



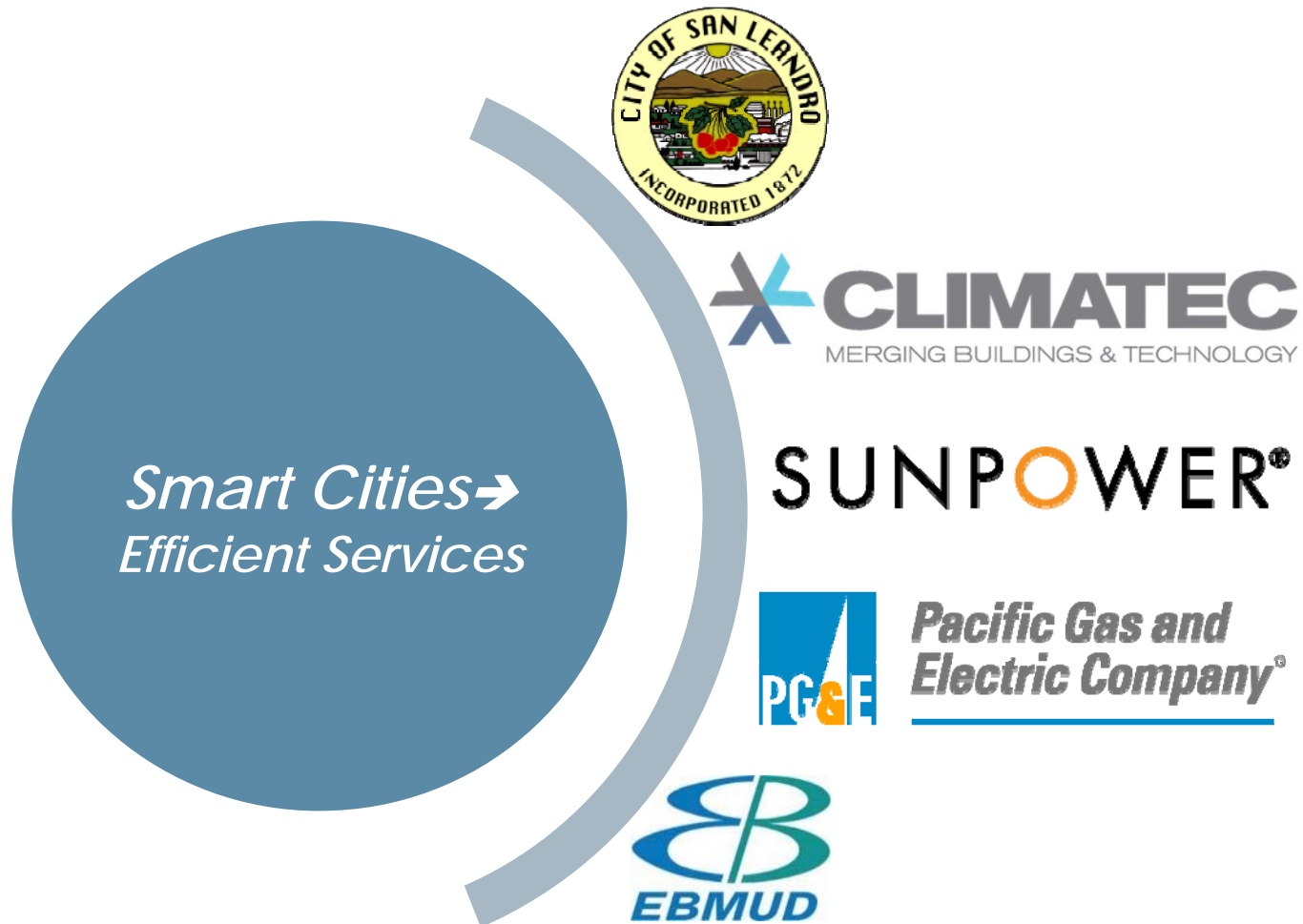
# ENERGY & WATER CONSERVATION PROGRAM



Smart Cities → Efficient Services

Facilities Subcommittee Meeting  
December 1, 2015

