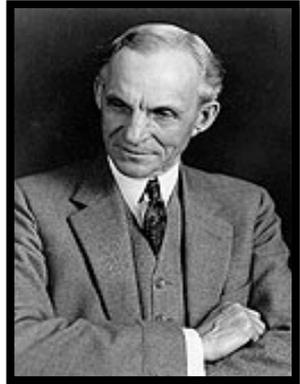




***Better Buildings Summit***  
***Industrial Energy Technology/  
Emerging Technologies in Manufacturing***

Presenters:

George Andraos – Ford Motor Co, Director of Energy  
Michael Schratz – Dialight, VP of Sales and Marketing



**“ A business that makes nothing but money is a poor business.”  
- Henry Ford**



**“Improved sustainable performance is not just a requirement, but a tremendous business opportunity.”  
- Bill Ford**



**Meeting The Needs Of The Present Without Compromising The Future**



**Using this process, Ford has replaced 30% of HID lamps in the US compared to industrial industry at 3% inefficient lighting conversion**

## High Bay Applications

- Partner: Dialight
  - Initiated by a small LED trial in Livonia area facility in 2012
  - Global LED High Bay specification process concluded in 2013
  - Currently 75,000 fixtures installed across 7 countries & 51 facilities



## Other Applications

- Key Partners:  
Cree, Hubbell and Acuity



## Perception

Changing the mindset



## Financials

Reaching payback and total cost of ownership goals



## LED Challenges & Lessons Learned

## Standardization

Product & process



## Shadowing

LED = directional light source



## Darker Ceiling

Due to less up-light





## High Bay Applications

22 MW demand reduction  
= Large Assembly Plant Demand



## Annual CO2 Reduction

75,000 metric tons of CO2



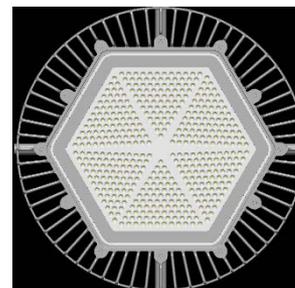
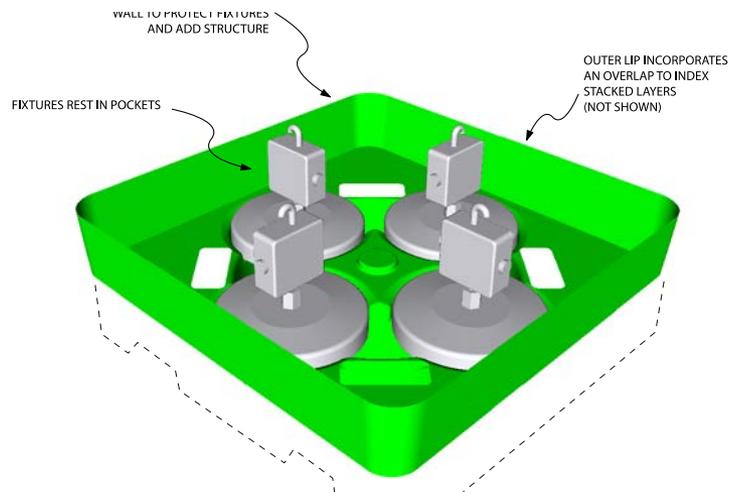
## Annual Maintenance Savings

100,000+ maintenance hours



## Improved Light Levels & Uniformity

Improved plant environment



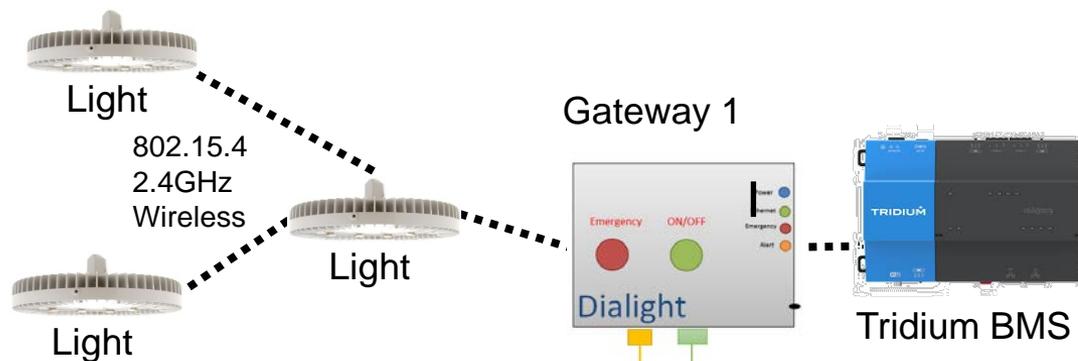
## Simplified Logistics

- Tactical logistics w/ 3 channel partners
- Reusable packaging eliminates cardboard
- Reducing # of trucks for transporting

## Next Generation Technology

- Reduce power, extend lifetime
- Reduce part count from 261 to 21 parts
- Streamlined manufacturing and lead time
- Reduce installation time

**As energy efficient LED lighting becomes more prevalent in industrial plants, the next step for significant reduction in energy and operating cost will be realized through intelligent control systems**



Wirelessly controls enabled lights connected to building management system (BMS)



## Productivity

- Energy conservation/management
- Equipment & space utilization
- Inventory management
- Predictive maintenance
- Human convenience



## Safety & Security

- Emergency notification and management
- Integrated facility security
- Human centric light – right light at the right time
- Adaptive lighting – measurement & adjustment