Energy Efficiency and Conservation at Saint Paul African Methodist Episcopal Church Raleigh, North Carolina

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Climate Corps Public Sector

EDF ENVIRONMENTAL DEFENSE FUND
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Executive Summary

Overview

The Environmental Defense Fund Climate Corps Public Sector Fellowship program trains M.B.A and other graduate students in the identification and quantification of energy efficiency opportunities for houses of worship, universities, towns/cities, and government buildings. The Environmental Defense Fund (EDF) and Saint Paul African Methodist Episcopal Church (St. Paul) partnered together to place a Climate Corps Public Sector fellow at St. Paul. Saint Paul African Methodist Episcopal Church located in downtown Raleigh is a registered North Carolina historical landmark and was formally established in 1848. St. Paul is the oldest Black church in Wake County, NC and is the first house of worship in the country to host to a Climate Corps Public Sector fellow. The fellow was to assist St. Paul's leadership in addressing their concerns regarding their ever-increasing energy consumption and operating costs. In addition to saving on their operating costs, St. Paul is eager to join the "green movement" by becoming a more efficient and sustainable congregation by reducing its carbon footprint thus setting an example for its parishioners and other congregations alike.

For ten weeks the fellow assessed energy usage and equipment at St. Paul to identify and develop energy efficiency and conservation measures.

Analysis and Results

The Climate Corps Public Sector fellow identified a total of $18,369 in annual energy cost savings at St. Paul Church. This represents a 63% annual reduction in energy costs for St. Paul. In addition, the projected 241,370 kWh saved annually is enough to power 22 residential homes[i] and the 149 tons of carbon emissions saved is equivalent to taking 24 SUVs off of the road each year[ii]. A summary of fellow's recommended energy efficiency projects are below:

Project	Investment Costs	Estimated Cost Savings ($)		Estimated Energy Savings (kWh)		Payback (years)	CO_2 Reduction (Tons/yr)
		Annual	5 Year	Annual	5 Year		
HVAC - Controls & Scheduling	$3,480.00	$4,702.02	$23,510.10	54,294	271,470	0.85	33.74
Roofing System	$25,000.00	$1,760.00	$8,800.00	23,467	117,335	13.14	14.58
Lighting & Sensors	$30,872.39	$11,115.67	$55,578.35	135,430	677,150	0.97	84.16
Kitchen - Pilot Lights	$0.00	$566.50	$2,832.50	7,553	37,765	0	4.69
Hot Water Heaters	$75.00	$854.92	$4,274.60	10,690	53,450	0.38	6.64
TOTAL	$59,472.39	$18,369.11	$91,845.55	241,370	1,206,850	3.09	149.99

Conclusion

The fellow completed a detailed energy efficiency and conservation assessment for St. Paul AME Church. Through the implementation of the recommended, quantified energy efficiency projects, St. Paul could see an estimated 63% reduction in their annual energy costs, and more than a 54% reduction in their annual CO_2 emissions. The fellow hopes that this is just the beginning to St. Paul's long term, dedicated mission to become a national leading congregation in environmental stewardship, efficiency and sustainability.

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[i] US Department of Energy, http://www.eia.doe.gov/ask/electricity_faqs.asp#electricity_use_home

[ii] Environmental Defense Fund, http://www.edf.org/documents/2209_CarEmissionsFactSheet.pdf