

Lilly del Caribe PR01:  
Energy Conservation  
Program & Investment  
Evaluation Tools

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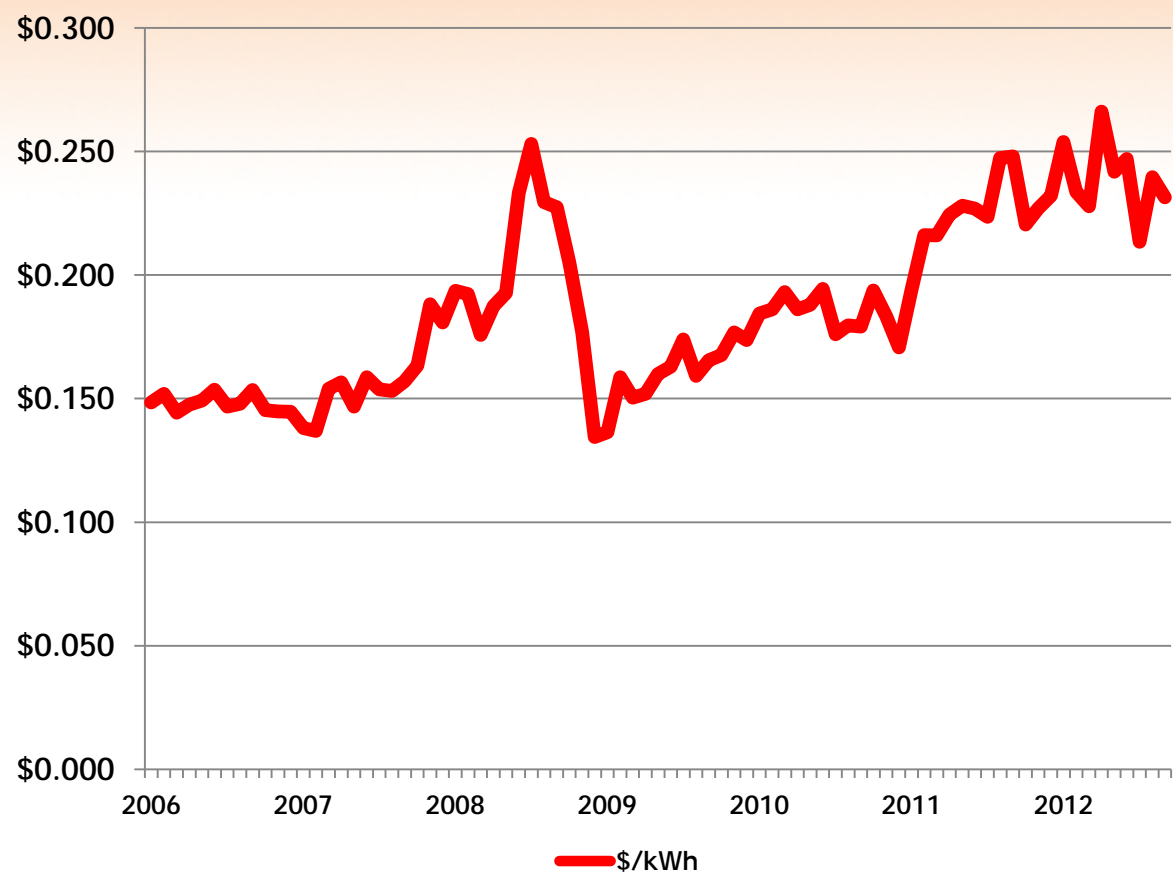
# About Us



## Lilly del Caribe PR01

- Pharmaceutical Manufacturer: Cymbalta, Cialis, Evista, Zyprexa
- Originally Built in 1966
- Located in Carolina, PR
- Building Space of 500,000 ft<sup>2</sup>
- Utilities: Electrical, Chilled Water, Steam, Purified Water, Potable Water and Compressed Air.

