

# GE Lighting

## JP Morgan LED Conference

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### Caution Concerning Forward-Looking Statements:

This document contains “forward-looking statements” – that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance and financial condition, and often contain words such as “expect,” “anticipate,” “intend,” “plan,” “believe,” “seek,” “see,” or “will.” Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, particular uncertainties that could cause our actual results to be materially different than those expressed in our forward-looking statements include: current economic and financial conditions, including volatility in interest and exchange rates, commodity and equity prices and the value of financial assets; potential market disruptions or other impacts arising in the United States or Europe from developments in the European sovereign debt situation; the impact of conditions in the financial and credit markets on the availability and cost of General Electric Capital Corporation’s (GECC) funding and on our ability to reduce GECC’s asset levels as planned; the impact of conditions in the housing market and unemployment rates on the level of commercial and consumer credit defaults; changes in Japanese consumer behavior that may affect our estimates of liability for excess interest refund claims (Grey Zone); our ability to maintain our current credit rating and the impact on our funding costs and competitive position if we do not do so; the adequacy of our cash flow and earnings and other conditions which may affect our ability to pay our quarterly dividend at the planned level; our plan to resume GECC dividends, which is subject to Federal Reserve review; our ability to convert customer wins (which represent pre-order commitments) into orders; the level of demand and financial performance of the major industries we serve, including, without limitation, air and rail transportation, energy generation, real estate and healthcare; the impact of regulation and regulatory, investigative and legal proceedings and legal compliance risks, including the impact of financial services regulation; strategic actions, including acquisitions, joint ventures and dispositions and our success in completing announced transactions and integrating acquired businesses; the impact of potential information technology or data security breaches; and numerous other matters of national, regional and global scale, including those of a political, economic, business and competitive nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements. We do not undertake to update our forward-looking statements.

“This document may also contain non-GAAP financial information. Management uses this information in its internal analysis of results and believes that this information may be informative to investors in gauging the quality of our financial performance, identifying trends in our results and providing meaningful period-to-period comparisons. For a reconciliation of non-GAAP measures presented in this document, see the accompanying supplemental information posted to the investor relations section of our website at [www.ge.com](http://www.ge.com).”

“In this document, “GE” refers to the Industrial businesses of the Company including GECC on an equity basis. “GE (ex. GECC)” and/or “Industrial” refer to GE excluding Financial Services.”



imagination at work

# Agenda

- Industry / environment
- GE Lighting business overview
- What matters in LED



# Industry / Environment

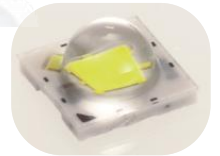
# Global technology shift

## Incandescent



- Filament based
- Inefficient – 65 watts
- Two-year life
- Cost/yr = \$7.60
- Thomas Edison → 1879

