

FLEET OF THE FUTURE

PLATFORM 1



Lighting the Way to Energy Efficiency and Improved Ridership Experience

APTA Sustainability Workshop | July 30, 2019





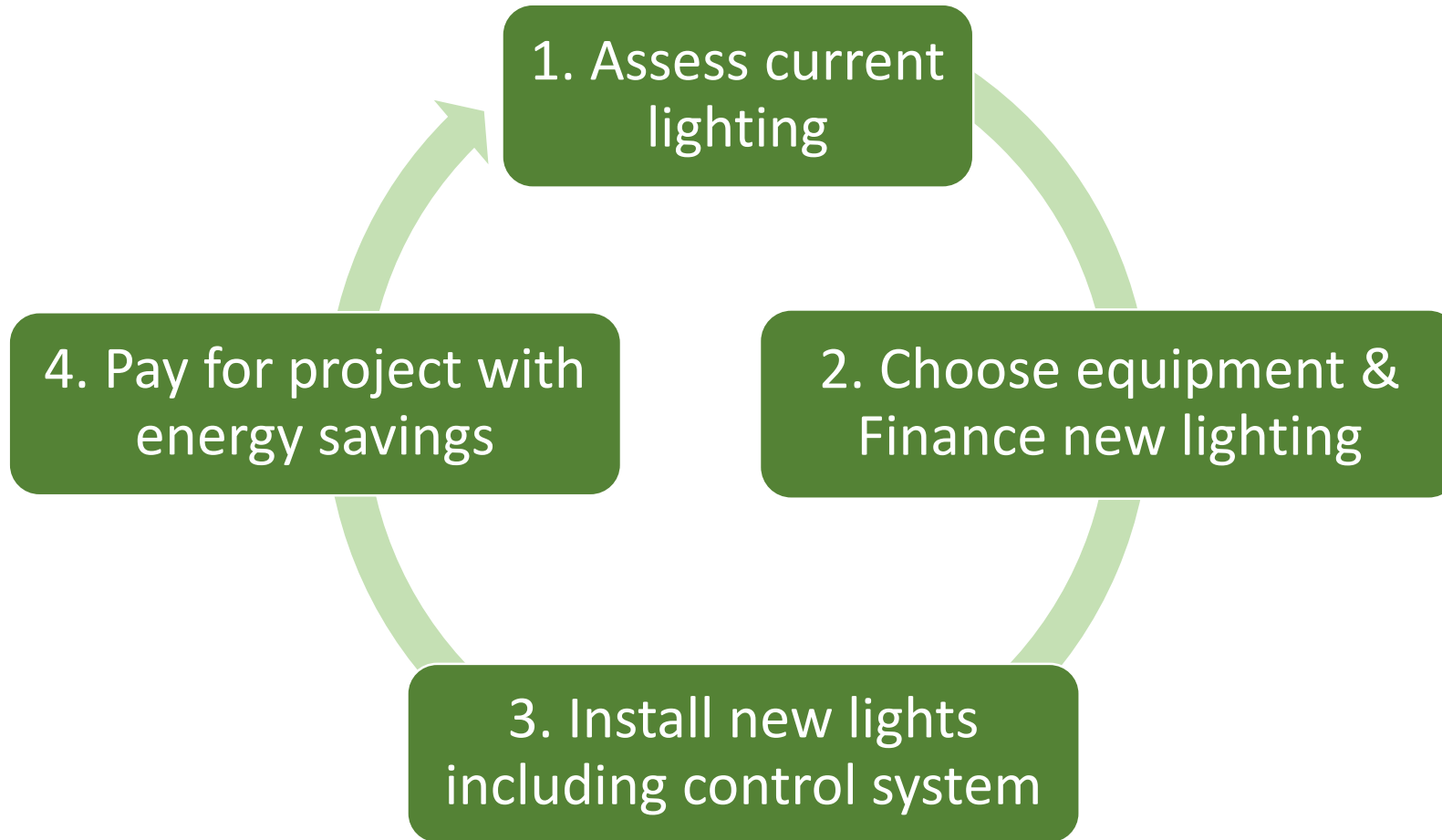
BART Context

- **Invest in District Lighting Retrofits** is a Priority Action in BART's 10-year Sustainability Action Plan
- >50% of total station energy use is from non-LED lighting (2017 *lighting study of BART stations*)