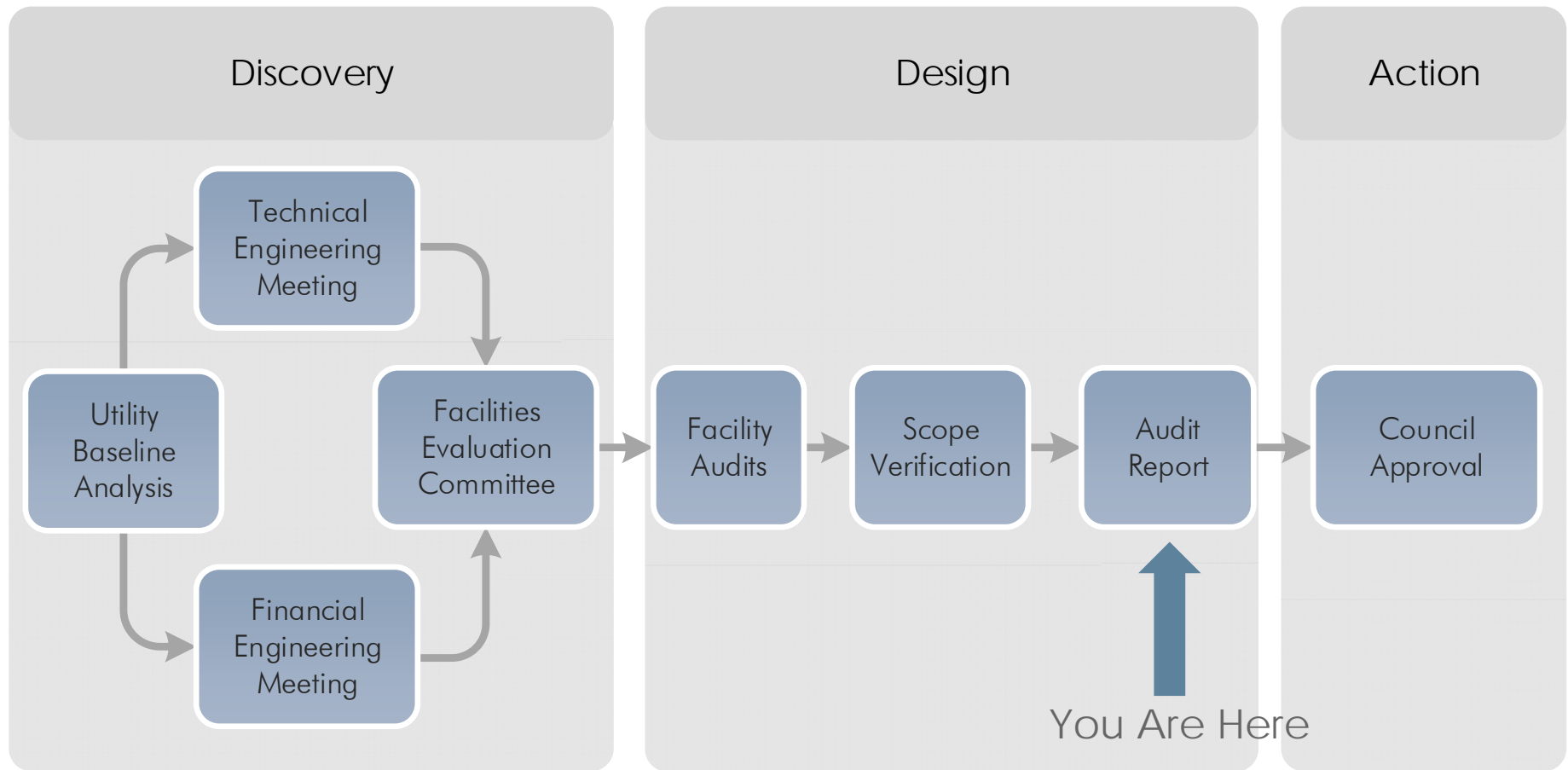
# SAN LEANDRO KEY PARTICIPANTS



SUNPOWER®

CLIMATEC®  
MERGING BUILDINGS & TECHNOLOGY

# PROGRAM PROCESS

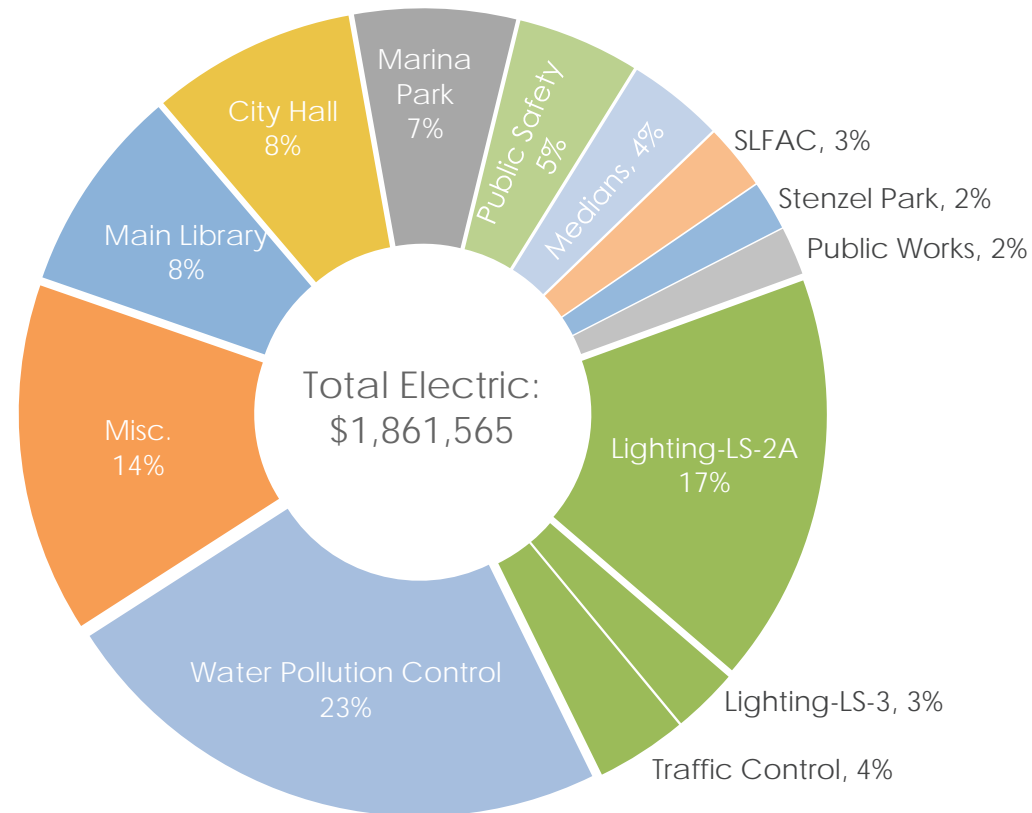


# UTILITY EXPENDITURES

Electric Distribution



## OVERALL UTILITY DISTRIBUTION





# PROGRAM GOALS

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## \* Upgrade Existing Systems

