

# SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

## Part I - General Information

<b>Name of Student Organization</b>	OES Interns, Energy Team
<b>Contact/Responsible Person</b>	Austin Himes
<b>Contact Office Held/Title</b>	Energy Team Leader
<b>Contact Email Address</b>	AustinHimes@vt.edu
<b>Contact Telephone Number</b>	(301) 706-4989

## Part II - Project Cost Information

Estimate Cost of this Proposal	\$28,160	See Part III.C
Estimated Annual Savings –	\$ 1,795 (Energy and Maintenance Savings)	See Part III.D
Net Cost of this Proposal	4.9% ROI, Simple Payback = 15.7 years	

## Part III - Supporting Information

### A. Please describe your sustainability initiative and attach supporting documentation.

#### HPS Lamp to LED Luminaire Infrastructure Upgrade

The purpose of this RFP is to propose an upgrade to the current streetlamps at Virginia Tech. The streetlamps along Washington Street, West Campus Drive, and Stanger Street all contain outdated high-pressure sodium (HPS) lamps, which use more electricity and create more light pollution than modern fixtures. Investing in an infrastructure upgrade would reduce energy costs, reduce the impact of light pollution, and improve campus safety.

If the Virginia Tech Electric Service (VTES) were to upgrade their lighting infrastructure, an LED would produce the same amount of light as a traditional HPS lamp using approximately half the wattage. For example, using a 200W LED can produce the same amount of lumens as a 400W HPS lamp and the light quality increases dramatically as well. There are 7 'cobra head' HPS lamps on West Campus Drive, 4 on the roundabout between West Campus and Washington, 19 HPS lamps on Washington Street, and 2 on Stanger St. We propose to change these for an LED bulb, such as the Philips model *SVM-140W48LED4K-T-LE2*

Photos of some of the existing streetlamps are attached.

### B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Committee Resolution and Sustainability Plan?

*Policy Point # 1 - Virginia Tech will be a leader in Campus Sustainability.*

- Adopting the use of LEDs on campus will solidify Virginia Tech's reputation as a campus dedicated to sustainable technology and infrastructure.

*Policy Point # 3 - Virginia Tech will establish a target for reduction of campus GHG emissions to 80% below 1990 emissions level by 2050.*

- Changing 32 HPS lamp fixtures to LED luminaires will reduce our carbon footprint by 37,562.88 lbs.

*Policy Point # 4 - Virginia Tech will work toward these emission reduction targets through improved energy efficiency.*

- LEDs will reduce electricity consumption by 28,032 kWh per year and can emit a higher quality of light than an HPS lamp using half the wattage.

*Policy Point # 7. Virginia Tech will improve electricity and heating efficiency of campus facilities and their operations, including lighting efficiency.*

- The street lamps along Washington St, Stanger St, and West Campus Drive are operated by VTES, and this is a direct lighting improvement with significant and measured efficiency and cost benefits.

**B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Committee Resolution and Sustainability Plan? (con't)**

*Policy Point # 9. Virginia Tech will require purchase of Energy Star rated equipment.*

- The Philips LED luminaire model sampled for this RFP is Energy Star rated, as are all quality and commercially available LED streetlight luminaires.

*Policy Point # 14. Virginia Tech will provide funding to support sustainability programs through a variety of sources, which might include savings from reduced electricity use.*

- The \$1,795 annual cost savings from reduced electricity use of LEDs could be re-invested in sustainability programs, increasing our ability to fund future sustainability initiatives.

**C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate.**

Number of Existing Fixtures	32
Estimated Cost of Retrofit per Fixture including Installation	\$880
Project Cost assuming No Rebate	\$28,160.00

**D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.**

See attached Lighting Calculator dated 10/31-2014. These figures were verified by Bob Dellinger (Virginia Tech Electric Services Senior Electrical Engineer) and Ruben Avagyan (Virginia Tech's Energy Manager).

**E. Is this funding request an Ongoing or One-Time change (please check one)?**

**One-time**       **Ongoing**

**F. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)**

Virginia Tech Electric Services owns the streetlights along the proposed roadways.

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**Part IV- Requestors/Reviewers**

**Austin Himes, Caleb Hopler, Catherine Goggins, Dana Gargiule, Patrick Roden-Reynolds, Smita Sharma**

Prepared By (Name of Contact for Student Organization)

Date 10/24/14

**Bob Dellinger, VTES**

Reviewed By (Name of Appropriate University Official)

Date 10/24/14

**Ruben Avagyan, Campus Energy Manager**

Reviewed By (Name of Office of Energy and Sustainability Representative)

Date 10/20/14