Lighting Upgrade Approach



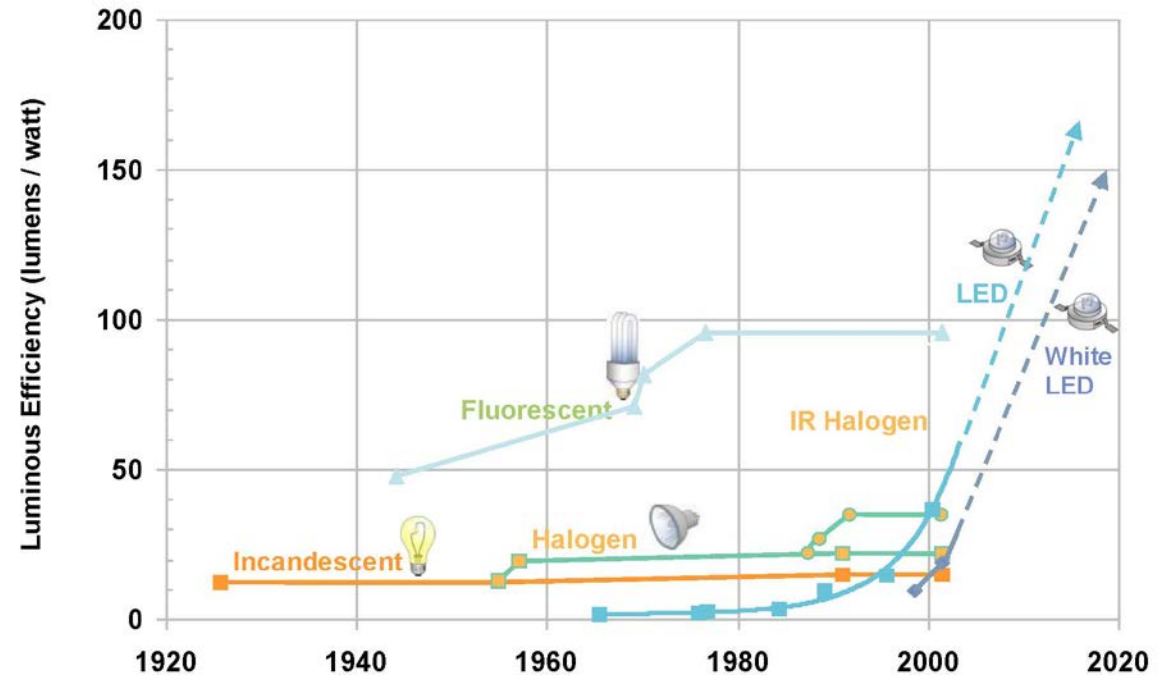


Why LED Lighting Upgrade?

Many benefits to LEDs:

- Energy efficiency savings
- Reduced maintenance costs due to remote monitoring and longer equipment lifetimes
- Quality of life benefits
- Improved rider experience due to enhanced lighting quality
- Directional lighting & less light pollution
- Streamline equipment types
- Low maintenance
- Easy to control
- Fast response (immediate on/dim/off)