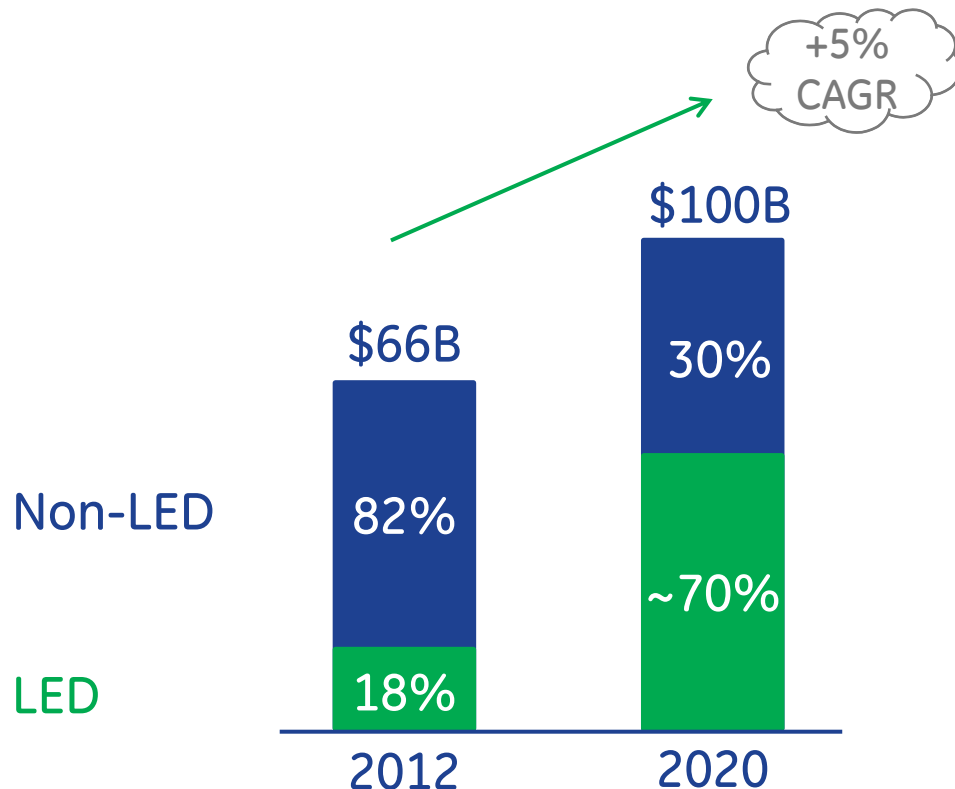
## LED



- LED based
- Very efficient – 12watts
- >20 years
- Cost/yr = \$1.40
- GRC → 1962

# Lighting industry & LED growth

## Lighting Market Growth



## Drivers

- ✓ New technologies ... higher acquisition costs but lower life cycle costs
- ✓ Energy regulation
- ✓ Strong emerging market growth
- ✓ New construction restarts

Sources: GE Forecasts, Strategies Unlimited, NEMA, Datapoint Research, Internet Research

**Attractive industry**

# GE Lighting Overview

# GE Lighting revenue profile

(\$ in billions)

## Regions



North America ~60%



Latin America ~10%



EMEA ~20%



Asia ~10%

## Channels



Professional  
~70%

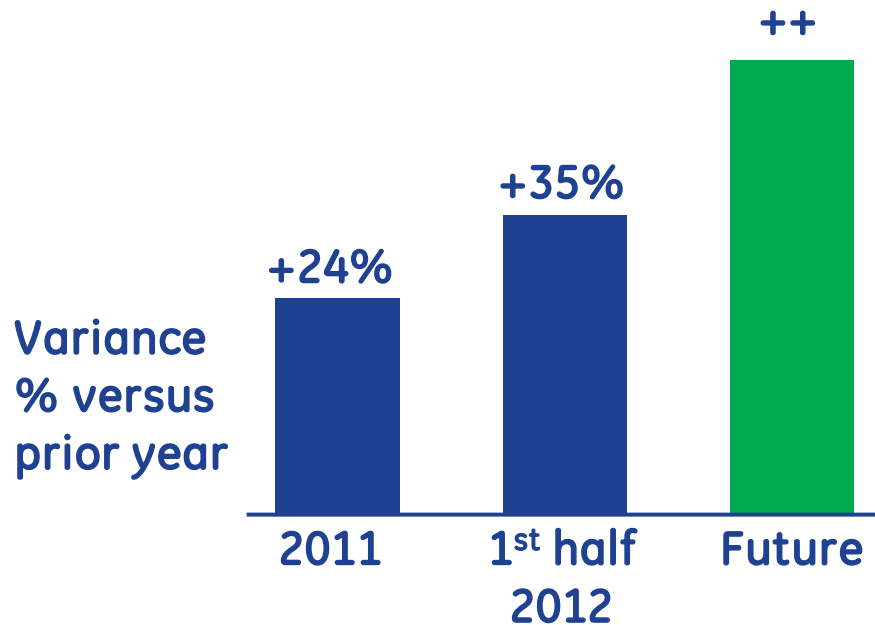


Consumer  
~30%

**Diverse Lighting portfolio**

# GE Lighting LED growth

## GE LED growth



**Growth Accelerating**

## Segment activation

- Early activation in specialty systems
- Replacement lamps activating now
- Outdoor accelerating and going “Smart”
- GE indoor portfolio expanding and accelerating
- Consumer longer term



# Technology capability

## Global technology footprint ...



Cleveland, OH



Budapest, Hungary



Shanghai, China



Tel Aviv, Israel



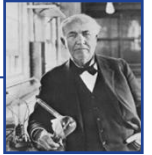
Hendersonville, NC



Xi'an, China

## GE Major milestones...

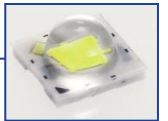
1879 - 1<sup>st</sup> Incandescent Lamp by Edison



1938 - 1<sup>st</sup> Fluorescent Lamp



1962- 1<sup>st</sup> Visible LED Light  
1<sup>st</sup> Metal Halide Multi-Vapor® Lamp



