



Lighting Upgrade

For:

Raleigh, NC 27613

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Prepared By:

Scott Jernigan

919-649-8468

sjernigan@greentechNC.com

Mr.

Thank you for giving Greentech the opportunity to assist you with your lighting and energy reduction needs. In our assessment we analyzed your current lighting configuration making note of power consumption, color rendering index, and efficiency of light output. We then compared this information to the latest available technology in the industry.

By carefully analyzing the equipment and the usage patterns of these systems we can uncover hidden expenditures that are draining a company's resources. To assist you in disclosing these hidden costs we are pleased to offer you this detailed analysis of our lighting system based upon our preliminary audit of your facility. This proposal illustrates energy saving measures that we recommend and the financial benefits of investing in a light retrofit project at your facility. Please let me know if there are questions regarding this proposal or if you have any recommendations. We are looking forward to work with you.

Sincerely,

Scott Jernigan

Executive Summary

GreenTech’s approach is to provide the most efficient lighting system for the desired level of light. The deliverable is a better lighting system with the fewest total watts and the fewest number of lamps and ballasts—a combination that naturally translates into the greatest possible energy savings year-after-year with the lowest possible maintenance costs. In our assessment, we have carefully analyzed your current lighting configuration and have compared this to multiple lighting arrangements to determine the optimal scenario for your retrofit. We have taken in to account foot-candle output, color rendering index (CRI), and assessed the need for controls and dimming switches. This photometric analysis provides the groundwork for our comprehensive energy savings and system improvement solution.

Cost of Waiting

With the numerous energy rebates and incentives, the time is now to consider a comprehensive lighting strategy to leverage these resources. The cost of waiting results in higher energy bills, additional maintenance costs, the opportunity to take advantage of the rebates and incentives. In those cases where organizations can't afford the initial investment, short term financing can be used to help customers achieve savings even when caught between budget cycles.

Cost of Waiting

Monthly	Yearly	5 Years	10 Years	15 Years	20 Years
\$5,763	\$69,159	\$345,795	\$691,590	\$1,037,385	\$1,383,180



Energy Usages and Costs

Through our assessment, we carefully gathered data on your lighting configuration to better understand the amount of current energy usage and costs of operation. Current wattage and ballasts specifications are taken into consideration to create an average wattage consumption of each fixture. The same formula was applied to our recommended design and compared to determine the amount of potential savings through the lighting retrofit. The graph below outlines your current energy usage versus your projected energy usage. The result is a major reduction in your energy consumption and cost of operation.

Annual Energy Usage

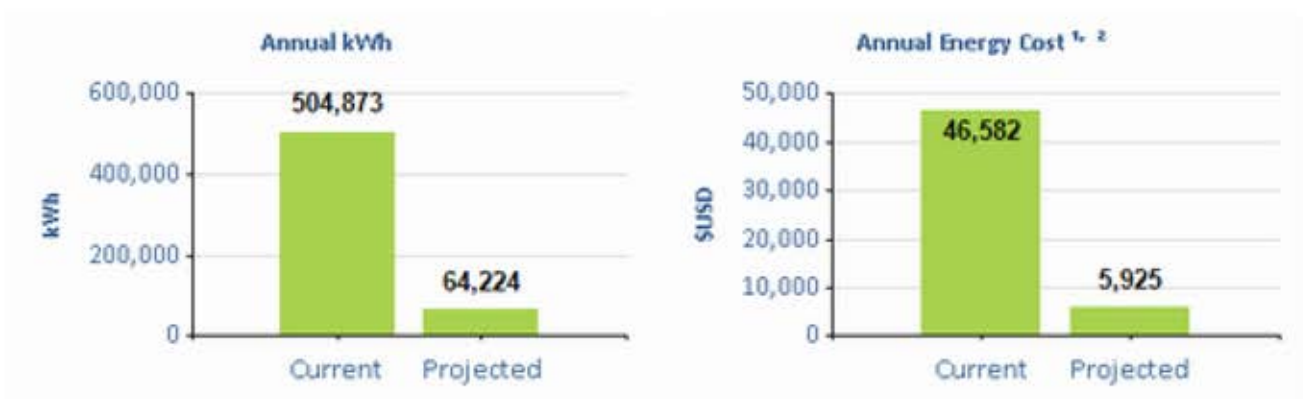
Current Usage (kWh)	Projected Usage (kWh)	Reduction	Current Cost ^{1, 2}	Projected Cost ^{1, 2}	Savings	Cost Savings
504,873	64,224	87%	\$46,582	\$5,925	\$40,656	87%

