Sustainable La Crosse
Guaranteed Efficiencies

Climate Action Plan Implementation – Phase IV

La Crosse Sustainability Project

Agenda:

- Sustainability Partnership in Review (phases I, II and III)
- New Phase IV Scope and Benefits

Johnson Controls

Project Success: Prior phases in review

La Crosse Sustainability Project (Phases I-III)

Energy Demand Reduction

- Mechanical equipment replacement
- Retrofit lighting to LED
- Efficiency monitoring and reporting
- Investment at **City Hall, Libraries, Municipal Service Center, Fire Stations, Parks, Street lighting and the La Crosse Center**

Renewable Energy Supply

- City-owned Solar Arrays: Seven (7) locations totaling over 0.5 MW

Status: Implemented/Generating Savings
Total Investment in facilities: **>$9 million**
Total Project Benefits (over 20 years): **> $11 million**
Annual savings equivalent to **2,339 Metric Tons of CO2**






Project Success: Prior phases in review

City-owned Solar PV Arrays

Municipal Service Center: 100 kW

Main Library: 100 kW

City Hall: 100 kW

Fire Station #1: 36 kW

Fire Station #3: 30 kW

Copeland Park: 60 kW

La Crosse Center: 100 kW

LA CROSSE WISCONSIN

Johnson Controls

Project Success: Prior phases in review

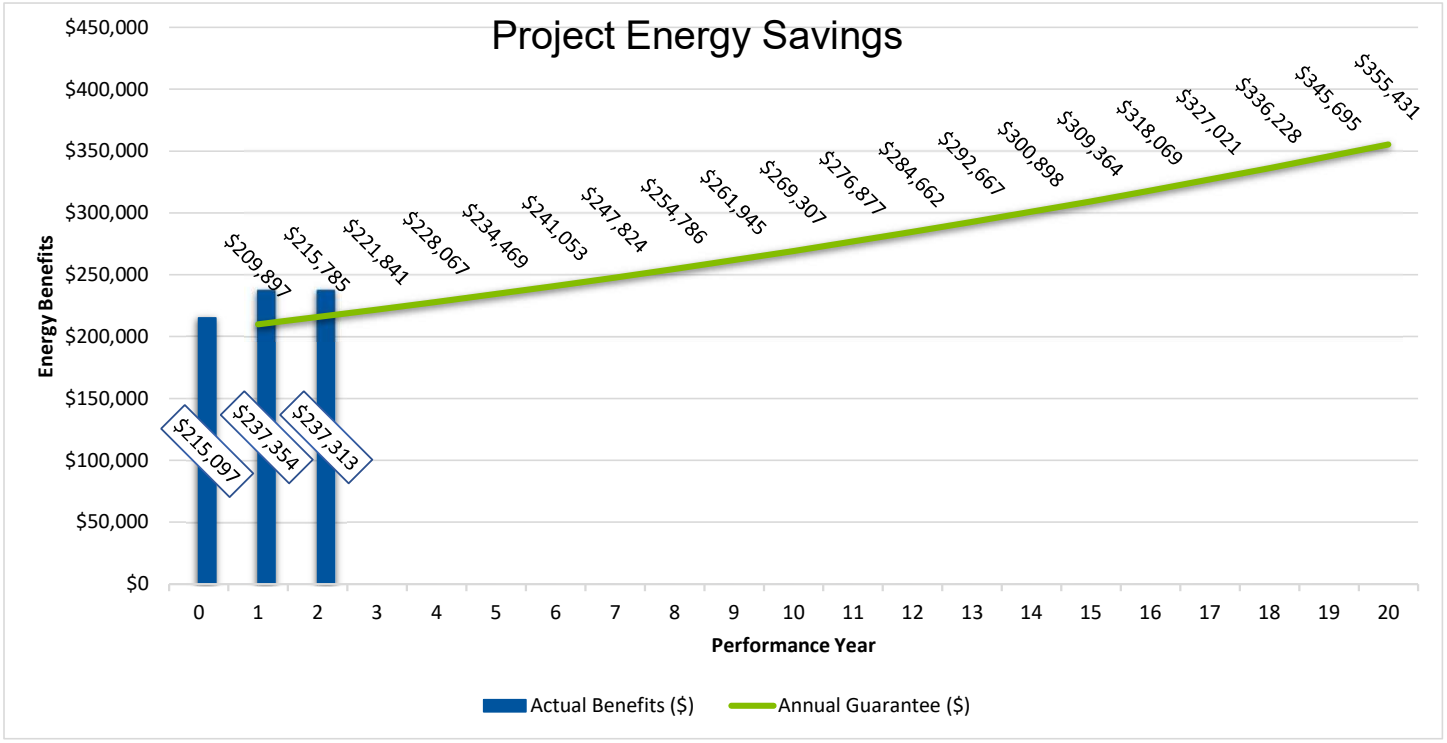
Project Benefits Greater Than Projected

Phase I and II benefits have exceeded projected benefits by **$264,083** and total project energy savings are **$689,764**

