Energy Sparks Case Study
Replacing an inefficient ICT server

Trinity C of E First School in Frome saved £1,600 per year in electricity costs when they spent £4,200 replacing their aging inefficient ICT servers. This investment was returned in 2.5 years.

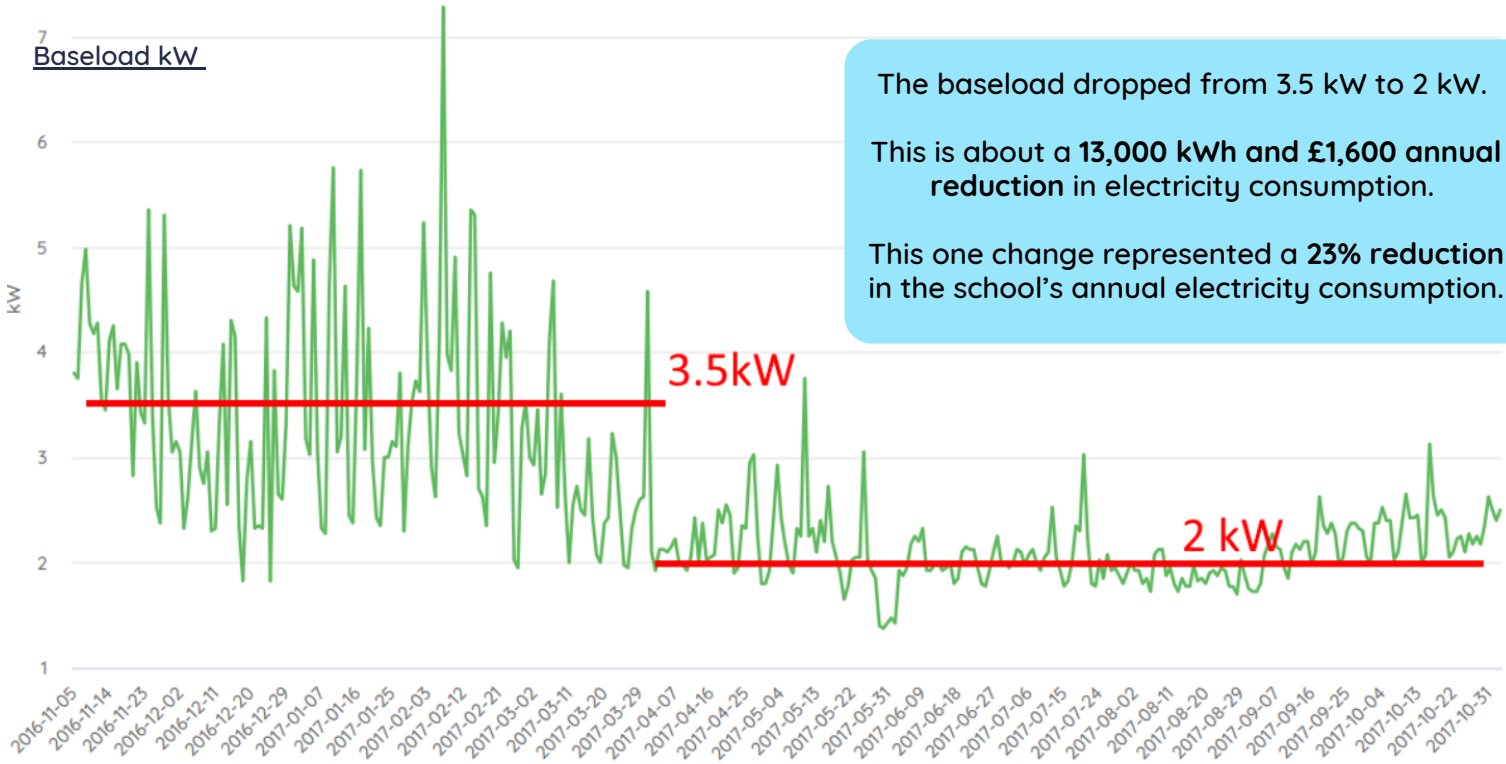
> *"Working with Energy Sparks has been brilliant. It is always lovely to find ways of saving money but to do so whilst not just maintaining but improving standards is a double bonus.*
>
> *Plus, we have been able to do meaningful work with the children on environmental issues alongside making changes which have a positive impact on the environment."*
>
> - Amanda Seager, Headteacher, Trinity First School, Frome

Analysis

ICT infrastructure has been the cause of a significant rise in school electricity consumption over the last 2 decades. however recently this increase has reversed as new ICT servers have become more energy efficient, desktop PCs have been replaced by energy efficient laptops and tablets, and some schools have moved their ICT infrastructure to the cloud.

ICT servers have been a significant component of this increase as they are left on 24 hours a day, 365 days of the year, and particularly older servers manufactured prior to 2015 can be very inefficient.

Among the analysis options available to Energy Sparks schools is the opportunity to focus on **baseload** (the consumption of appliances left on when the school is unoccupied). Our baseload chart (below) shows the impact of the replacement server at Trinity.



The baseload dropped from 3.5 kW to 2 kW.

This is about a **13,000 kWh and £1,600 annual reduction** in electricity consumption.

This one change represented a **23% reduction** in the school's annual electricity consumption.

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Further information

- If you are considering upgrading your ICT servers you should consider 2 options: purchasing a more efficient server, or move your servers offsite to the cloud.
- Cloud servers mean that all your server onsite electricity costs can be eliminated and ICT support costs can be significantly reduced.
- If you are considering upgrading your existing servers and want to understand the benefit in electricity savings we recommend you assess the power consumption of your current servers using an appliance monitor. This will be able to give you an accurate assessment of your current servers' consumption and the potential saving of moving to a new server. Newer servers are faster, so it might even be possible to consolidate several servers into a single server – but when purchasing you need to ask about the new server's electricity consumption.

Cloud servers are shared 'as virtual machines' between multiple users groups, so out of school hours others can use the server meaning its electricity consumption is not wasted

There are several ways to reduce electricity consumption from your school's ICT equipment

Replace desktops with laptops or tablets

Make sure desktops are configured to switch to standby when not in use

Audit other ICT infrastructure in schools (e.g. using a mains appliance monitor), to identify inefficient printers or photocopiers, and those without a standby function

Reduce air conditioning costs by increasing the room temperature in server rooms You can run your server room temperature as high as 27°C without affecting your server's efficiency.

Another way to reduce A/C costs is to reorientate servers so there is a smoother airflow of cool air into the servers' fans and out the other side.

Lessons learned

- **You can often justify replacing old ICT infrastructure on electricity costs reductions alone**
- **Energy Sparks provides a wide variety of tools to help you understand your electricity consumption**
- **Energy Sparks activities get your pupils involved in identifying energy guzzling ICT infrastructure and other appliances whilst also learning energy life skills which they can share with their families at home.**
- **Energy Sparks also provides benchmarking – allowing you to compare your electricity consumption with other schools either on an overall basis or more narrowly for example on baseload**
- **Energy Sparks alerts provide monitoring of your electricity and gas consumption via your school's smart meter data, and immediately notify you if your consumption increases for example if an errant appliance has suddenly increased its consumption**