



ENERGY/WATER SAVINGS FEASIBILITY ASSESSMENT



Smart Cities → Efficient Services

September 8, 2015

SAN LEANDRO KEY PARTICIPANTS



*Smart Cities →
Efficient Services*



SUNPOWER®



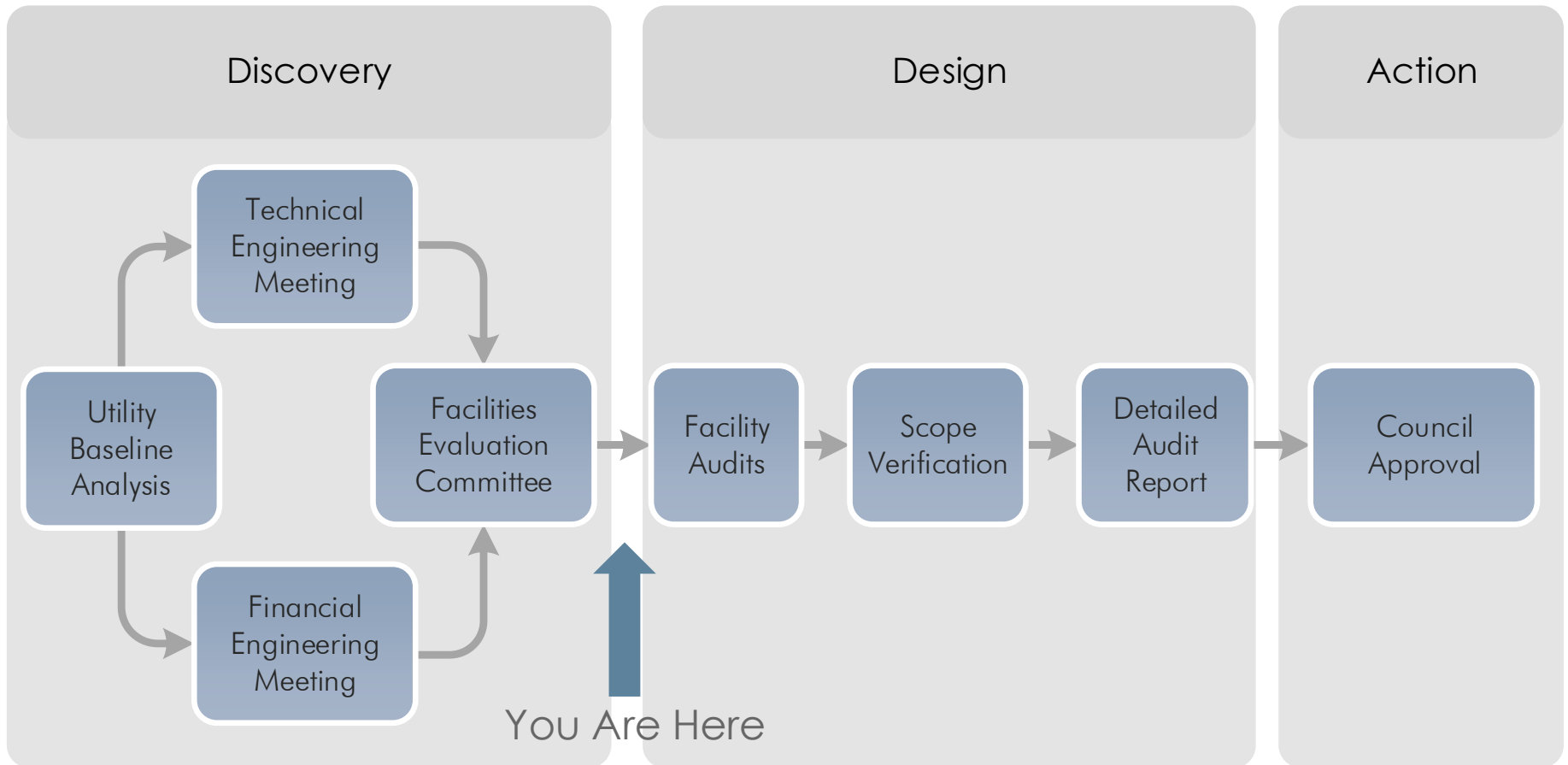
*Pacific Gas and
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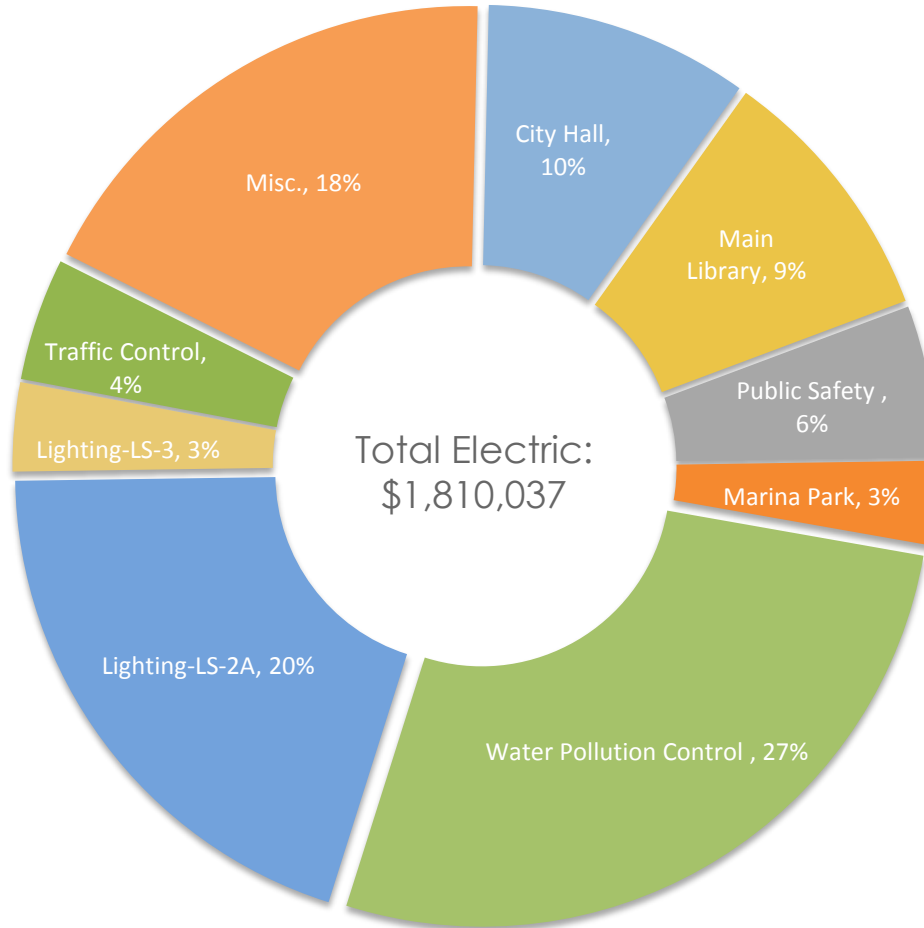