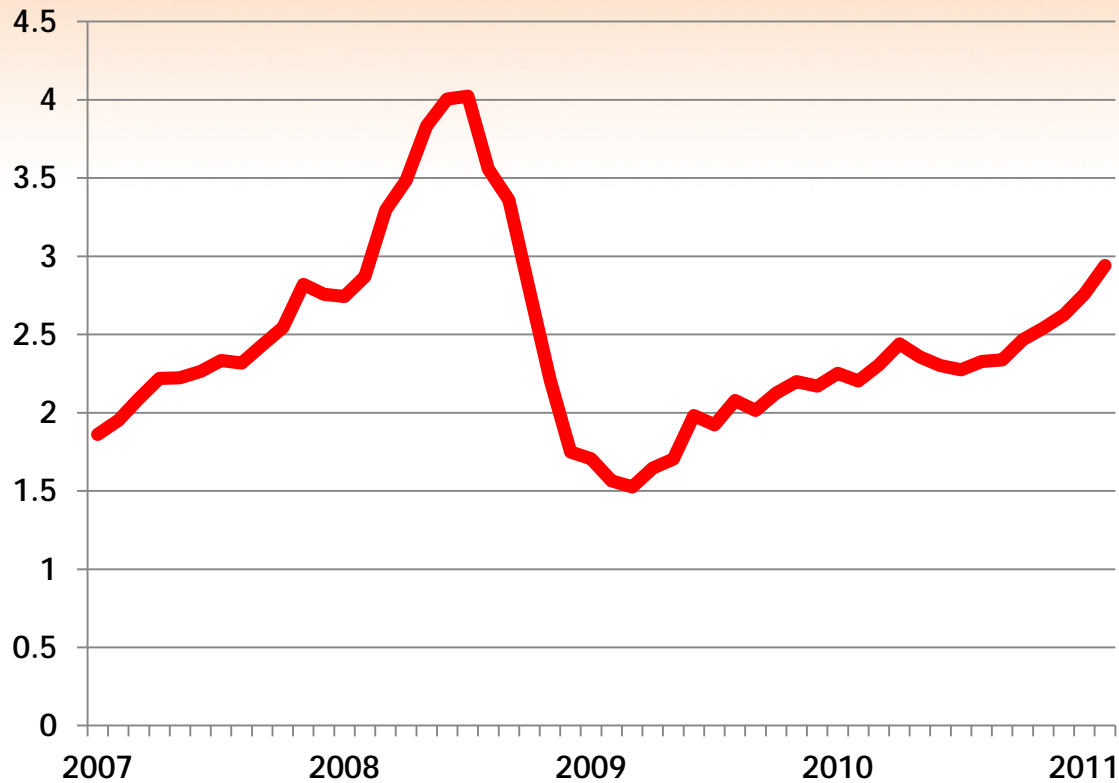
# Background



**38% Increase**  
in Electrical  
Costs since  
2006

\*Source PREPA