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



## \* Reduce Energy & Water Costs

## \* Decrease Maintenance Costs



## \* Self-Fund Improvements

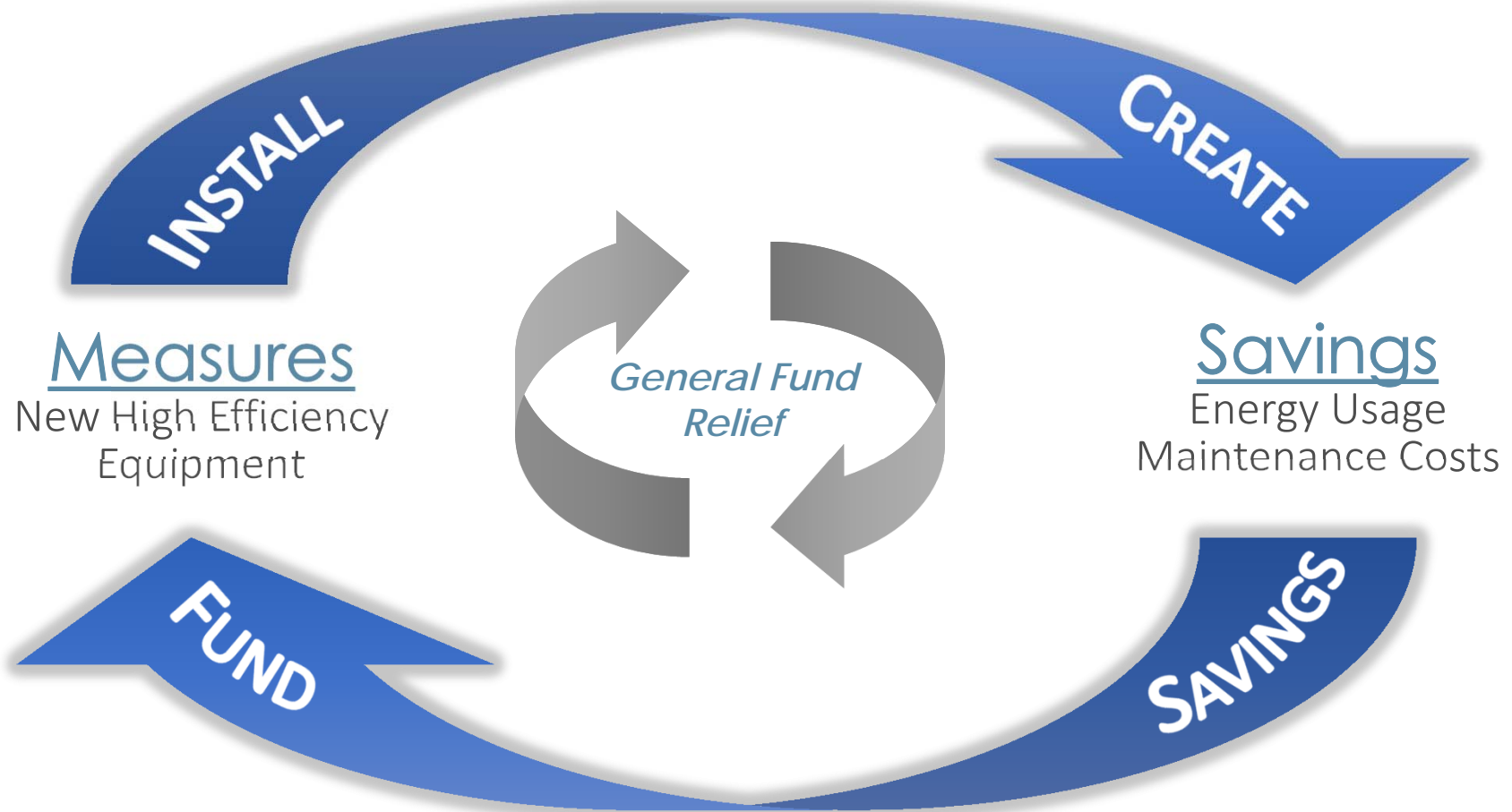


## \* Guarantee Financial Results

SUNPOWER\*

**\*CLIMATEC®**  
MERGING BUILDINGS & TECHNOLOGY

# SELF FUNDED IMPROVEMENTS



# CLIMATEC SCOPE OF WORK

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Please see handout



# STREET LIGHT UPGRADES

LS-2 & LS-3



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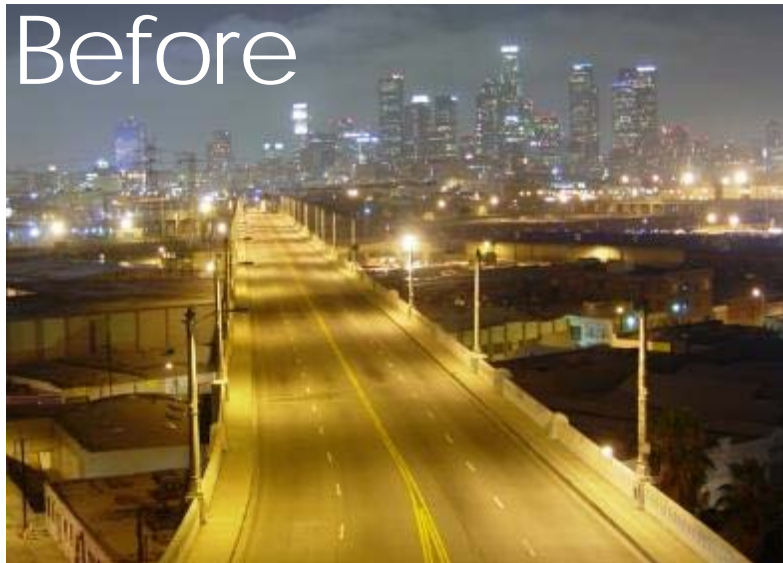


