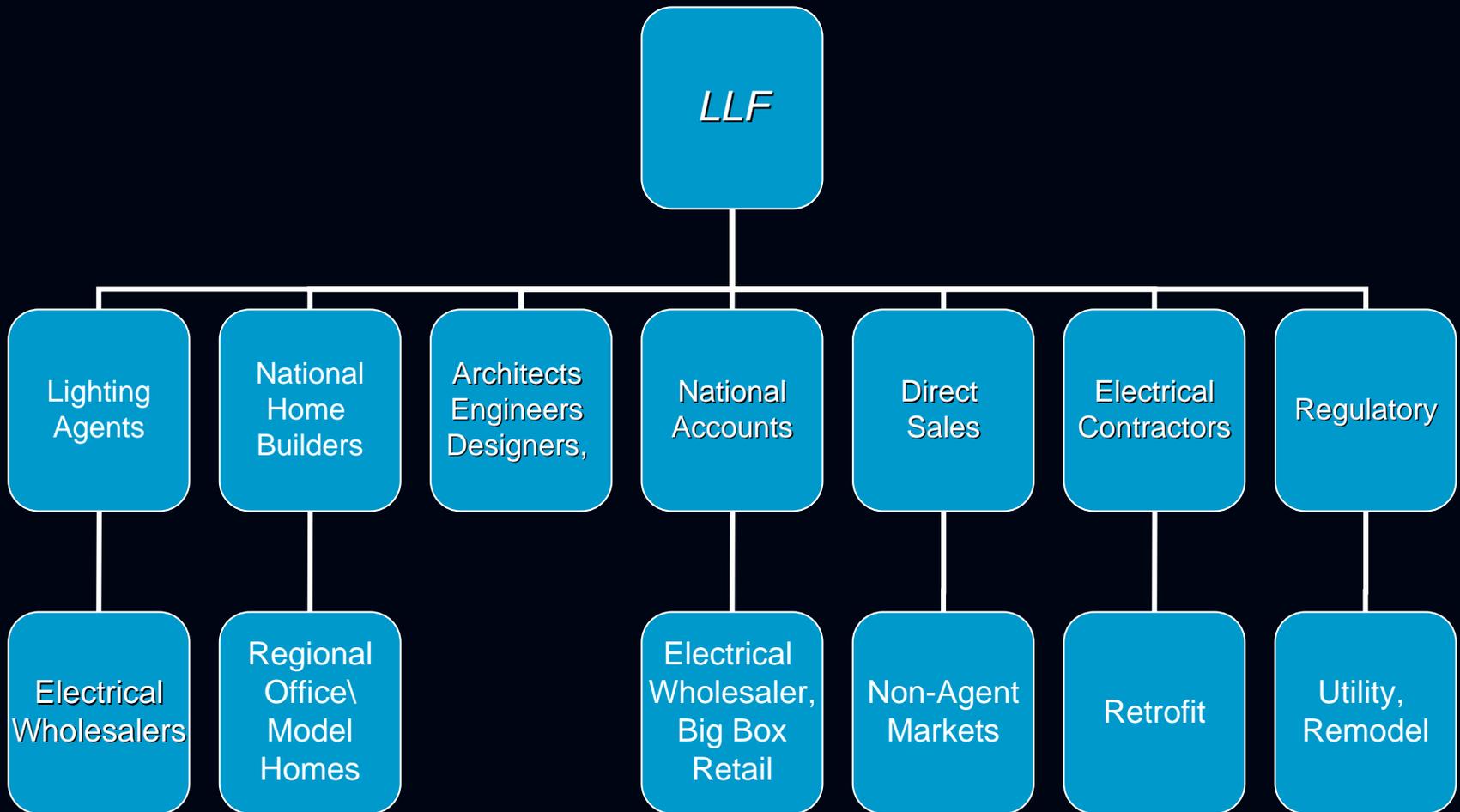


LED Lighting Model



Replacement cycle is virtually eliminated – major change for mature industry

LLF Path To Market



Common mistake is to break from traditional channels

LLF's Strategy To Win

- Match LED performance to markets where it can win. Over time LED output and efficacy will improve and new markets will evolve:

2007 Output 600 lumens – Residential down light, light commercial
2010 Output over 2,000 lumens – Commercial designs, outdoor
- Continue to lower the cost model. Pass savings on to market to open new sales channels to make LED lighting more accepted.
- Build a team of sales distributors and agents who have been successful in lighting and recognize the future of LEDs.
- Work with government to support other opportunities, such as Energy Star requirements for LEDs (no less than CFL) and California's Title 24 (up to 50% of lighting in kitchens must be high efficiency).
- Develop rebate programs with utilities to further reduce costs.



Saving energy, saving our environment and saving money

Change the way the world is illuminated forever

LLF's "Real" LED Light for General Illumination