# Background



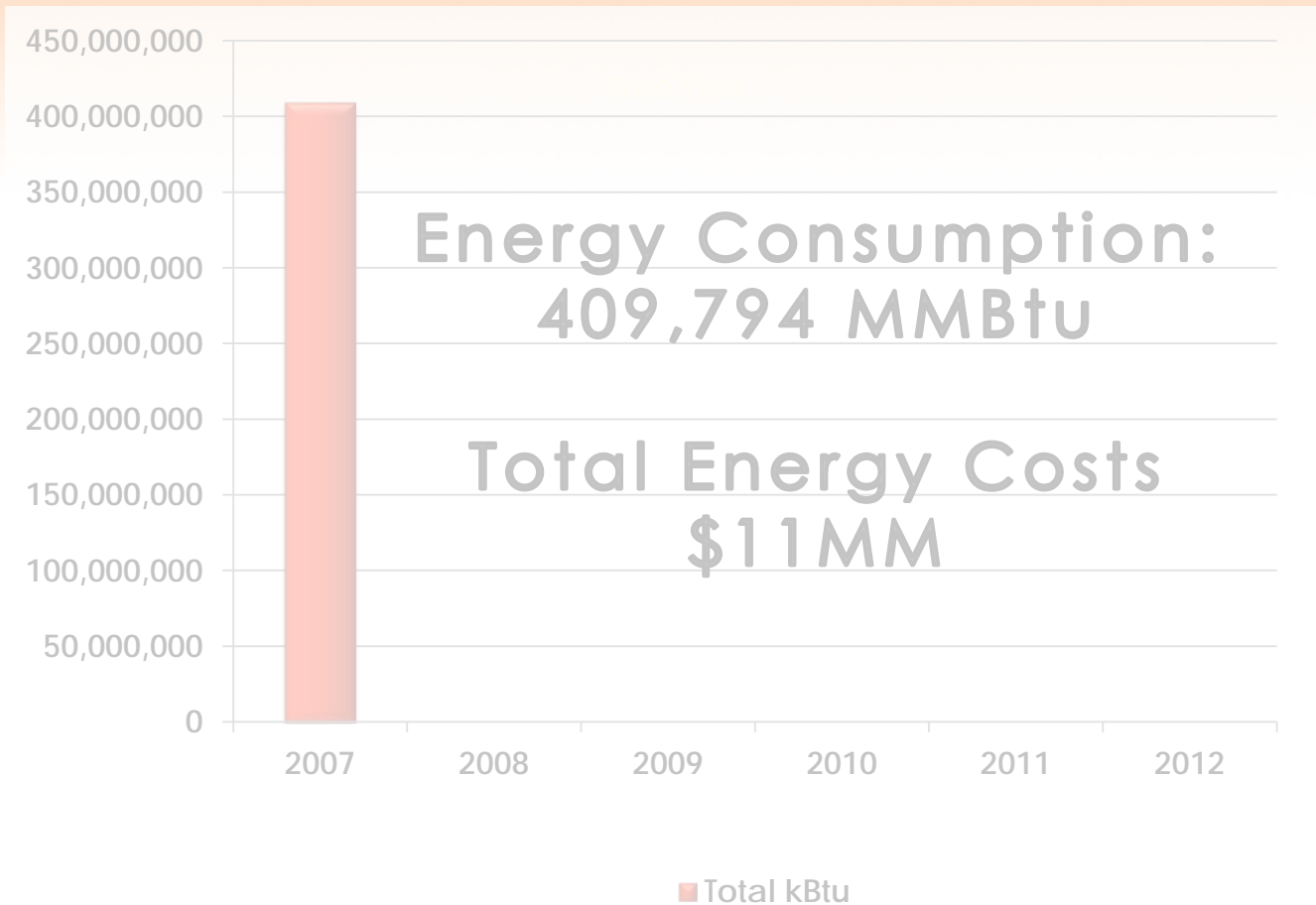
— \$ per Gallon - No. 2



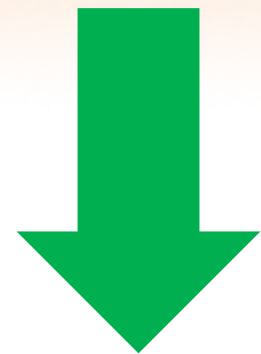
**58% Increase**  
in Fuel Costs  
since 2007