PROGRAM PROCESS



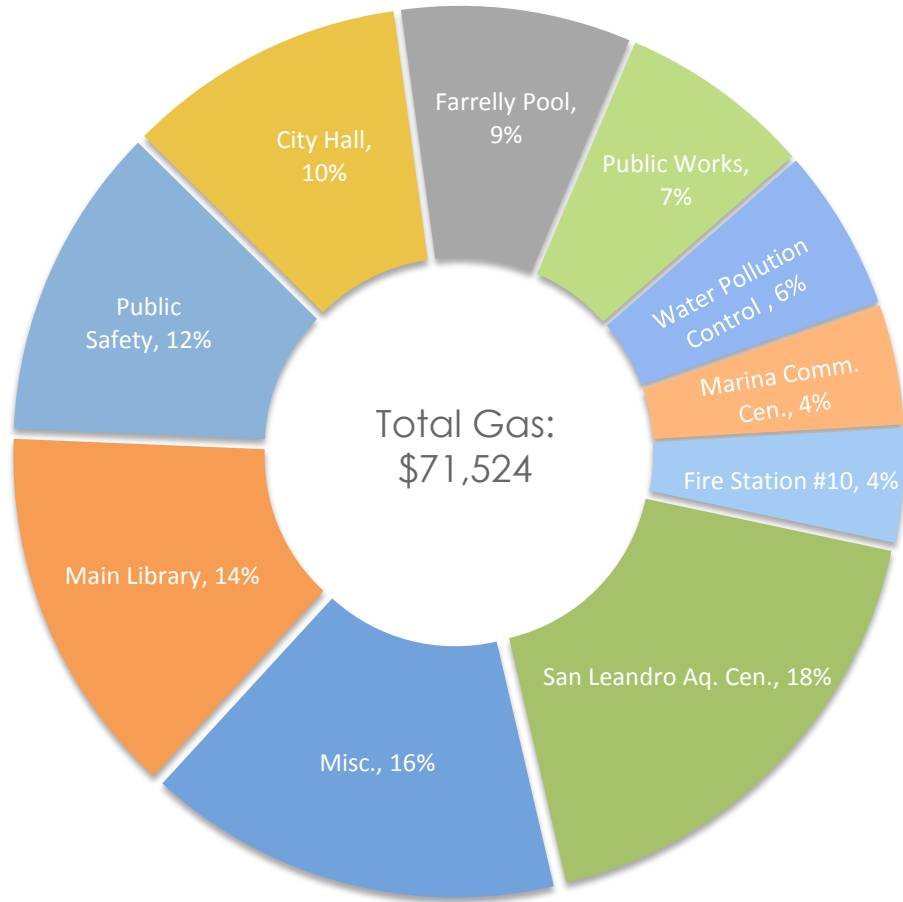
UTILITY EXPENDITURES

Electric Distribution



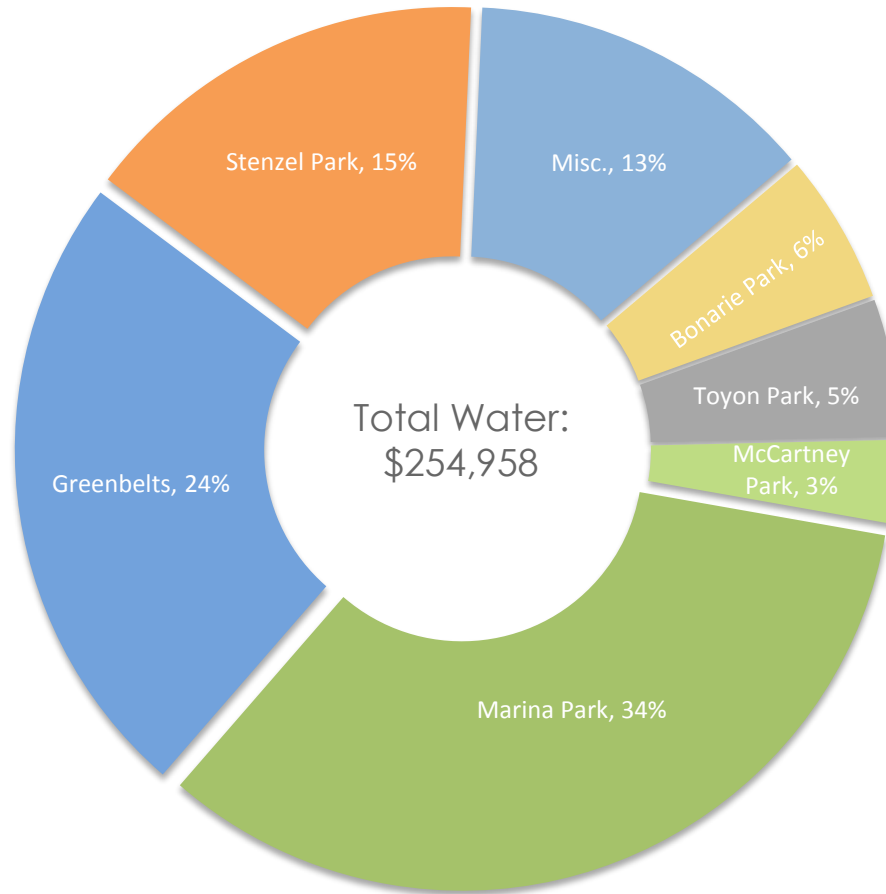
UTILITY EXPENDITURES

Gas Distribution



UTILITY EXPENDITURES

Water Distribution



PROGRAM GOALS



* Upgrade Existing Systems

- * Heating & Air Conditioning
- * Building Automation Control
- * Interior & Exterior Facility Lighting
- * Street Lighting – LED & Controls
- * Landscape Irrigation Control
- * Pool Heating Upgrades
- * Solar Energy Generation & Storage