1. Energy cost = \$0.0700/kWh; Annual energy cost escalation = 6%
2. Energy costs are averaged over 10-year analysis period

Annual Energy Usage Reduction

Current Usage (kWh)	Projected Usage (kWh)	Reduction (kWh)	Reduction
504,873	64,224	440,649	87%

Energy Comparison



1. Energy Cost = \$0.0700/kWh; Annual energy cost escalation = 6%
2. Energy costs are averaged over 10-year analysis period

Watts Summary

Existing Watts ¹	Proposed Watts ¹	Reduced Watts	Reduction
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123,165

16,056

107,109

87%

1. *The watts calculations in this table take into account existing fixtures that are being replaced, upgraded, and/or have new lighting controls being proposed for them*

Operational Overview

Operational Savings Summary

Operational Area	Current Annual	Projected Annual	Reduction	Current 10-Year	Projected 10-Year	Reduction
Energy ^{1, 2}	\$46,582	\$5,925	87%	\$465,823	\$59,256	87%
Maintenance ³	\$13,734	\$0	100%	\$137,340	\$0	100%
Total	\$60,316	\$5,925	90%	\$603,163	\$59,256	90%

1. Energy cost = \$0.0700/kWh; Annual energy cost escalation = 6%
2. Energy costs are averaged over 10-year analysis period
3. Maintenance costs are averaged over 10-year analysis period

Annual Operational Savings Comparison



1. Energy cost = \$0.0700/kWh; Annual energy cost escalation = 6%
2. Energy costs are averaged over 10-year analysis period
3. Maintenance costs are averaged over 10-year analysis period

Environmental Impact

The adverse effects of current levels of electricity use on the environment are staggering. Recent statistics from the U.S. DOE’s Energy Information Administration reveal that 2.5 billion tons of pollutants, including sulfur dioxide (SO₂), nitrogen oxide (NO_x), and carbon dioxide (CO₂), are emitted every year as a byproduct of electricity generation by utility companies. Over time, emission has waged profound negative effects on the environment, contributing to the depletion of the ozone layer, increased levels of acid rain, and the heightened prevalence of cardiac and respiratory ailments.

Lighting upgrades, however – involving energy-efficient lamps, ballasts, and lighting controls – make great strides toward offsetting these adverse effects on the environment and reducing ecological footprint. By using the formulas below, derived from a 2009 energy savings calculator we are able to identify the green aspect of the project, or the CO₂ reduction and air pollution reduction equivalence the lighting upgrade is driving. Provision of this kind of environmental data will signal to your customers your awareness of this important aspect of your lighting upgrade.

Greenhouse Gas Analysis

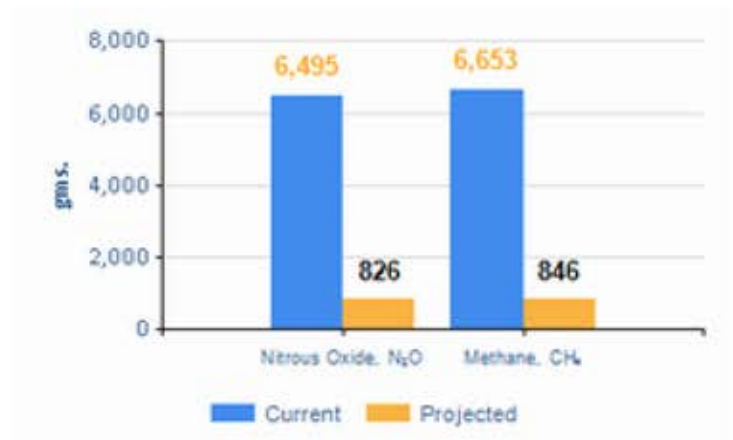
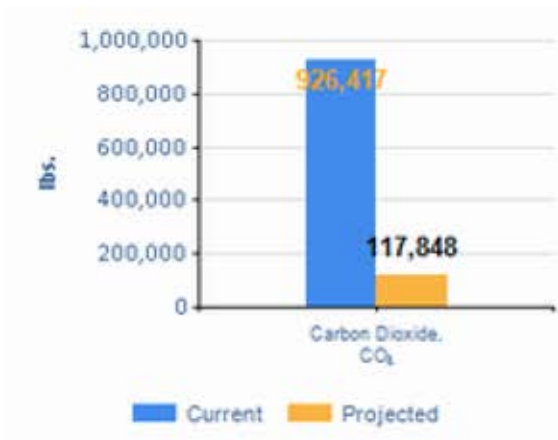
Current (lbs.)	Projected (lbs.)	Gases Avoided (lbs.)	Reduction
926,417	117,848	808,569	87%