# STREET LIGHT UPGRADES

LS-2 & LS-3



Before



After

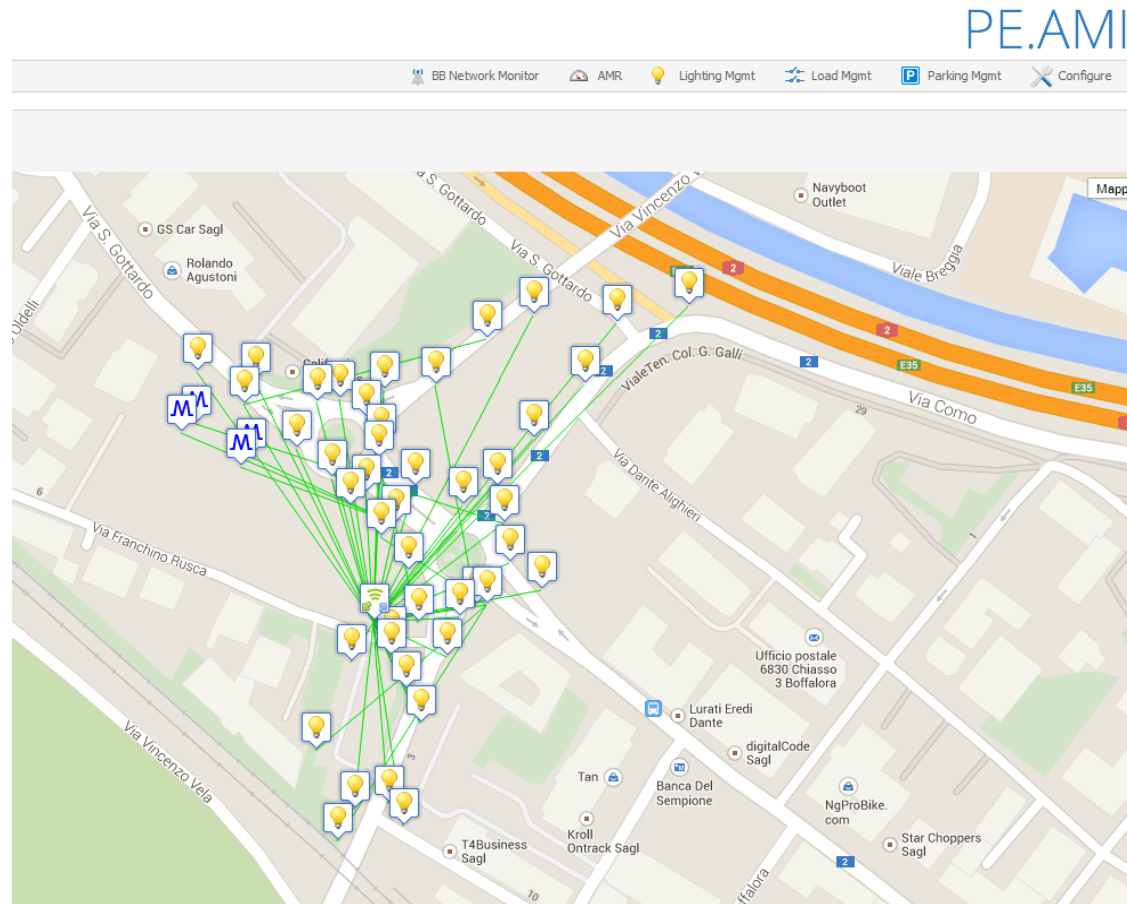


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# STREET LIGHT UPGRADES

Street Light Control & Monitoring