* Reduce Energy & Water Costs



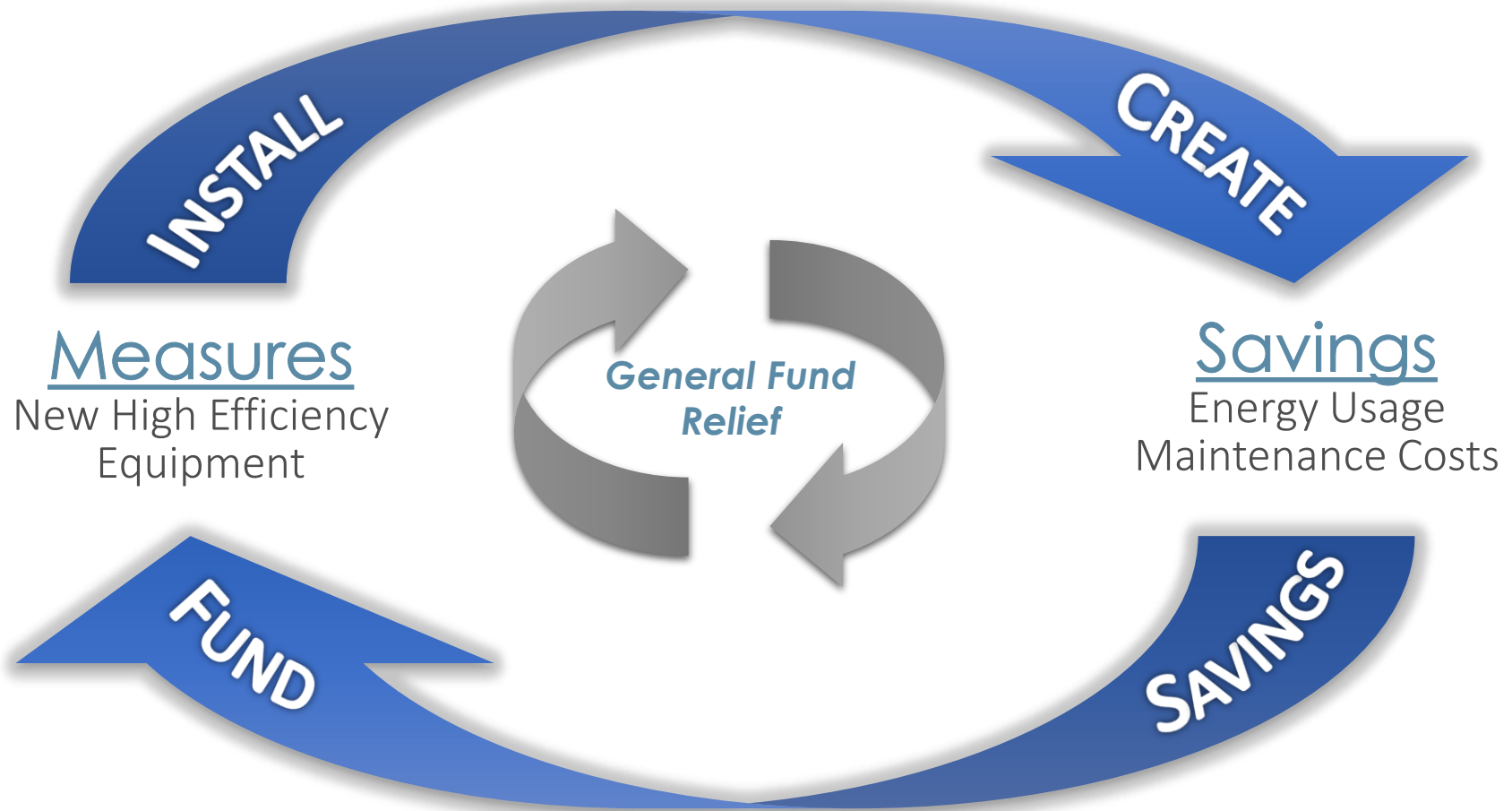
* Decrease Maintenance Costs

* Self-Fund Improvements

* Guarantee Financial Results



SELF FUNDED IMPROVEMENTS



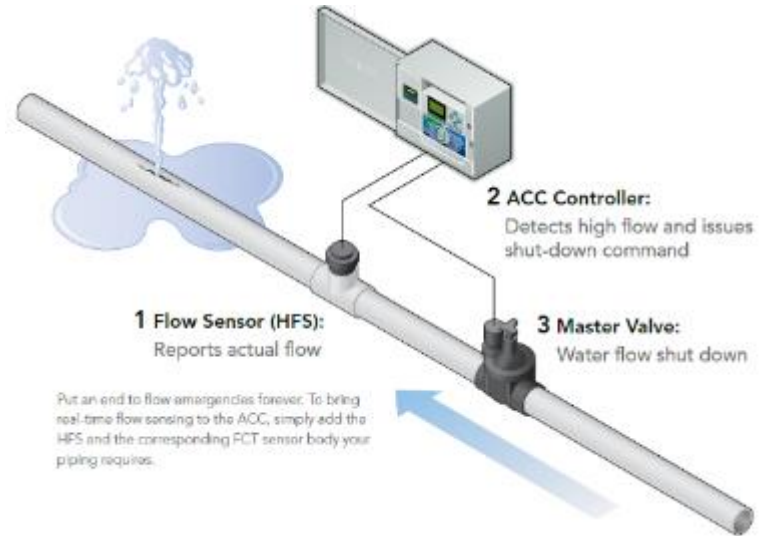
IRRIGATION UPGRADES

Weather Based Smart Irrigation Controls



Existing Controls

Recommended Controls



HVAC UPGRADES



Existing HVAC Equipment



Recommended
High Efficiency
HVAC Upgrades



POOL UPGRADES

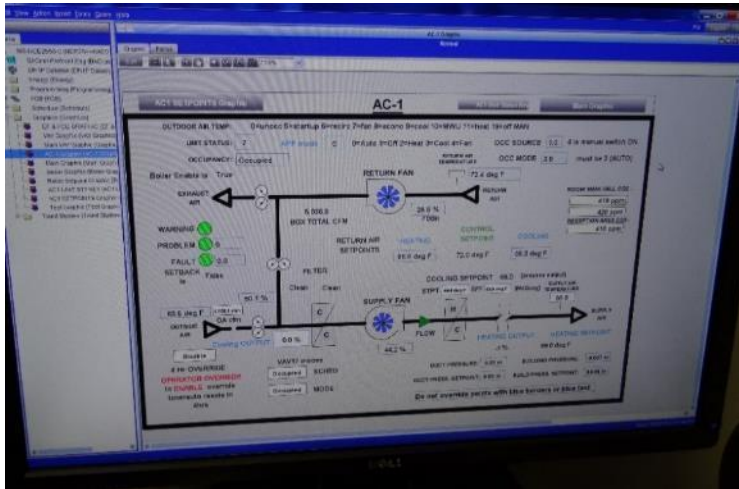


Existing Pool Boiler



Recommended High Efficiency Pool Boiler

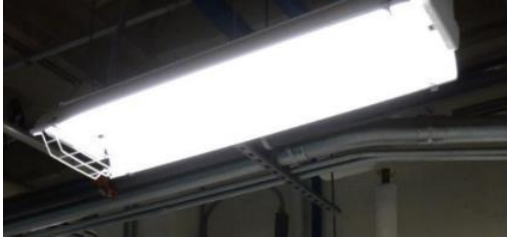
BUILDING AUTOMATION SYSTEM



Upgrade
Thermostats to JCI

LIGHTING UPGRADES

Interior LED Upgrades



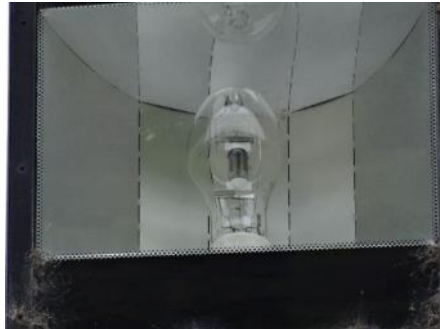
