

Energy Efficiency: City of Raleigh

Environmental Defense Fund Climate Corps 2010

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Written by

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EXECUTIVE SUMMARY

Overview

The Environmental Defense Fund Climate Corps Program places trained M.B.A., Master of Public Policy, and Master of Environmental Management fellows into businesses, universities, and local government offices across the country to identify and analyze energy efficient investments that can reduce costs and energy use. The Environmental Defense Fund (EDF) partnered with the City of Raleigh's Office of Sustainability in North Carolina to place two Climate Corps Fellows in city departments to analyze energy efficiency projects. The City of Raleigh is the first city in the country to host EDF Climate Corps Fellows.

For ten weeks, the fellows worked with city officials to identify and develop energy efficiency measures. The first six weeks were spent with the Raleigh Fire Department assessing the energy usage of all 27 firestation and the firefighter training center. The final four weeks were spent with the Facilities and Operations Division of the Raleigh Parks and Recreation Department analyzing energy efficiency investments for One Exchange Plaza, a 104,000 sq. ft. city-owned office building in downtown Raleigh.

Analysis and Results

The Climate Corps fellows identified a combined \$106,816 in annual energy cost savings at the Raleigh Fire Department and One Exchange Plaza. This represents an 11% annual reduction in energy costs for the Raleigh Fire Department and a 41% annual reduction for One Exchange Plaza. The annual reduction of 1,485,837 kwh is enough to power 134 residential homes¹ and the annual savings of 816 tons of carbon emissions is equivalent to taking 148 cars off the road². The fellows' identified energy efficiency projects are below:

Recommended projects

Project	Costs (Equipment & Labor)	Estimated Annual Energy Savings (kWh)	Estimated Cost Savings		Payback (Years)	CO2 Reduction (Tons/Yr)
			Annual	5-Year		
Raleigh Fire Department						
Temperature Controls	\$40,823.87	284,693	\$15,879.00	\$79,394	2.57	125.42
Lighting: T-12 to T-8 Retrofit	\$13,329.00	27,000	\$2,740.00	\$13,700.00	4.90	13.90
Vending Machines	\$207.00	13,479	\$1,078.31	\$5,391.57	0.19	5.94
HVAC: Energy Star AC units	\$17,803.00	61,368	\$5,216.00	\$26,080.00	3.4	47.25
One Exchange Plaza						
Lighting: T-12/T-8 to LED	\$263,686.25	818,187	\$62,182.22	\$310,911.10	4.24	464.32
HVAC: OEP VFDs and Fans	\$167,400.00	273,986	\$19,179.00	\$95,895.00	8.73	155.49
Vending Machines	\$296.00	7,124	\$541.39	\$2,706.96	0.55	4.04
TOTAL	\$503,545.12	1,485,837	\$106,815.93	\$534,078.45	4.71	816.36

Conclusion

The fellows completed detailed energy efficiency assessments for both the Raleigh Fire Department and One Exchange Plaza. The respective reports are attached. The fellows would like to thank the staffs at the Environmental Defense Fund and the City of Raleigh for their complete support throughout the fellowship. We hope our findings help the city of Raleigh lead the way in energy efficiency and a better future ahead.

¹ U.S. Department of Energy, http://www.eia.doe.gov/ask/electricity_faqs.asp#electricity_use_home.

² U.S. Environmental Protection Agency, <http://www.epa.gov/oms/climate/420f05004.htm>.