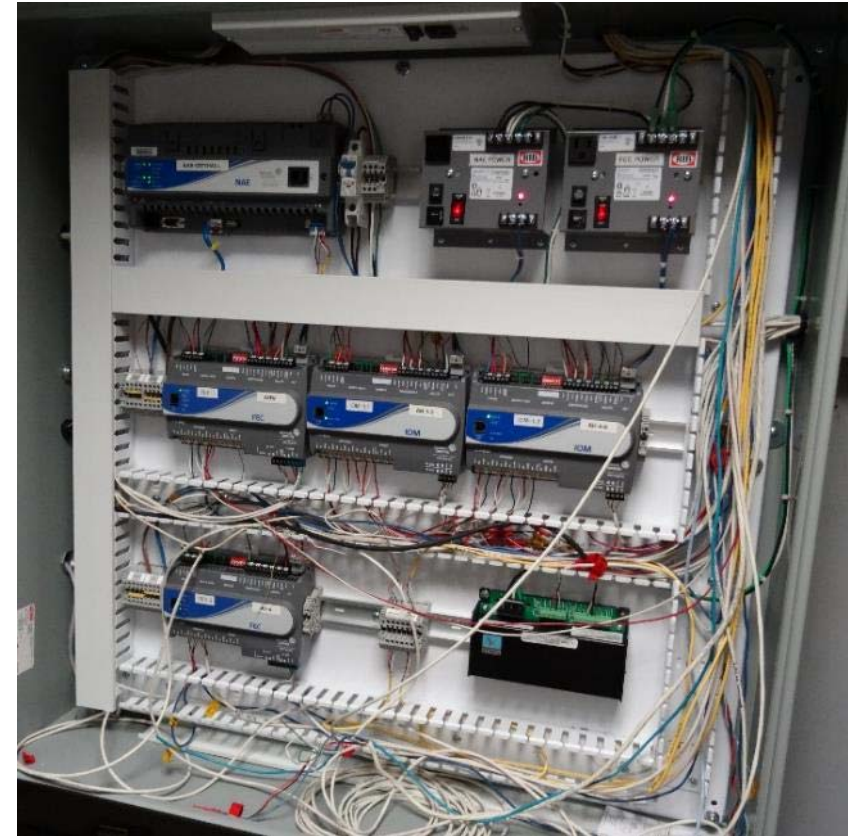
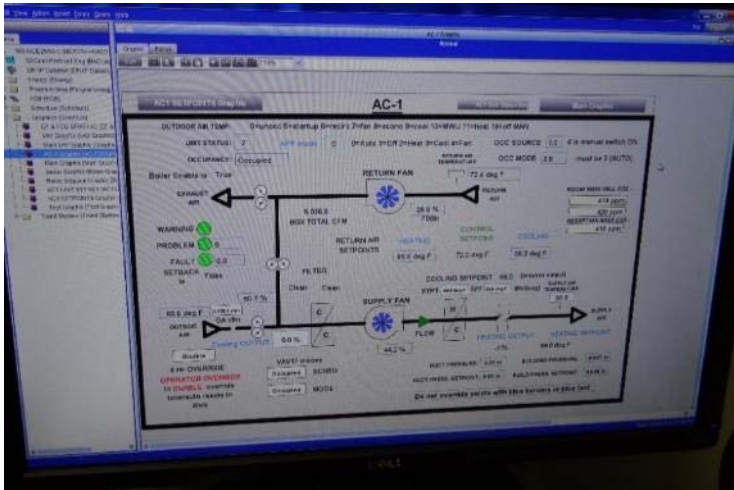
## Key Features:

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

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# BUILDING AUTOMATION SYSTEM