Existing Interior Lighting



Recommended LED Lighting

LIGHTING UPGRADES

Exterior LED Upgrades



Existing Exterior Lighting

Recommended LED Lighting

STREET LIGHT UPGRADES

LS-2



STREET LIGHT UPGRADES

LS-2



Before

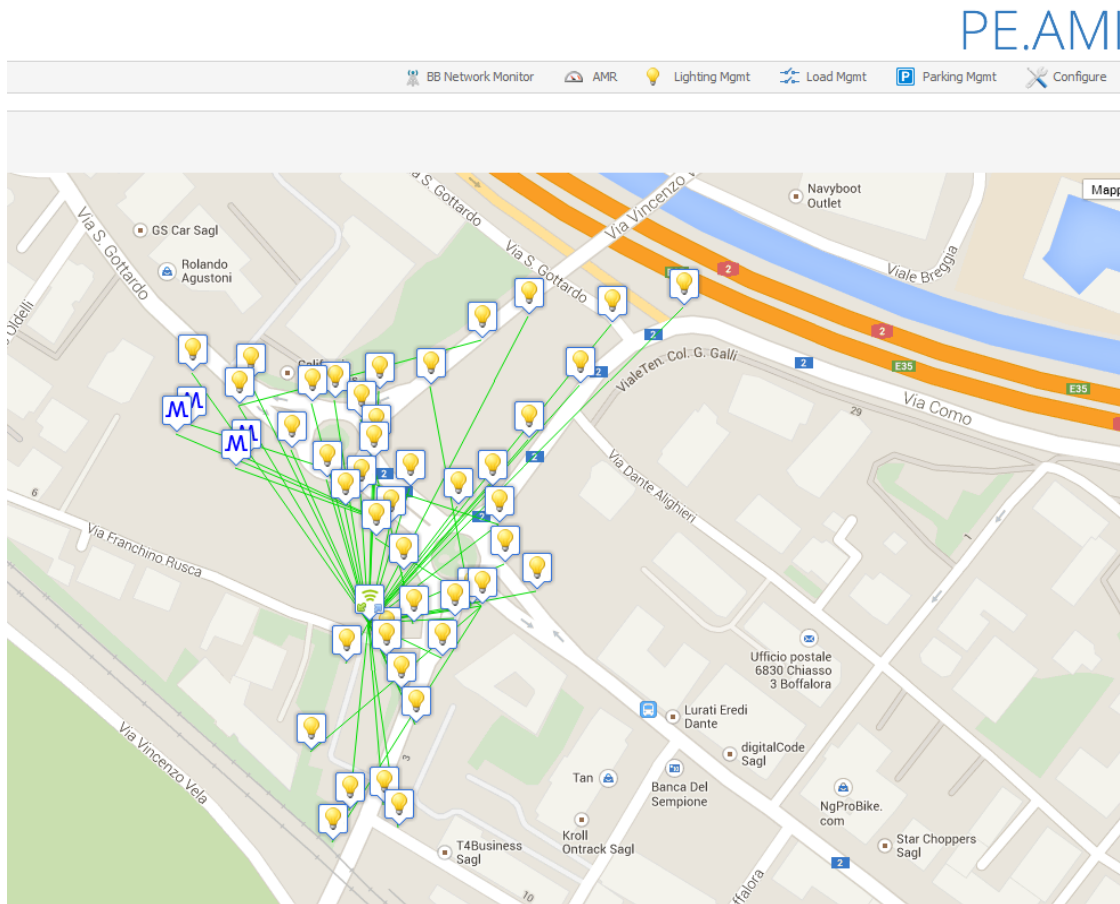


After



STREET LIGHT UPGRADES

Street Light Control & Monitoring



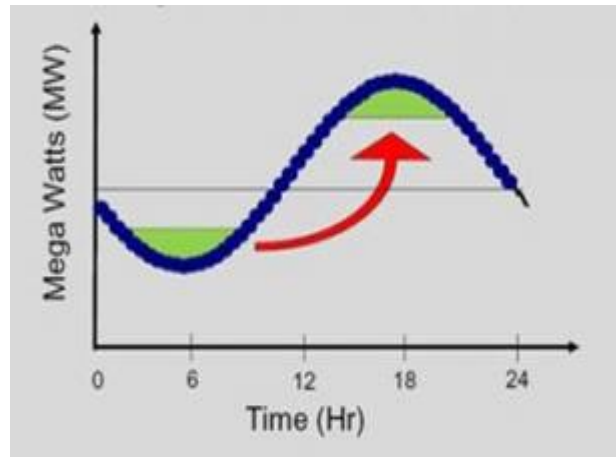
Key Features:

- * Adaptive Control
- * Dynamic Dimming
- * Individualized Power Reporting
- * Outage Detection & Maintenance Tracking
- * Interactive Mapping
- * Remote Access

BATTERY ENERGY STORAGE



Peak Shaving for
Demand Charge
Avoidance



Behind-the-Meter
Energy Storage



SOLAR PV SOLUTION



SUNPOWER SOLAR PV DETAILS

