

## The Advancement of LED Technology & Solar Lighting

- Benefits & Brief History of LED Technology
  - Benefits of LED Lighting
  - Market segments
- Efficiencies of Antiquated Fluorescent & LED Lighting
- DOE Better Buildings Program
- City of St Petersburg OLA Program with DOE
- Solar Lighting
- FLT Solar Lighting



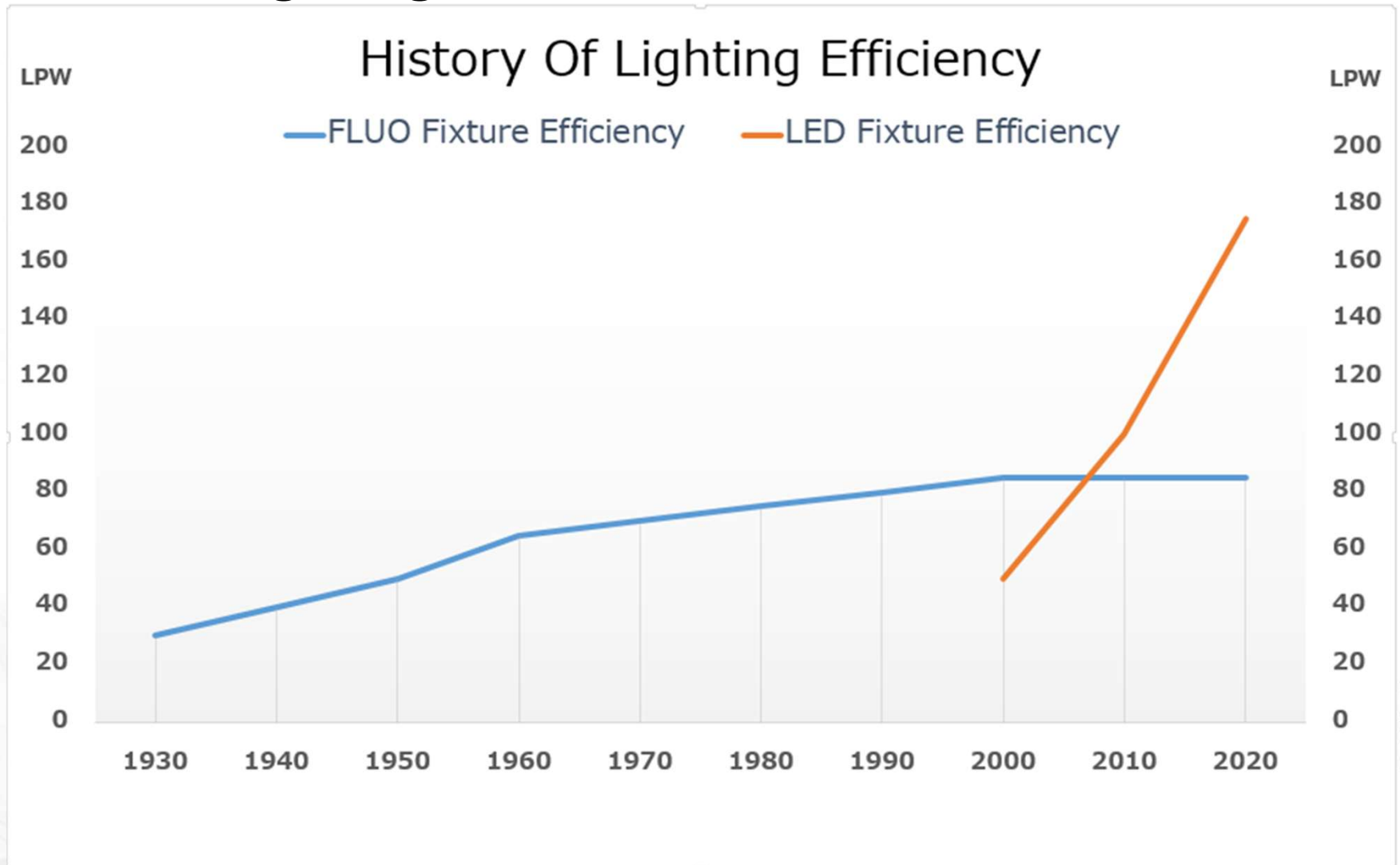
# Benefits & Market Segments of LED Lighting:

- 15 to 20 year life
- 35% to 75% efficiency improvement
- Unmatched color rendering index (CRI)
- Depreciation curve much better than antiquated incandescent, fluorescent and HID lighting
- No warm-up time
- Dimming LEDs does not affect the life
- Market Segments
  - Indicator Market
    - Traffic Signals
    - Exit Signs
  - Illumination Market
    - Outdoor Lighting
    - Interior Lighting



# • Efficiency Progress Now...

Last 17 years of progress with traditional lighting and LED Lighting



# DOE Better Buildings Program

- City of St. Petersburg - Better Buildings Partner in 2014
- Outdoor Lighting Accelerator Program in 2014
  - President Obama Challenge
  - Accelerate outdoor lighting upgrades
  - Goal of 1.5 million streetlights in 2 years
- Better Buildings Summit in Washington, DC (May, 2017)
  - City of St. Petersburg recognized for OLA program
  - Expert panel and speaking role.