LED Source Efficacy

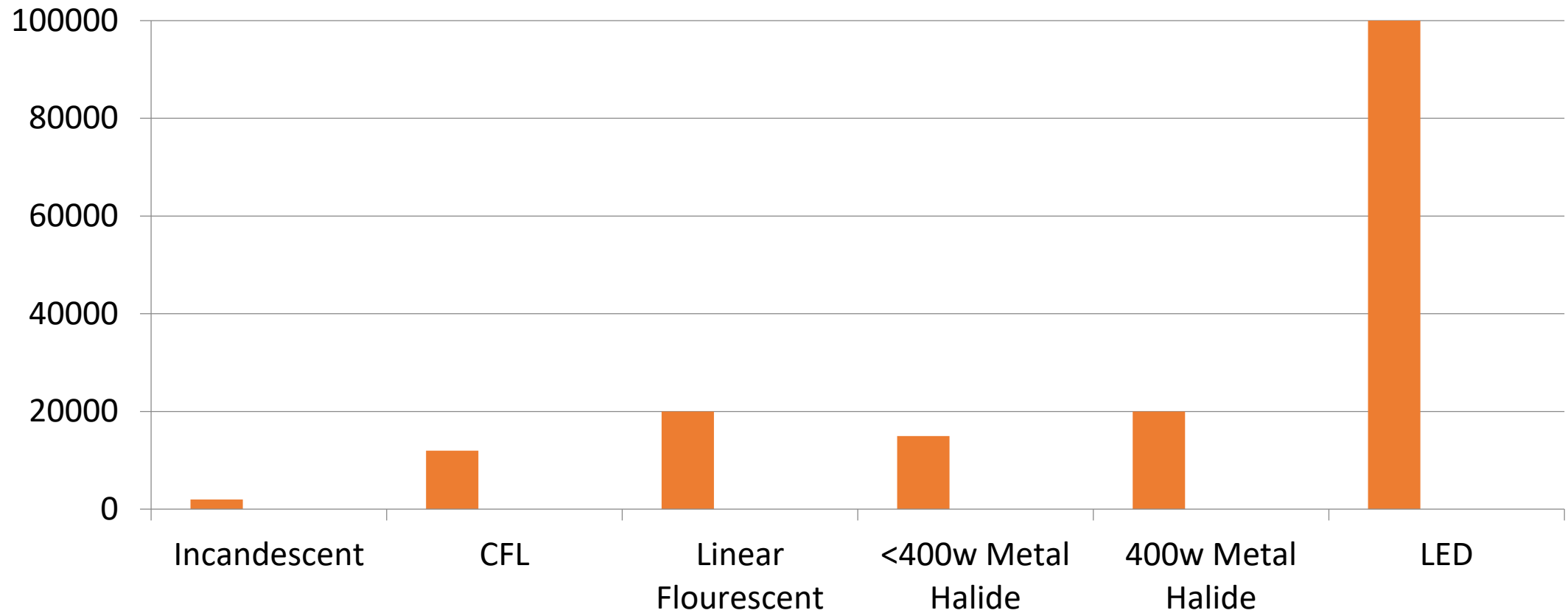


Source: Lumileds; Projections are Color Kinetics estimates



Lamp Life Comparison by Technology

Lifetime Hours





Project Overview

- Project covers 14 Parking Garages (>10,000 fixtures)
- Upgrade existing light fixtures to LEDs and install wireless lighting controls
- Cross-department engagement through series of Design Workshops
- Updated internal lighting standards
- Performance-based approach: baseline audit of existing assets, calculate savings, post-installation inspection planned
- Project financing package
- Construction, commissioning and integration, and maintenance



Government Code 4217 (*CA only*)