- * Size: 1 MW
- * Annual Production: 1,640,000 kWh
- * Mounting: Ground fixed tilt
- * System Offset: 99%

Water Pollution Control Plant



PRELIM FINANCIAL HIGHLIGHTS



| | |
|-----------------------------------|--------------|
| Total Infrastructure Improvements | \$8 – 10 M |
| Annual Savings | \$550 – 750K |
| Lifecycle Savings | \$13 – 16 M |
| Capital Required | \$ 0 |

SAMPLE ENVIRONMENTAL BENEFITS



Savings from the anticipated energy project should translate into the following green equivalencies:



Remove **544** cars off the road



Save **295,450** gallons of gasoline



Preserve **77,725** trees from deforestation



Power **389** San Leandro homes



Provide drinking water for **41,719** San Leandro residents

NEXT STEPS



| | |
|--------------------------------------|--------------|
| Climatec Competitively Selected | ✓ |
| Utility Analysis | ✓ |
| Technical / Financial Meetings | ✓ |
| Prelim Results to Facility Committee | TODAY |
| Engineering Site Walks | September |
| Scope Verified with Staff | November |
| DA Results to Facility Subcommittee | December |
| City Council Consideration | February '16 |

OPTIONS



Option A

Status Quo

- Continue As You Are
- Pay PG&E and EBMUD - 100%
- Endure High Utility and O&M Costs
- “Unnecessary” Expense

Option B

Energy Project

- Implement Efficiency Project
- Reduce Utility and O&M Costs
- New Equipment + Solar PV
- Save \$\$ + Energy + Water