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Poster Title: Circadian Lighting Effects? Specialized Survey Results to Quantify Advanced Lighting Features: How Do We "Value" Lighting Technologies and their Effects on Behavior and their Market Value?

Abstract: Studies in controlled lab environments show strong correlations between lighting and worker productivity. Most people are aware of how glare or flickering lights can been distracting or worse. There are other, more subtle effects that lighting can have on alertness and other behavioral aspects. Recent field studies of advanced LED lighting show impacts on our sleep cycles through influence on our "circadian" rhythms and daylighting simulation. The human hormone Melatonin is affected by lighting conditions and directly affects our mood, alertness, and productivity. New terms are being applied in this field such as "Circadian" and "Bios" lighting. There is an abundance of new studies on lighting and behavior in various settings, including effects on appetite with lighted furniture. This is all well and good, but how do we determine the degree to which people, businesses, and ultimately, the market, will value these advanced lighting features? The authors, working with a National Laboratory, used several approaches to triangulate estimates of these hard-to-measure behavioral and market effects. We used specialized, but well-tested, survey methods, and developed dollar value estimates of the value of specialized lighting technologies in commercial, residential, and street-lighting applications. We present these results, identify gaps and caveats associated with the results, and the "next steps" in the research project.