Disclosure: California specific

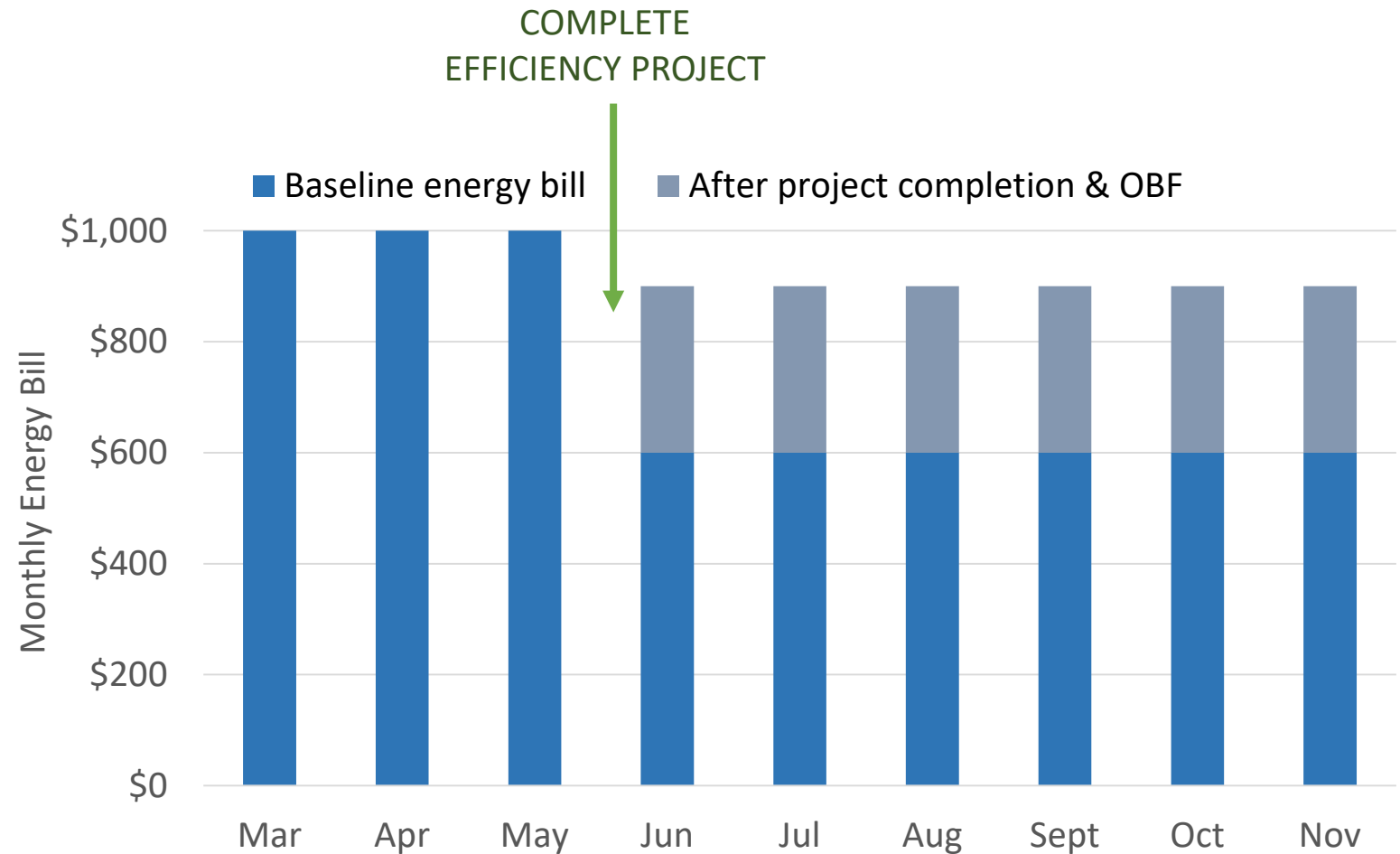
- Applicable to public agencies pursuing energy conservation and/or renewable energy projects that are in the best interest of the public agency and/or can demonstrate that the project can pay for itself through the savings
- Non-traditional procurement
- Energy performance contracts and/or facilities financing contracts

Access Gov Code text at shorturl.at/etSUZ



On-Bill Financing Mechanism Explained

- 1) Upfront capital ("bridge loan")
- 2) Install energy efficient equipment
- 3) Utility on-bill financing "loan"
- 4) Payback with energy savings
- 5) Savings accrue to organization:
 - Utility bills
 - O&M





Lessons Learned

- Experiential Learning
- Lean on industry peers & best practices
 - IES, EnergyStar, Design Lighting Consortium
- It takes a village
 - Partners, consultants, many departments



Thank you

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