1974 - 1<sup>st</sup> Energy-Saving Fluorescent



1990 - 1<sup>st</sup> Halogen HIR™ PAR Lamp



2004 - 1<sup>st</sup> Ceramic Metal Halide  
PAR20 and PAR 30 Lamps

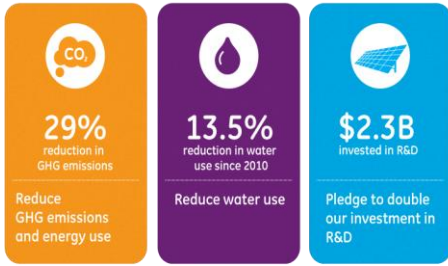


2008 - 2012  
- Expansion of energy saving,  
long life solutions with  
LEDs, Linear Fluorescent  
and CMH® products



# GE Lighting & ecomagination

## ecomagination



## Goals for 2015

- Double R&D to \$10B from 2010-2015
- Expand our focus beyond clean energy
- Grow 2x GE's growth
- Reduce GE's energy intensity by 50%
- Reduce water consumption by 25%
- Inspire a competitive energy future

## When we started...

- It costs too much
- It's about green
- Customers will hate this
- Action by the elite
- Go it alone

## We discovered...

- It saves money
- It's about "industrialization"
- Customers save money and optimize resources
- About scale... create jobs
- A "system" is required

## ... in sync with Lighting

### Lighting Actions

- Largest offering of environmental products within the GE portfolio
- 700+ ecomagination<sup>SM</sup> products
- Third-party product certification (ENERGY STAR<sup>®</sup> and RoHS)

### Core Tech



### Energy Savings

~80%

~55%

### New Tech



# LED: what matters

# What matters in LED

## Customer Intimacy & Channel



- Provide solutions vs product
- Deep understanding of customer economics
- Trusted Advisor

## Smart & Configurable Systems



Infusion Systems

- Configurable systems
- Critical platform expertise - thermals, optics, electronics

## Value Added Services



- Lighting Design
- Specification Sales
- Application Engineering
- Project Management
- Energy Audit Services

## Operational Excellence



IALD



- Product quality & reliability
- Best in class fulfillment time
- New product introduction time

# Customer Intimacy & Channel

# Las Vegas story



## Operating Impact

- ~Energy savings of up \$1.7 million annually
- ~Reduction of 20 million kWh per year
- ~Maintenance savings of \$1 million annually

## Environmental Impact

KhW reduction means 12,000 metric tons CO<sub>2</sub> emissions eliminated per year  
= >2,300 cars off the road



# Tower Bridge story



## Operating Impact

The combination of architectural and floodlight LEDs were specified to help reduce the energy used to light the bridge by up to 40 % compared with the previous system

## Environmental Impact

As a London 2012 Sustainability Partner, a key objective of the new lighting scheme was to help improve energy efficiency.

# Marriott story



## GE Lighting solution

- Illuminated 2MM sq. feet of garages and parking lots
- Integrated LED systems & GEL controls with security cameras
- Advanced 3D photometric renderings to Marriott engineers

