Electrical Systems and Savings

Between 30% and 50% of the energy use in schools is electrical. This typically comprises:

Base Load Electrics
- Fire Alarm Systems,
- Security Systems,
- Emergency Systems,
- CCTV,
- Phones,
- Heating Frost Protection,
- Lift controls.
- ICT Mainframe

Equipment Load
- Computers,
- Photocopiers,
- Teaching Equipment,
- Fridges.

Building Systems
- Heating Controls,
- Ventilation,
- Lighting,
- Cooking etc.
- Hot Water (if electric).

Schools use an increasing amount of electrical equipment. Although a lot of this equipment has an automatic standby mode, it is important that, when the school is closed at night, weekends and over the holidays, as much of the equipment as practical be fully switched off (at the socket). This includes:

- Computers and their screens,
- Servers, switches, routers, and WiFi devices,
- Photocopiers and printers,
- Scanners, shredders, etc.
- Projectors, smart boards, and laptops,
- TVs, DVD players, amplifiers, stereos,
- Public address systems,
- Chargers/ adaptors for phones, laptops, speakers etc.
- Defrost and switch off fridges, leaving door open,
- Exhaust fans including those on time switches,
- Domestic hot water heaters,
- Water boilers, switch off and drain (use a kettle),
- Vending machines, destock and switch off,
- External lighting.

Computers, screens, servers, switches, routers, WiFi

It is best to choose the "Shut Down" option, and when the PC is powered down, to switch it off at the socket. The screen should also be switched off at the socket. Wasted energy in a poorly managed computer room could cost €600 over the year. Ask your IT person which servers can be switched off. They should consider powering down routers, switches and WiFi devices, if servers can tolerate this.
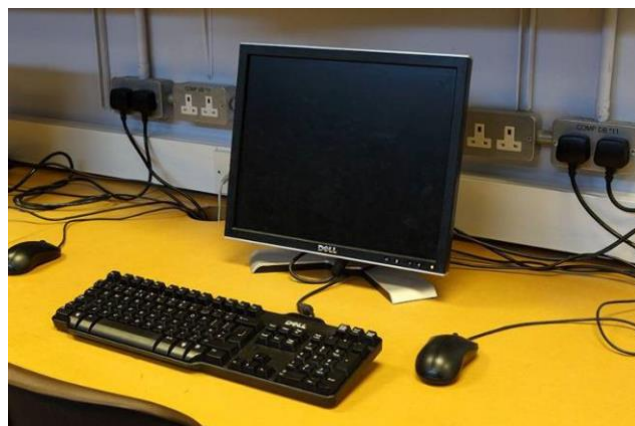
If some servers have UPS systems (battery backup), UPS systems continue to use significant energy, even if the associated server is off. Switch off the UPS at the device first and then at the socket.

Teaching aids

Switch off smart boards etc. at the device using the power button, then switch off or unplug at the electrical socket.

Office equipment

Visit each room and look for anything which is plugged into a socket. Unplug it or switch it off at the socket if practical. Some devices have no "off" switch on them at all and can only be completely switched off at the electrical socket. The public address system can be switched off. Consider systems in the PE Hall or GP Hall too.

Small items

Switch off small items or unplug them. A lot of devices now have a transformer either at the socket or on the cable, such as mobile phone chargers, PC speakers, and laptops. The transformer still uses energy unless it is switched off or unplugged.

Refrigerators and freezers, vending machines

Destock and defrost fridges and freezers before the end of term. Switch off as many as possible, leaving the doors open to ventilate the interior. Follow manufacturer's instructions on defrosting. Empty and switch off vending machines.

Mechanical ventilation

Ventilation fans may be controlled by time-clock. Make sure none of them will come on over the holidays, unless needed.

Water boilers and water chillers

Switch off water boilers used for making tea. Drain them. If boiling water is required for one or two staff members over the holiday, use a domestic kettle instead. If the school has water coolers, read the instruction manual and see if they can be safely switched off too.

Automated shut-off out of hours

For school design purposes, vampire load is the electric power consumed by electronic and electrical appliances while they are either left on or in a standby or sleep mode during periods when a school is closed.

To reduce vampire loads potential may exist to establish automated systems that may be linked to the intruder alarm via the building management system (BMS). This will depend on the school's electrical system and building management system, if there is one, and will require electrical works locally at electrical distribution boards. Once the building's intruder alarm system is armed, the BMS system disconnects all non-essential services.

Special systems which must be left on

Under no circumstances should anyone switch off or isolate in any way any device which relates to security or safety. The list below is not exhaustive, but covers most items:
- Fire Detection and Alarm Systems,
- Access Control and Security Systems,
- Emergency Exit Signs,
- Emergency egress lighting,
- CCTV cameras and their recording device,
- The phone system,
- Frost protection i.e. heating controls in winter.

Special systems which can be switched off

The screen associated with a CCTV system can and should be switched off. The CCTV system will continue to record. The screen is of no benefit if there is no one in the school to observe it.

Summary

Schools can waste a lot of energy, especially electricity, outside teaching hours. It is important from a cost and environmental point of view to minimise this unnecessary energy use where practical by switching off items. Essential systems such as fire alarm and security must, of course, be left running. Most other items can be switched off at the socket. Not only will this save money, but it will also reduce the risk of fire from faulty electrical equipment.

For more information on Electrical Systems and Savings see the following factsheets on the energy in education website: www.energyineducation.ie:

- Lighting,
- IT Equipment,
- Hot Water,
- How to save energy and have a comfortable classroom,
- Space Heating,
- Switch off for holidays.