\*Source US Department of Energy - EIA

# Where were we in 2007?



Corporate  
Goal



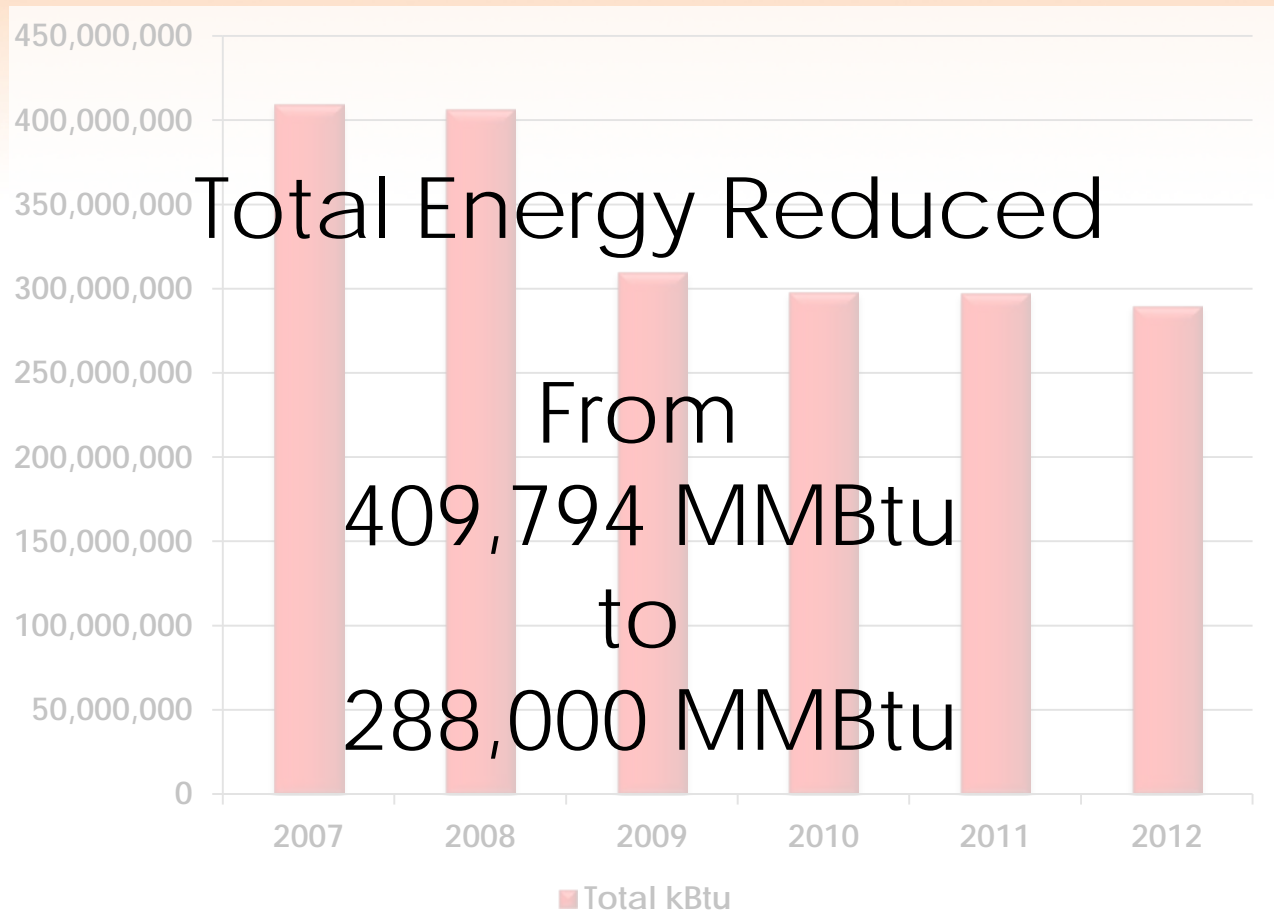
15%

Decrease in  
Total Energy  
Consumption  
by 2013

# PR01 Energy Conservation

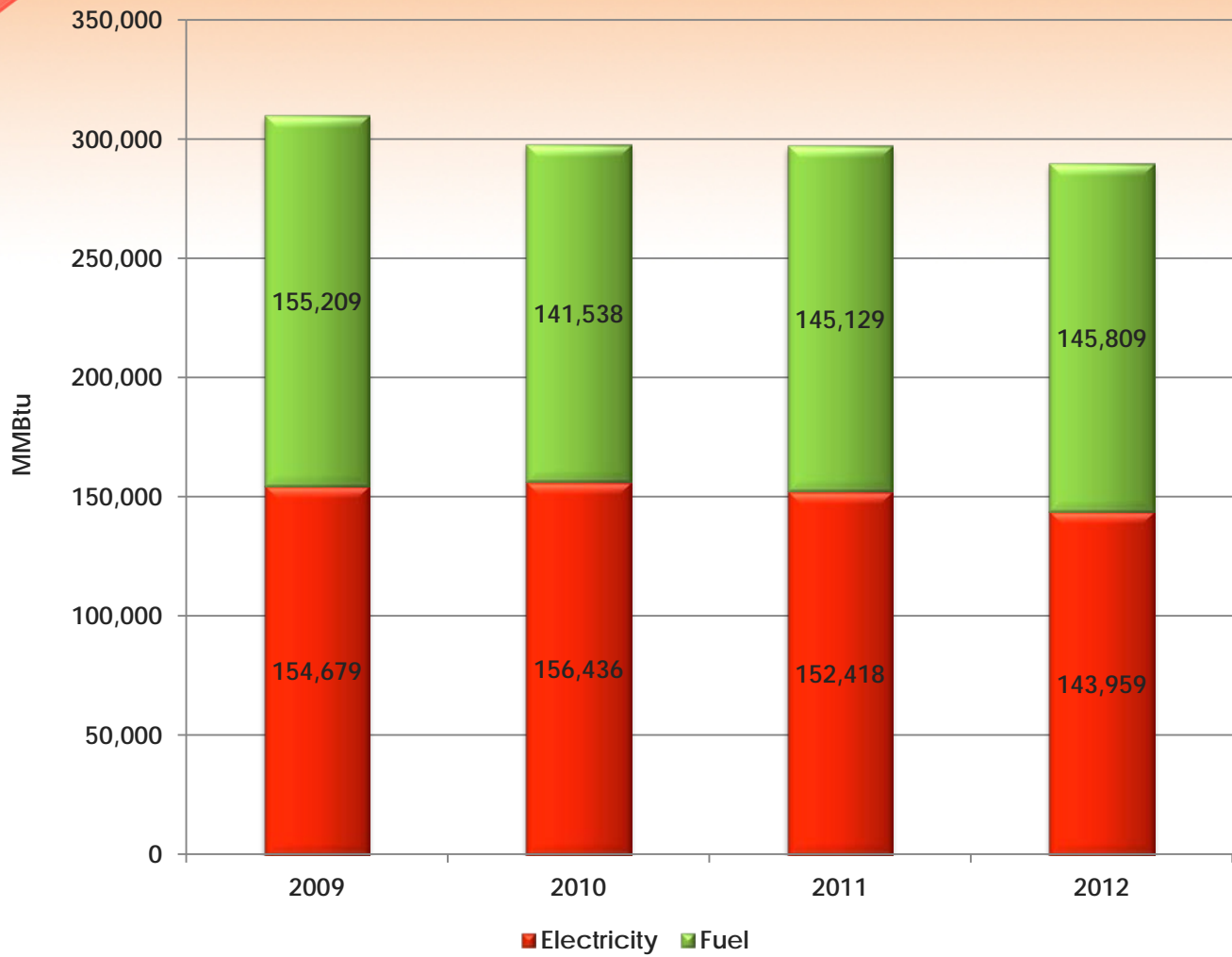
- Established in 2006
- Has representatives from all disciplines within the engineering department.
- Responsible for compliance with corporate and local goals.

# Where are we today?



**27%**  
Decrease in  
Total Energy  
Consumption  
to date.

# Energy Components



The total energy footprint of a site will include the **fuel** and **electrical** consumption components.