Greenhouse Gas Analysis

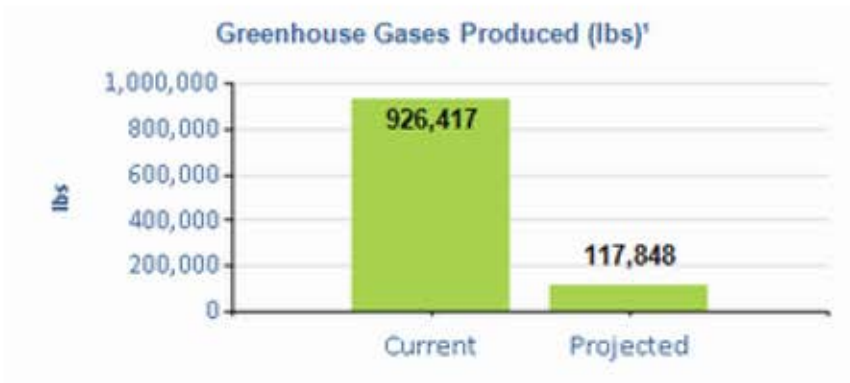
Greenhouse Gas Comparisons

Greenhouse Gas	Current ¹	Projected ¹	Avoided	Environmental Effect
Carbon Dioxide, CO ₂	926,417	117,848	808,569	Greenhouse Gas, Global Warming
Nitrous Oxide, N ₂ O	6,495	826	5,669	Acid Rain, Global Warming
Methane, CH ₄	6,653	846	5,807	Greenhouse Gas, Global Warming

1. Average emission rates per kWh are based on EPA estimates for NC



Greenhouse Gas Comparables



Comparable Metrics

Trees Saved: 30,321

Acres of trees planted: 70

Fewer cars on the road: 100

1. Average emission rates per kWh are based on EPA estimates for NC

Upgrade Analysis

We will supply all electrical wiring, ballasts, and bulbs with no hidden charges at the end of the project. We guarantee a professional installation making sure the facility is cleaned properly upon completion.

Investment Includes:

- Materials, Installation and Workmanship
- Certified Energy Audit
- Application filing and consulting for the Progress Energy rebate program
- Documented disposal of old ballast and lamps (Required by Progress Energy Rebate Program)
- One year service agreement covering unexpected ballast or bulb failure and labor.

Fixture Replacement Summary

Existing Fixture	Qty	Proposed Fixture	Qty
8ft, 2 lamp F96T12	177	3 Lamp 24w LED tube fixture	0
8ft, 2 lamp F96T12HO	477	3 Lamp 24w LED tube fixture	223
Total(s)	654		223

Appendix

The following rebates will be applied to this project according to watt reduction. Progress Energy will provide a professional audit prior to installation to approve the rebate and the project. Greentech will then provide a post installation overview submitted to Progress Energy to confirm any changes from the initial assessment. Once approved Progress Energy will send the check directly to the customer within 2-3 months.

Incentives

Description	Amount	Est. Receipt Date
Custom incentive for LEDs	\$34,815.00	Immediate
Total(s)	\$34,815.00	

Financial Assumptions

Discount Rate	Analysis Period (yrs)	Energy Cost (\$/kWh)
6%	10	\$0.0700