

Automotive Electrical Repair

Automotive Industry Energy Efficiency Project

Automotive electrical workshops use considerably less energy compared to other automotive industry sectors; with lighting, heating ventilation and air conditioning (HVAC), and air compressors being the major energy contributors. An audit of automotive electrical workshops identified that an average automotive electrical workshop uses 48,890kWh of electricity per year. That is an average cost of \$11,840, almost half the industry's average.

The considerable difference doesn't mean that more can't be done. There is always energy saving opportunities that can be made, which could potentially help automotive electrical repair workshops achieve further financial savings.

Major energy users identified

Lighting

Every business could reduce the amount of electricity being used by making smarter choices on lighting.

There are many improving lighting technologies such as fluorescents and LED lighting that could improve your business' efficiency. Lighting used for security and marketing purposes are often left on throughout the day unnecessarily, wasting both energy and money.

Quick and affordable tips to save you energy:

Install sensors – One of the easiest and smartest ways to reduce your energy consumption is to install timers or sensors on your lighting. This will curb the businesses use of artificial lighting and also reduce your electricity bills. For example an area with ten twin fitting 36W T8

fluorescents controlled with motion sensors can save you up to 1200kWh per year. At the end of the day, low cost timers and sensors is just smart business.

Regularly clean skylights – Having skylights in workshops, showrooms and offices are a bonus many dealerships don't utilise or notice, especially when they are dirty. Clean skylights can provide plenty of natural light throughout the day, particularly during summer, minimising the need for artificial light.

Display switch off signage by light switches – This is an easy and cheap way to reduce energy consumed by lighting. Displaying signs next to switches will remind everyone to turn off the lights when leaving an area or room. Don't underestimate the simplest of initiatives; as little reminders help people, when trying to change inefficient habits.

Replace inefficient lighting – Assess your current lighting options and replace them with more efficient choices that are suitable to your business. The below table outlines the energy savings an auto electrical repair workshop in Metropolitan Tasmania achieved, with a few lighting changes.

Existing lighting	Energy Saving Opportunity	Savings (kWh) / (\$)	Payback period
400W high bays	LED or T5 Induction high bay	9910kWh / \$2790*	2.6 years
36W T8 fluorescents (twin fittings)	Motion sensors	1770kWh / \$500*	8 months

*Calculated savings (\$) may vary depending on the business' electricity rates

Heating ventilation and air conditioning (HVAC)

Heating and cooling of offices and lunchrooms is another big energy user that many business use without thinking about the consequences.

Quick affordable steps to save you energy:

Reset your thermostats— Setting your thermostat to 23°C in summer and between 18°C to 20°C in winter will still give you a comfortable environment to work in and make your business much more energy efficient. Each one degree increase in temperature can increase your HVAC energy consumption by 10%.

Maintain filters— Ensuring the heating and cooling units are well maintained and changed regularly to avoid overworking the equipment and wasting energy.

Program HVAC controllers to match operating hours – This will prevent heat pumps operating outside of normal hours, and avoid wastage. If there are several controllers controlling a large area, make sure they are all set with the same temperature to avoid HVAC units competing.

Draught proof doors and windows – Draughts can increase your heating and cooling costs by up to 25% by allowing cold air into an area during winter and hot air during summer. Identify your draughts by listening for whistling and rattles; then try to seal the gaps and cracks by blocking or filling them.

Air compressors

Air compressors are one of the most inefficient pieces of equipment in the workshop; with approximately 90% of the energy input becoming waste heat.

Quick and affordable steps to save you energy:

Check for leaks – It is important to perform routine maintenance, to detect for any leaks in hoses and coupling, pipes and pipe joints, pressure regulators and threaded fittings. A hole as small as 0.8mm can cost your business over \$100 per year if left unrepaired.

Purchase an air compressor that is the right size for your business – When it comes to replacing your air compressor, it is important to consider what you are using it for. Air compressors should run as closely to a full load as possible. In some instances having several smaller sized compressors may be more beneficial than having one large compressor. Purchasing a compressor that is bigger than required will cost you more money to run.

Turn off the air compressor when not required – As basic as that sounds, air compressors are often left on after hours cycling on and off. To avoid having the air compressor running at night or on the weekend, install a 365 day time clock to control the running of the air compressor.

Reduce the system pressure – Running an air compressor with a pressure that is too high can damage the equipment as well as increase energy usage. Businesses can save on electricity bills if they assess the pressure settings, and adjust it to run in line with the equipment that requires the highest pressure.