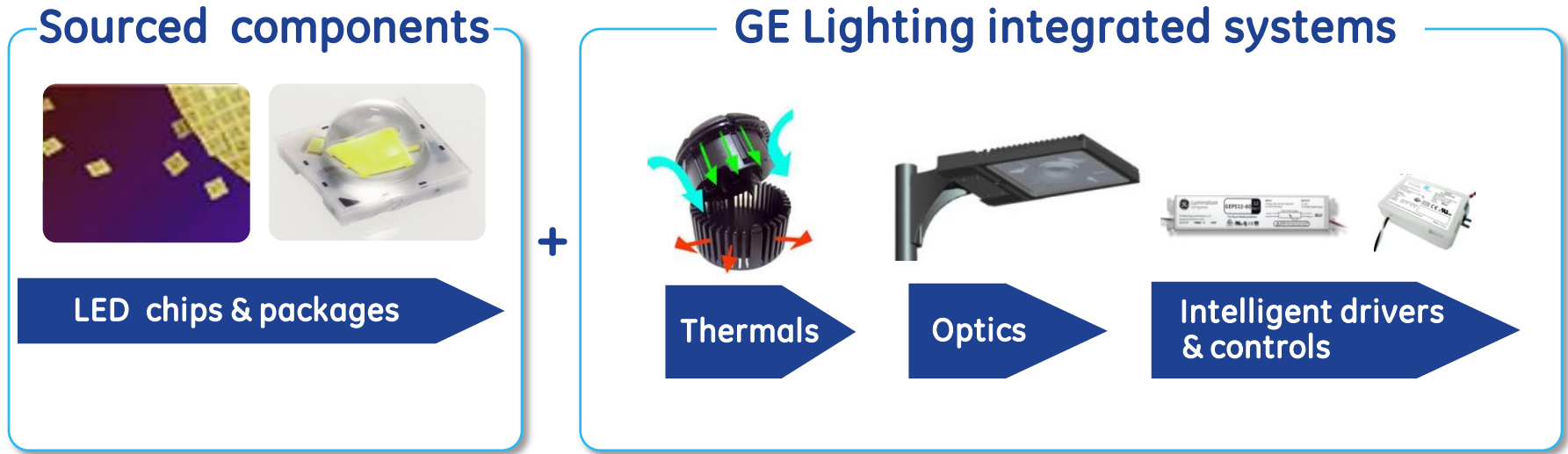
## Customer value

- 70% energy savings
- 2-year payback on investment
- Enhanced safety and security



# Smart & Configurable Systems

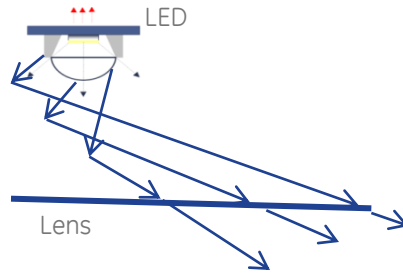
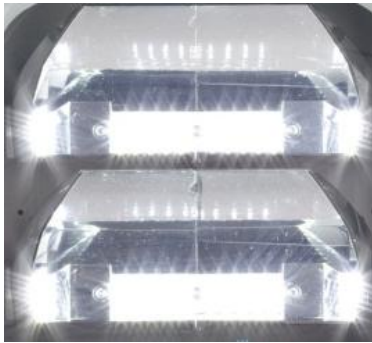
# LED Systems: capturing more value



- LED chips & packages are only part of the equation
- What sets an LED system apart is thermals, optics, intelligent devices (drivers + controls)

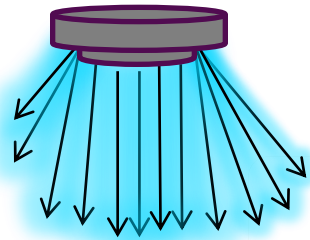
# GE's Differentiated Value Prop – Optics