Actual Benefits To Date:
$1,672,822
- Energy Savings: **$689,764**
- Energy Rebates: **$262,937**
- O&M Savings: **$120,121**
- Capital Contribution: **$600,000**

Projected Benefits To Date:
$1,408,739

Excess Savings To Date:
$264,083



Project Success: Prior phases in review

Sustainability Benefits - Annual

2,339 Metric Tons **of Carbon Dioxide (CO_2) equivalent**

This is equivalent to greenhouse gas emissions from:

504 gasoline-powered passenger vehicles driven for one year	**5,806,827** miles driven by an average gasoline-powered passenger vehicle

This is equivalent to CO_2 emissions from:

263,236 gallons of gasoline consumed	**229,802** gallons of diesel consumed
2,588,314 pounds of coal burned	**31** tanker trucks' worth of gasoline
295 homes' energy use for one year	**455** homes' electricity use for one year

https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Johnson Controls

New Phase IV

Project Scope Review and Recommendations

Category	Projects Evaluated	Results		Next Steps
Lighting	Green Island Ice Arena: Upgrade remaining non-LED interior lights and non-LED exterior lighting to LED	Positive economic and environmental results		Include in agreement
	Public Pools: Upgrade remaining non-LED interior lights and non-LED exterior lighting to LED	Positive economic and environmental results		Include in agreement
HVAC	Fire Station #3: HVAC systems and building envelope	HVAC deferred to grant award. Building envelop plan has positive benefits		Include turnkey complete remodel in next phase upon Grant Award
	City Hall: Variable Air Volume (VAV) units and air duct sealing	Benefits do not match investment. Additional funding required		Include AHU replacement in next phase. Re-evaluate VAV in future
	La Crosse Center: Air duct sealing	Not applicable to “open space” configuration		
	Green Island Ice Arena: HVAC improvements and air duct sealing	Benefits do not match investment. Additional funding required		Complete if funding available
	Public Pools: pump house, whole building fan, cooling, pool cover, investigate feasibility of Erickson external pump house	Chlorine generator and aquatic controls yield positive benefits with some capital infusion		Additional funding required for pump house, if necessary
Renewable Energy	Fire Station #2: Solar PV array	Positive economic and environmental results		Include in agreement
	Fire Station #4: Solar PV array	Positive economic and environmental results		Include in agreement
	La Crosse Center: Solar PV array	Positive economic and environmental results		Include in agreement
	Public Pools: Solar hot water	Benefits do not match investment		
	Green Island Ice Arena: Solar hot water	Benefits do not match investment		
	EV Charging Stations: investigate options at various City facilities	Technologically feasible.		Additional planning and funding needed
Open Blue Enterprise Manager	Extend the existing system to include the facilities listed above	Positive economic and environmental results		Include in agreement

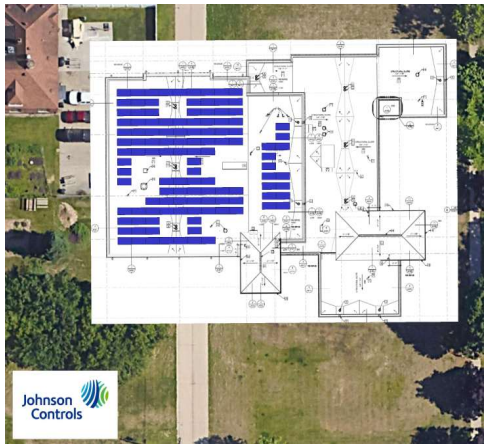
Johnson Controls

New Phase IV

New Solar Arrays

La Crosse Center
Estimated annual production: 280 MWh
185 kW AC (251 kW DC)

Fire Station #2
Est Annual Production: 58 MWh
50 kW AC (56 kW DC)

