



3 PECO Ways to Save Energy Efficiency Solutions That Boost Employee Productivity

LED lighting, ventilation controls and variable frequency drives with AI are changing the game.

Modern business feels more fast-paced than ever, but studies show that U.S. labor productivity has slowed since 2005.

According to McKinsey, the annual growth rate in employee productivity since 2005 has averaged 1.4%, down from an average of 2.2% between World War II and 2005.¹ The data reveals that more than half of all employees report being relatively unproductive at work² — and that returning employee productivity to previous levels could boost America’s GDP by \$10 trillion.³ Businesses looking to grab chunks of that cash should consider energy costs and the physical environment of the workplace itself.

Consider for instance the “3-30-300” rule employed by global real estate company Jones Lang LaSalle. The rule applies to a company’s costs per square foot: \$3 in utility costs per square foot per year; \$30 in rent per square foot per year; and \$300 in payroll per square foot per year.⁴

Addressing the biggest costs yields the biggest rewards. When it comes to energy savings, a decrease in utility costs has a direct impact — decrease energy use by 10% and you could save \$0.30 per square foot in costs. But increasing employee productivity by 10% could lead to savings of \$30 per square foot.

This means increasing energy savings — while improving employee productivity due to upgrades in the physical work environment — creates double the operational opportunities. Energy efficiency upgrades that reduce operating costs while boosting productivity levels within the workplace are doing double duty. Three common energy efficiency upgrades that fall into this category are LED lighting that reduces eye strain and headaches⁵, improved air quality measures that can increase cognitive performance⁶, and predictive maintenance measures that decrease work stoppages due to unplanned equipment issues.⁷



1. LED lighting and advanced controls help create ideal conditions to encourage focus and a good night's sleep.

Anyone who's tried to work under a flickering light can attest that it's a distraction. In fact, office lighting's effects — both positive and negative — go much further than that.

Modern LED lighting doesn't just use 90% less energy than traditional bulbs, cutting utility costs per square foot⁸ — it can provide bright, uniform light that allows workers to more easily spot potential hazards.⁹ LED lighting also mimics natural sunlight,¹⁰ minimizing disruption to the circadian rhythms that dictate our sleep patterns and helping with serotonin production.¹¹ Surveys show a good night's sleep is one of the most effective ways to improve worker productivity.¹² LED lights can reduce stress, anxiety and symptoms of seasonal affective disorder.¹³

With the addition of advanced lighting controls — such as those that adjust lighting levels based on the amount of ambient, natural light — LED lighting can boost energy savings while keeping your business pleasantly lit.

2. Ventilation controls reduce overconsumption of energy while reducing negative impacts on productivity associated with poor indoor air quality.

Ever had a sneezing fit from dust, or felt “brain fog” after breathing in smog or other pollutants? Indoor air quality and environmental pollutants can lead to serious issues like headaches, dizziness, fatigue and irritation of the nose, eyes and throat — not conditions that promote employee productivity. In fact, the EPA states that indoor concentrations of some pollutants have increased in recent decades.¹⁴

Mechanical ventilation systems help remove pollutants from indoor air, or keep them outside entirely. Though important for keeping employees healthy and productive, these systems can also be overused; buildings are often overventilated, sometimes ventilating six times more than is

necessary.¹⁵ Overventilation wastes energy and increases costs, and underventilating can decrease worker productivity. It's a tough line to walk.

Demand control ventilation (DCV) uses carbon dioxide sensors to estimate the occupancy of spaces within a building and adjusts outside air dampers to allow for more or less outside air — “walking the line” between energy efficiency and healthy ventilation. On average, DCV can achieve nearly 18% energy savings for businesses.¹⁶

3. Variable frequency drives (VFDs) reduce equipment strain and avoid unplanned downtime.

When equipment isn't working properly, employees often can't work, either. In fact, an hour of downtime can cost small- to medium-sized manufacturers \$150,000 in lost productivity, according to Siemens.¹⁷

VFDs adjust the speed of motor- and pump-driven equipment to match levels of current demand. This upgrade to simple on/off power alternatives saves energy and reduces wear and tear on system components, extending equipment lifespan.

Now, AI-driven VFDs are making equipment even more connected. These VFDs provide real-time data collection capabilities, collecting performance data on both the drives themselves and the equipment they control.¹⁸ Using data points like real-time temperature and vibration readings, VFDs with AI controls provide data analysis that can be leveraged to identify predictive maintenance opportunities — spotting issues before they happen and avoiding lost productivity.

The predictive maintenance that AI VFDs provide offers a big leg up over more traditional preventive maintenance practices that operate on a standardized timeline: Deloitte estimates predictive maintenance practices result in 19% less unplanned downtime for businesses and 87% fewer equipment defects than preventive maintenance practices.¹⁹

Improve Employee Productivity While Decreasing Energy Costs

Connect with PECO to learn how you can get started with energy efficiency solutions that can also improve productivity.

▶ Visit solutions.peco-energy.com/getting-started to schedule a conversation with a PECO Ways to Save representative.



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³ Atkins, Charles, et al. "Rekindling US productivity for a new era." mckinsey.com. Accessed 21 March 2025.

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⁵ WB Wood. "How Lighting Affects Productivity." wbwood.com, 2025, wbwood.com/2022/08/29/how-lighting-affects-office-productivity/. Accessed 21 March 2025.

⁶ "Office air quality may affect employees' cognition, productivity." Harvard TH Chan School of Public Health, hsp.h.harvard.edu, 2021, hsp.h.harvard.edu/news/office-air-quality-may-affect-employees-cognition-productivity/. Accessed 21 March 2025.

⁷ "The True Cost of Downtime in 2024." Siemens AG, news.siemens.com, 2024, assets.new.siemens.com/siemens/assets/api/uuid:1b43afb5-2d07-47f7-9eb7-893fe7d0bc59/TCOD-2024_original.pdf. Accessed 21 March 2025.

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¹¹ Frysh, Paul. "Sunlight and Your Health." WebMD.com, 10 March 2024, www.webmd.com/a-to-z-guides/ss/slideshow-sunlight-health-effects. Accessed 21 March 2025.

¹² MoneyPenny. "Revealed: the most productive time of the day." Moneypenny Resources, 2021, www.moneypenny.com/us/resources/blog/revealed-the-most-productive-time-of-the-day/. Accessed 21 March 2025.

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¹⁵ "Ultra-Low SWaP CO2 Sensing for Demand Control Ventilation." U.S. Department of Energy. energy.gov, 2 January 2018, www.energy.gov/eere/buildings/articles/ultra-low-swap-co2-sensing-demand-control-ventilation. Accessed 21 March 2025.

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