Upgrade  
Thermostats to JCI

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# LIGHTING UPGRADES

## Interior LED Upgrades



Existing Interior Lighting



Recommended LED Lighting

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# LIGHTING UPGRADES

## Exterior LED Upgrades



Existing Exterior Lighting



Recommended LED Lighting

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# HVAC UPGRADES



Existing HVAC Equipment



Recommended  
High Efficiency  
HVAC Upgrades





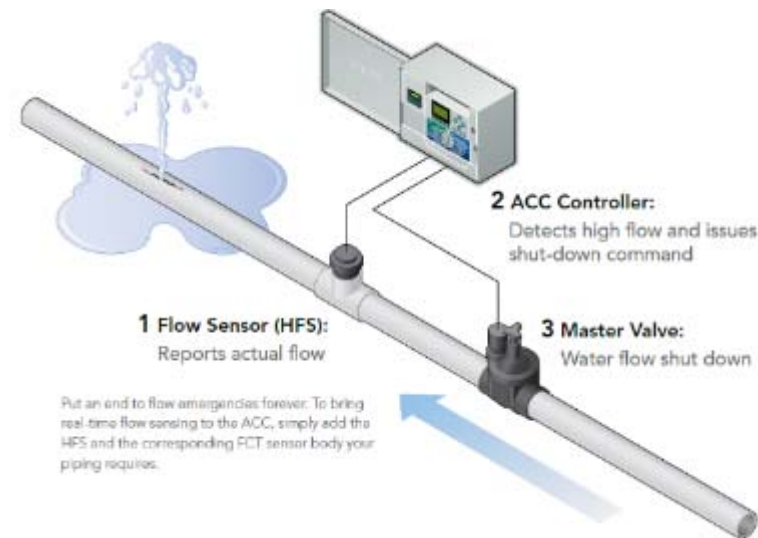
# IRRIGATION UPGRADES

## Weather Based Smart Irrigation Controls



Existing Controls

## Recommended Controls



# CLIMATEC FINANCIAL HIGHLIGHTS

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Total Infrastructure Improvements	\$ 5,637,111*
Estimated Lifecycle Savings	\$ 14,028,692
Estimated 1st Year Project Inflows	\$ 562,064
Estimated 1st Year Project Outflows	\$ 478,569
15 Year Net Project Savings	\$ 1,431,615

*Note (\*): Amounts shown above do not include the Solar PV installation at WPCP.*

# CLIMATEC FINANCIAL HIGHLIGHTS

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LED Street Lighting/ Controls	\$ 3,480,000
Mechanical	\$ 964,000
Lighting	\$ 900,000
BAS	\$ 191,000
Irrigation	<u>\$ 102,000</u>
	5,637,000*

*Note (\*): Does not include impact of the  
CWA labor agreement*



# SUNPOWER SCOPE OF WORK

Option 1

## SOLAR PV DETAILS

- \* Size: 522 kW
- \* Annual Production (Year 1): 821,524 kWh
- \* Mounting: Ground Fixed Tilt
- \* % Energy Usage Offset: 28%
- \* % Utility Bill Reduced: 31%

Water Pollution Control Plant



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# SUNPOWER FINANCIAL HIGHLIGHTS

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Option 1



Total Infrastructure Improvements	\$ 2,191,500
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Estimated 25 Year Savings	\$ 3,860,000
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Estimated First Year Savings	\$ 111,800
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# SUNPOWER SCOPE OF WORK

Option 2

## SOLAR PV DETAILS

- \* Size: 1,044 kW
- \* Annual Production (Year 1): 1,643,047 kWh
- \* Mounting: Ground Fixed Tilt
- \* % Energy Usage Offset: 56%
- \* % Utility Bill Reduced: 63%

Water Pollution Control Plant





# SUNPOWER FINANCIAL HIGHLIGHTS

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Option 2



Total Infrastructure Improvements	\$ 4,275,000
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Estimated 25 Year Savings	\$ 8,300,000
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Estimated First Year Savings	\$ 237,000
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# SAMPLE ENVIRONMENTAL BENEFITS



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



Remove **415** cars off the road



Save **225,389** gallons of gasoline



Preserve **59,319** trees from deforestation



Power **297** San Leandro homes



Provide drinking water for **22,617** San Leandro residents



## NEXT STEPS

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Climatec Competitively Selected	✓
Technical / Financial Meetings	✓
Feasibility Study to Facility Committee	✓
Engineering Site Walks	✓
Scope Verified with Staff	✓
Audit Results to Facility Committee	<b>Today</b>
Council Information	January
Council Action	March

# 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



# QUESTIONS?