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# Green Engineering Services, P.C

- Induction, Street / Outdoor Lighting
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# HID Lighting

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- HIDs include:
  - Metal Halide
  - Mercury Vapor
  - High Pressure Sodium
  - Low Pressure Sodium

# HIDs Have Illuminated For Decades

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- Highways / Lighting
- Street Lighting
- Parking lots
- Parking garages
- Parks / State, City, Town
- Correctional Facilities
- Colleges and Universities
- Public Schools

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*An Introduction to Induction Lighting &  
Markets*

# Induction Technology - Performance Driven CRI Range, Lumens Per Watt & Life Hours

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<b>Lamp Source</b>	<b>CRI Range</b>	<b>Lumens Per Watt</b>	<b>Life Hours</b>
Induction	80 – 90	78 – 95	100,000
Metal Halide	60 – 90	56 – 125	1,500 – 24,000
High Pressure Sodium	20 – 85	60 – 140	10,000 – 30,000
LED	60 – 80	60 – 70	40,000

**\*\*\*\*Relamping & Lighting Maintenance  
Savings\*\*\*\***

# SIGNIFICANT ADVANTAGES OF INDUCTION TECHNOLOGY

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- ▶ Lumens Per Watt
- ▶ Lumen Maintenance
- ▶ Life Hours
- ▶ CRI Ratings
- ▶ Photopic (Designed Lumens) & Scotopic (Pupil Lumens)
- ▶ Warranties
- ▶ Fixture Efficiencies

# Induction Technology /Sources

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- Phillips
- Sylvania
- Everlast
- Crystal
- LVD
- US Lighting Tech.
- Many other Small Players

# Why Induction Now?

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- Innovations in New Technology is Opening New Untapped Markets
- LED Makes Induction Look Great – TWICE THE LIFE AT HALF THE PRICE.
- Stimulus Money – Utility Rebates and financing
- Utilities Interest – Can we Replace Existing HID Technology with a Goal to Reduce Energy & Maintenance Expenditures?
- 40% - 60% Energy Savings by Converting from HID.
- State of the Current Economy & Working with Tighter Budgets.



# Induction Lighting – Big Picture Opportunity

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## **Potential Units & Estimated Dollars in US:**

- ▶ (15) Million Street Lights- USA
- ▶ (5) Million Additional Sockets to be Converted
- ▶ (20) Million x \$500/ea. = \$10.0 Billion Opportunity

# Induction Market Opportunities

## Street Lighting:

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- Cities & Municipalities / Street Lights or Utilities.
  - Utilities that are looking to upgrade their Muni Portfolios

## Parking Lots & Garages (Interior & Exterior)

### Institutions (Private & Public):

- Government
- Education
- Museums

### Military Bases:

# Benefits of Lighting Induction Products

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- **100,000 Hours Life**
- **90+ Lumens Per Watt**
- **88% Lumen Maintenance over 100,000 Hours**
- **CRI 90**
- **Wide Range of Color Temperatures 2700K – 6400K**
- **.99 Power Factor**
- **(10) Year Lamp & Ballast Warranty**
- **Multiple Wattages 15,23,40,55,65,80,100,120,150,200,300**

# Benefits of Induction Products

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- **Dedicated & Multi-tap Voltage Offering**
- **Dimming, Occupancy Sensors & Photo Cells**
- **Instant Start & Instant Re-Strike**
- **Self Ballasted Offering (15, 23 & 40 Watts)**
- **Wide Range of Fixture Styles**
- **Operating Temperatures (-35C to 115 Degrees Celsius)**
- **Made in America Status**

# Induction Technology and Efficiency

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- Induction Technology provides superior efficiency compared to HID's and LED's
  - KWH Savings
  - Replacement lamp costs
  - Replacement labor costs
  - Up to 60% cost savings
  - PAYBACK OF 3/-4 YEARS ONLY

# Benefits of Induction Lighting

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- Long Life - 100,000 hours Vs 10,000 Hours for Metal Halide
- Color rendering 84, CRI
- Color Temperature 2,700 K - 6,500K
- Energy Efficient 85+ Lumens per Watt
- Lumen maintenance - 70% of its light output at 90,000 hours
- Maintenance costs: 10 years without a change out

# Additional Benefits

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- Virtual maintenance-free operation
- Instant start and restrike
- No flickering, strobing or noise
- Low temperature operation
- Dimming capability
- High power factor

# Economic Benefits

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- Creating 1000s of jobs for your State and boosting the state's economy
- Saving 100 millions for the State, towns and villages
- At no cost to the State, counties and towns
- Paid out of the savings
- Adding to the tax savings year after year for ever
- Multi-year exponential benefits
- Reducing the taxes for Towns, Villages and State
- Cutting global warming
- Saving the environment
- Saving the planet



# Example of Potential Savings

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- The city that has 10,000 street lights has already saved 10 million dollars in maintenance...
- If all 150W HPS street lights were replaced them with 85W Induction lights, at 12 hours a day and at \$0.20 a kWh
  - Electrical savings over the life span of the Induction lights would be \$11.4M dollars
  - Labor and electrical savings would save \$21.4M in 20 years

# Total Savings

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- A large city like Chicago has 300,000 street lights
  - The savings would be approximately \$464 million over 20 years.
- In addition to the monetary savings, replacing 10,000 HPS street lights with Induction would be the equivalent of...
  - 70,435 cars removed from the road
  - 111,033 acres of forest planted
  - 81,424,200 lbs of Carbon dioxide removed from the atmosphere

# PSE&G

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- PSE&G is investing \$50 mil in Induction Street lighting to the municipalities
- \$700 mil capital program to stimulate the economy
- Saving 45,000 megawatt hours
- Will replace 96,400 less efficient HIDs
- PSE&G is the first utility to provide induction fixtures

# Who is Using This Now?

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- Towns working on Induction Street Lighting projects
- Islip, NY
- 130 New Jersey municipalities including:
  - Rariton, NJ
  - Perth Amboy, NJ
  - Little falls, NJ
- San Diego, CA

# Incentives by Utilities

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- Northwest is offering up to \$150
- Con Edison is offering up to \$100

# NY STATE to Lead Induction Technology

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- Approving Induction Technology and creating 10,000 jobs
- NYSERDA is already financing Municipalities
- Boosting the local economy by \$100 x 10, Mil
- Reducing KW/KWHs

# NYPA/ NYSERDA/Green Engg Partner/ Facilitator

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- GES will staff, support, facilitate and coordinate to deliver the above, including financing under your leadership
- we need to reach out to:
  - all Counties
  - Cities, Towns
  - STATE PARKS
  - STATE CORRECTIONAL FACILITIES
  - HIGHWAYS AND PARKWAYS
  - HOSPITALS
  - Public Schools
  - Our services to include:
    - Field Inspection, audit and retrofit design
    - Design documents & specifications

# GES SERVICES TO INCLUDE:

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- Field Inspection and Audit
- Design and Contract Documents
- Amend and customize the design and construction documents as required
- Cost Estimate and Funding Mgt
- Coordination and construction Mgt



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Thank you again for this opportunity