Practical Ways to Lower Electricity Use With Smarter Lighting and Controls

Lighting accounts for a noticeable share of the electricity bill in most homes and workplaces. Yet many people treat it as a fixed cost, something you simply pay each month. The truth is that small changes to how you light a space, and how you control that lighting, can reduce consumption without compromising comfort or safety. This article walks through the main steps, from choosing the right bulbs to setting up controls that match how a room is actually used.

Start With the Bulbs: LED Is the Baseline

The single most effective change is switching to LED lighting. Compact fluorescent lamps (CFLs) were a step forward, but LEDs now outperform them on every measure: they use less power, last longer, and turn on instantly at full brightness. If a property still runs on incandescent or halogen bulbs, replacing them with LEDs can cut the lighting load by 75% or more. Even replacing old CFLs often brings a useful reduction because modern LEDs are more efficient and produce a cleaner light.

What to watch: not all LEDs are equal. Look for a high efficacy rating (lumens per watt) rather than just wattage. A bulb that gives 100 lumens per watt is better than one giving 70, even if both are labelled as LED. Also check the colour temperature: warmer light (2700K, 3000K) suits living areas, while cooler light (4000K, 5000K) works well in kitchens, garages, and workspaces where clarity matters.

Consider the Fixture and the Layout

A good bulb in a poor fixture still wastes electricity. Fixtures that trap heat reduce LED performance and shorten life. Recessed downlights, for example, can overheat if they are not rated for enclosed spaces. Where possible, use fixtures designed for LEDs, with adequate ventilation and a compatible driver.

Layout matters too. A single high-output light in the middle of a room often forces you to run it at full power even when you only need light in one corner. Instead, think about task lighting: a desk lamp, a reading light, or a strip under a cabinet. By putting light where it is needed, you can turn off the general overhead light and save energy directly. In larger commercial spaces, zoned lighting lets you illuminate occupied areas while leaving empty sections dim or off.

Introduce Controls That Match Usage

Controls turn a good lighting setup into an efficient one. The simplest control is a switch, but most rooms are used in patterns that a basic on/off switch cannot follow. That is where sensors and timers come in.

Occupancy Sensors

Occupancy sensors detect movement and turn lights on when someone enters a room, then off after a set period of no movement. They work well in rooms that are used briefly or irregularly, bathrooms, corridors, store rooms, and meeting rooms. The key is choosing the right sensor type. Passive infrared (PIR) sensors detect body heat and movement but can miss someone sitting still for a long time. Ultrasonic sensors detect sound and motion but may be triggered by air currents or noise from equipment. Dual-technology sensors combine both and reduce false triggers, though they cost more upfront.

What to watch: set the time delay short enough to save energy, 30 seconds to a minute is usually enough, but not so short that the lights flicker off and on during normal use. In a toilet stall, a longer delay may be more practical than a very short one.

Daylight Harvesting

Daylight harvesting uses a photocell to measure ambient light and dim or switch off electric lights when there is enough natural light. This is most effective in rooms with windows on more than one side, or in open-plan offices with large glazed areas. The sensor needs to be placed where it sees representative light, not direct sun or a shaded corner.

Watch out for sudden changes: a cloud passing overhead can cause lights to flicker if the system responds too quickly. A good controller adds a delay or a gradual dimming curve to avoid that.

Timers and Schedules

For spaces used on a predictable schedule, a simple timer can switch lights off at the end of the working day or turn them on just before staff arrive. This is a low-cost option but it only works well if the schedule matches actual use. A timer that turns off lights at 6 pm is useless if someone is still working at 7 pm. That is why many commercial systems now combine timers with occupancy sensors: the timer provides a default schedule, and the sensor overrides it when the room is occupied.

Don't Forget Standby Power and Power Factor

Lighting controls themselves consume a small amount of electricity. A motion sensor that runs 24/7 uses standby power, as do smart dimmers and network-connected controllers. Individually the draw is tiny, but across a large building it can add up. Choose controls with low

standby ratings, ideally below 0.5 watts per device, and consider using a centralised control system that powers down the sensors when the building is unoccupied for long periods.

Power factor is another detail that matters in commercial settings. LED drivers and control gear can have a low power factor, which means the electrical supply has to carry more current than the actual power used. This does not show up on your electricity bill directly in most residential tariffs, but it can cause heating in wiring and reduce the capacity of the electrical panel. For commercial installations, specifying LED drivers with a power factor above 0.9 is a good practice.

Putting It All Together in a Practical Plan

The steps above can be applied in any order, but a logical sequence helps avoid waste. Start by auditing the existing lighting: what bulbs are in use, how many hours they run, and which rooms are over-lit. Then replace the least efficient bulbs first. After that, add controls in the rooms that will benefit most, typically high-traffic areas and rooms used sporadically.

For a residential property, a simple combination of LEDs and a few occupancy sensors in bathrooms and passageways can reduce lighting energy by half without changing daily habits. In a commercial space, the same approach scaled up can make a noticeable difference to the monthly electricity cost. A professional electrician can help with the wiring, sensor placement, and integration with existing circuits. For example, LAN Systems provides energy efficiency solutions for residential and commercial properties, which can include designing and installing the kind of layered lighting control described here.

One last thing to watch: do not over-control. Adding a sensor to every single room can lead to frustration if the system is poorly configured. People override or disable controls that are annoying to use. The goal is not maximum technology but maximum savings with minimal friction. A well-planned lighting upgrade pays for itself over time, and the savings continue year after year. If you are planning a retrofit, consider consulting a qualified electrician who understands both the hardware and the practical realities of how people use light. LAN Systems is one such provider, with experience in electrical installations and compliance work that supports safe, efficient lighting setups.