# City's SL Summary

- 30,500 Leased Lights with I/O Utility:
  - High Pressure Sodium (HPS)
  - Metal Halide
  - 28,500 closer to cobra head family
  - 2,000 decorative SL
  - Non-metered
- Over 2,000 City-owned SL
  - Decorative
  - GIS Collector's application
  - Metered



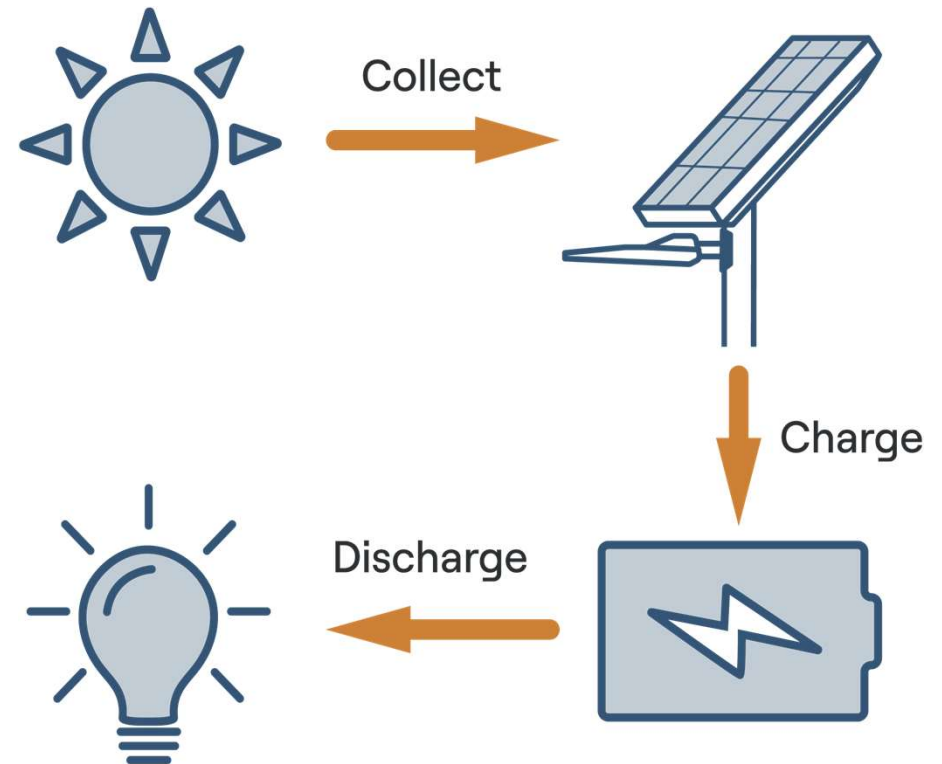
# LED SL Initiative with I/O Utility

- LS-1 Rate Tariff
  - Rental, Maintenance and Energy Component of Rate
  - \$4.8 million Annual Expenditures
- Challenges with Existing HID Street Lights
  - No First Cost Funding
  - Business and/or Residential Community Perspective – Homeless population & Firestone Grand Prix Race
  - Higher Maintenance Costs
- \$240,000 Savings Annually
- No Out-of-Pocket Costs from City
- Starting with major thorough fares



# How solar lighting works:

- Completely off-grid
- Power comes from the sun
- Energy stored in a battery
  - Charge during the day
  - Discharge during the night
- Used instead of running wires



# First Light Technologies (FLT)

- Cost Savings – You save money on your power bill, but the big savings is not having to run wire underground

Performance - All night, every night

Reliability/Resilience – Immune to brownouts/blackouts

Self-contained – Looks and functions just like a regular outdoor light

Sustainability - Not the main benefit





# FLT Technologies:



# First Light Technologies (FLT)

## Adaptive Intelligence:

- FLT's Adaptive Intelligence enables all FLT products to adapt to their surroundings using GPS location

Historical weather data for that exact spot is leveraged to determine how much of the battery can be utilized each night while ensuring enough charge for potential cloudy days to come

Built to endure inclement weather without compromise of performance

The battery system ensures the lights to be on all night every night

Designed to withstand snow and harsh weather conditions

2–3 hours of direct midday sunlight is preferred for optimal performance



# FLT Solar Lighting Applications:

- Parks

Pedestrian Pathways and Trails

Parking Lots

Area Lighting

Small Roadways

New Construction

Retrofit Construction

Adding a exterior light to a built enviroment



# FLT Florida Applications:

- Clearwater Beach  
Indian Rocks Beach