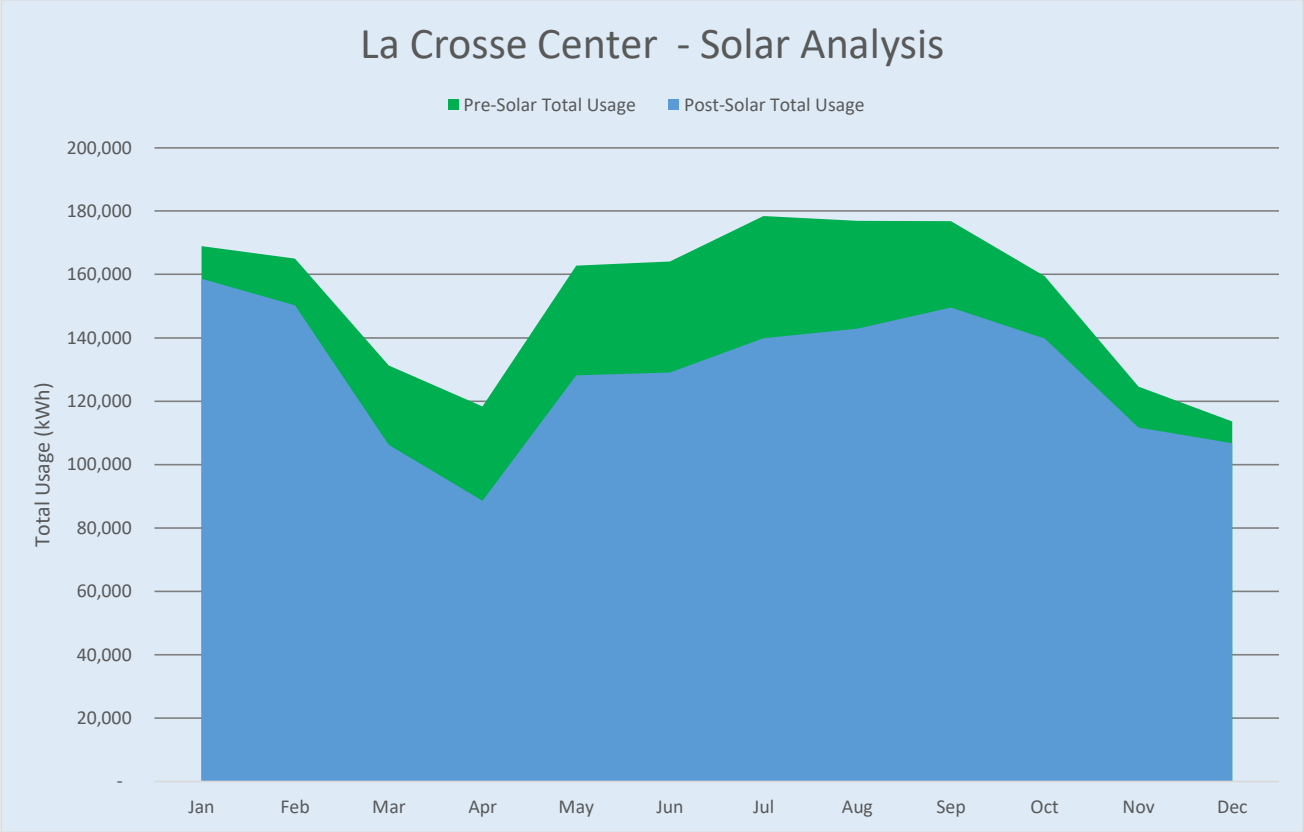


Fire Station #4
Est Annual Production: 76 MWh
50 kW AC (73 kW DC)

Johnson Controls

New Phase IV

Expected Solar Benefits (new array only)



CURRENT ELECTRIC USAGE AND BILL

Total Energy Usage (entire facility):
1,840,306 kWh
Total Electric Energy (CY 2022)
$205,690

EXPECTED ANNUAL SOLAR BENEFIT

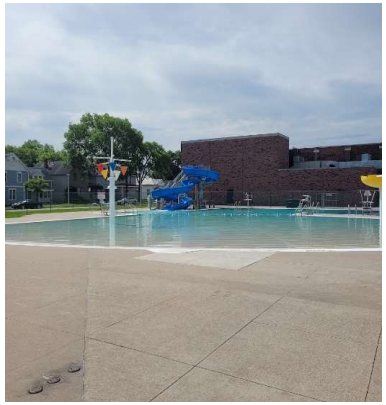
Solar Production:
280,148 kWh (15% of total usage)
Expected Total Annual Value:
$30,292
Sum of Solar Production, measured:
$21,664
plus Demand saving, unmeasured:
$8,628

Johnson Controls

New Phase IV

Community Pool Upgrades

- Energy and water savings
  - Lighting upgrades
  - Pumping controls
- Operational and Maintenance Savings
  - Alternative process of on-site chlorine generation
  - Raw materials are typically 75% - 90% less expensive
- Improve safety and minimize risk to public health
  - Increase water quality and reduce threat to public safety
  - Reduce storage of hazardous acid and chlorine solutions
  - Significantly reduce corrosiveness and related hazards



Johnson Controls

New Phase IV

Project Benefit Summary

Project cost: $2,390,500
Less expected Rebates: $393,400

Annual expected project benefits (energy and O&M, initial year): **$100,700**
Total expected project benefits (over 20 years): **$3,190,000**

Johnson Controls