# Capital Investment Profile

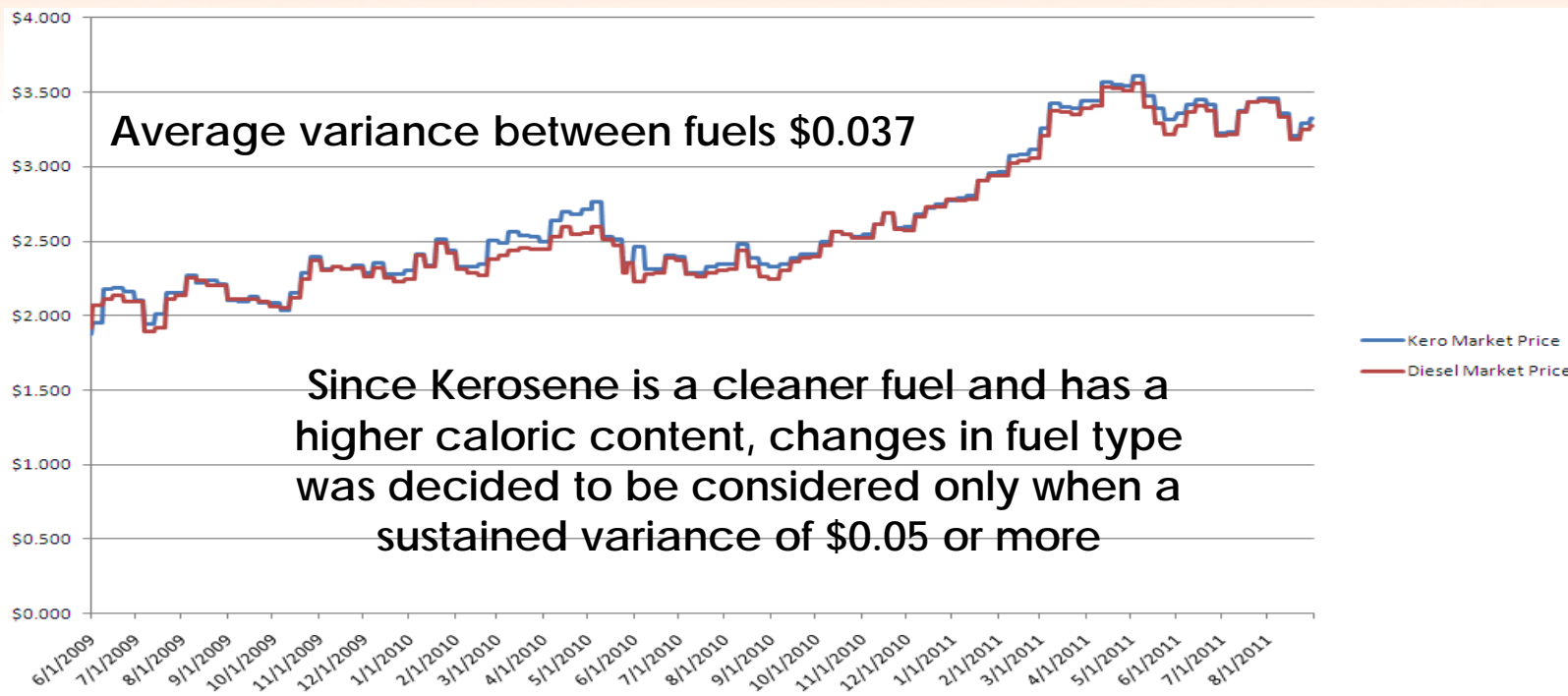
- 11 Major Projects since 2006
- Total Investment: \$2,200,000
- Total Savings: \$2,250,000
- Average Simple Payback: 0.97 yrs

# Evaluation Criteria

## 1. Savings Potential

- How much?
- How soon?
- How complex is the implementation?

# Boiler Fuel Change



# Evaluation Criteria

## 2. Simple Payback:

- $< 1$  year: High Priority
- $1 < 3$  years: Requires Good Marketing
- $> 3$  years: Major project with long term benefits

# Simple Payback Example

New VFDs in a pump system, along with the installation of high efficiency motors will cost \$100,000. The project will provide savings of \$50,000 per year.

Cost of Project	Yearly Savings	Simple Payback
\$100,000	\$50,000	$\$100,000 / \$50,000 = 2 \text{ yrs}$

# Evaluation Criteria

## 3. Internal Rate of Return (IRR):

- Used in capital budgeting to evaluate investments against each other.
- Investments with an  $IRR > \text{Cost of Capital}$  are favorable.

# Evaluation Criteria

## 4. Life Cycle Cost/Net Present Value:

- Widely used across industries
- Includes savings, costs and equipment life
- Can help to sell projects with high initial costs

# Evaluation Criteria

## 5. Human Resources

- Who will sponsor the project?
- Who will manage the project?
- Who will be the owner of the finished project?



# Evaluation Criteria

## 6. Avoided Costs

- The cost of doing nothing.
- Its numbers can be very persuasive.

# Evaluation Criteria

## 6. Avoided Costs

kWh 2007  
48,267,299

kWh 2011  
44,460,139

kWh 2007  
48,267,299

Cost per kWh 2007  
\$0.15

Cost per kWh 2011  
\$0.23

Cost per kWh 2011  
\$0.23

Total Costs  
\$7,368,832

Total Costs  
\$10,928,396

Total Costs  
\$10,066,401

Avoided Costs = \$3,559,563

# Sample Project: LED Replacement:



**Situation:** Several floodlights in the PR01 Parking Lot were damaged and needed replacement. We compared the costs of repairing them vs replacing the whole lighting system with energy efficient LED fixtures

Cost of Repairs: \$14K

Savings Electrical Bill: \$7K

Cost of LED System: \$25K

Simple Playback: 1.9

**Result:** By replacing the system with LEDs, we increased the overall illumination of the area while reducing the total fixtures from 28 to 16.

# Questions?

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