

Abstract Submitted
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Light Pipe Energy Savings Calculator¹ ERIN OWENS, ERNEST R. BEHRINGER, Eastern Michigan University — Dependence on fossil fuels is unsustainable and therefore a shift to renewable energy sources such as sunlight is required. Light pipes provide a way to utilize sunlight for interior lighting, and can reduce the need for fossil fuel-generated electrical energy. Because consumers considering light pipe installation may be more strongly motivated by cost considerations than by sustainability arguments, an easy means to examine the corresponding costs and benefits is needed to facilitate informed decision-making. The purpose of this American Physical Society Physics and Society Fellowship project is to create a Web-based calculator to allow users to quantify the possible cost savings for their specific light pipe application. Initial calculations show that the illumination provided by light pipes can replace electric light use during the day, and in many cases can supply greater illumination levels than those typically given by electric lighting. While the installation cost of a light pipe is significantly greater than the avoided cost of electricity over the lifetime of the light pipe at current prices, savings may be realized if electricity prices increase.

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