## Reflective optic system

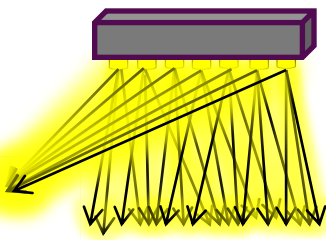


GE: *Reflective*

Others: *Refractive*



Glare from  
several LED'S

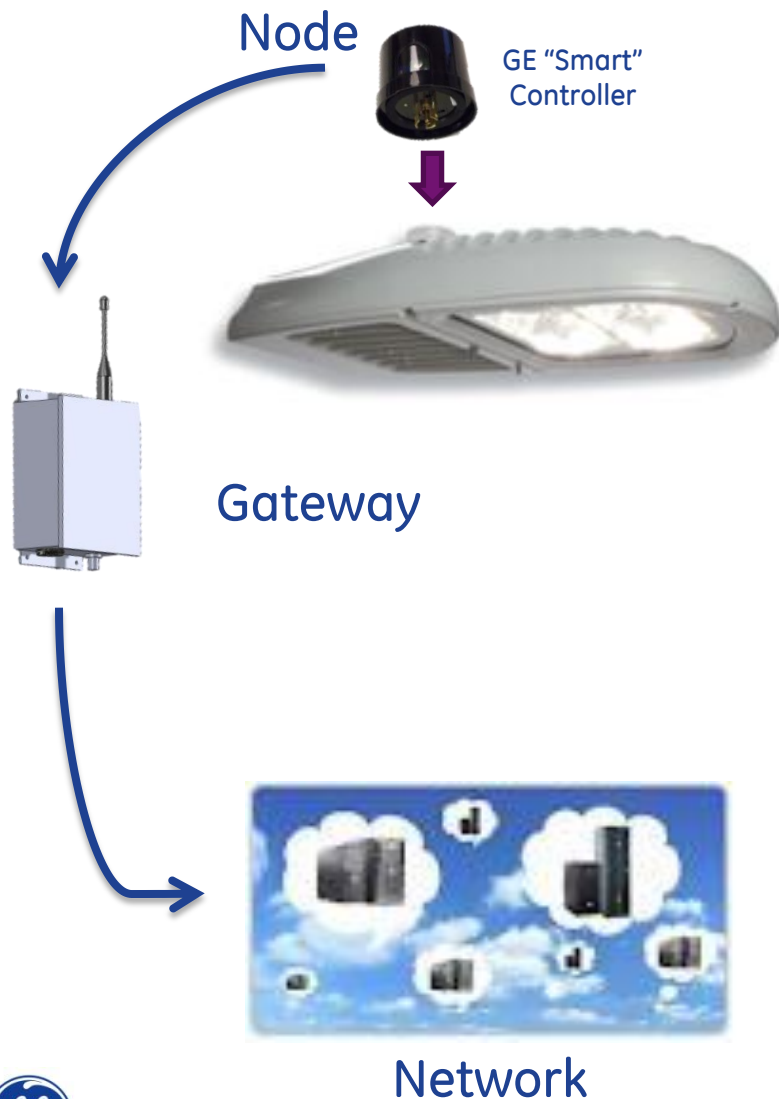


Glare from  
all LED'S

## Advantage of reflective system

- ✓ Highly controlled distribution
- ✓ Minimize glare
- ✓ Easier to clean, lower maintenance
- ✓ Improved reliability

# Next Generation - Controls



## Advantages of controls

- ✓ Utility grade metering
- ✓ GPS embedded chip
- ✓ End of Life indicator
- ✓ Fault logging

# Optics & Controls come together: GE LUMINATION™

## Suspended Luminaires

*Innovative Architectural Ceilings of the Future*

Combination of high design and unique features of transparency, all without sacrificing the benefits of increased efficiency and lighting performance.



## Recessed Luminaires

*Cleaner, Brighter, More Modern Ceilings*

Long Life, efficient solutions with ultra-thin form factors, unique light distributions



# Value Added Services

# Value added services

## Application center of excellence

### Lighting Design

- Optimize lighting performance and energy savings

### Specification Sales

- Bringing GE solutions to architects and end-users

### Application Engineering

- Deep product expertise

### Project Management

- Implementing sophisticated solutions

### Energy Audit Services

- Expertise in efficient alternatives



# Quality & Operational Excellence



# Serious About Quality & Reliability

Multi-million dollar reliability lab

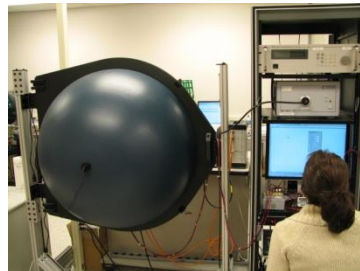
- Environmental testing at extreme temps and cycles
- Six Sigma design links systems integration expertise to applications
- Testing of LED chips, components, and systems



9 Large Enviro/Chambers



10 Small Enviro/Chambers



2 NVLAP Certified  
Measurement Spheres



10 Year History of Field Results With  
Systems Integration



Cycling Test

# Customer Centric Business Transformation

## GE Fixture Products

### Before transformation



View of shop floor:  
Hendersonville, NC  
assembly plant

Order Lead Time  
Fulfillment Rate

**35 Days**  
**60%**

### After transformation

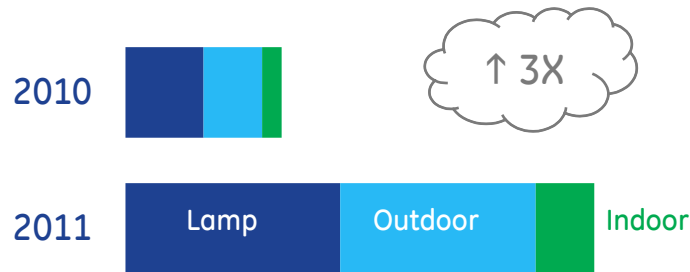


**6 Days**  
**98%**

**Best in class lead time**

# New Product development cycle time

## Expanded product portfolio



## Reduced new product cycle time



### Lamps



### Outdoor



### Indoor



# Wrap Up

- **Industry evolving ... GE opportunity**
- **GE's a global leader**
- **Clear strategy ... investing for the future**



Q & A