User Guide

Energy Sparks is an online energy analysis tool and energy education programme specifically designed to help primary and secondary schools reduce their electricity and gas usage through the analysis of smart meter data. Energy Sparks helps schools reduce their carbon emissions, and make a real contribution to addressing the climate emergency.

Energy Sparks is a registered charity working for the public benefit to develop and promote tools, services and programmes to reduce energy and resource consumption and carbon emissions in schools across the UK.

This user guide is designed to give you an introduction to Energy Sparks, highlighting the main features, functionality and resources so that you can get the most from the online tool and education programme.

If you need more help using Energy Sparks or have feedback to share please do contact us on hello@energysparks.uk

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1. Get Started with Energy Sparks at your school

1a) Introduction

Using your school's smart meter data, Energy Sparks will show you how much energy your school is using each day. Our unique online tool presents bespoke analysis of this data with suggestions of actions you could take to save energy and reduce your school's carbon emissions. Pupils, staff and community volunteers can use this information to help your school to save energy, and help protect the environment.

Energy Sparks has over 100 energy related activities which pupils can participate in through eco-teams or class based learning. Schools gain points for completing activities and these contribute to a scoreboard where pupils can compete with other schools providing extra motivation to save more energy.

1b) What do I need to do to make my school's involvement in Energy Sparks a success?

Nominate an Energy Sparks champion for your school. This is a lead adult who will act as the Energy Sparks account administrator for your school, support pupil energy saving activities, receive Energy Sparks alerts by email or text telling you about changes in energy use and recommended energy saving actions, and commit to checking your school's Energy Sparks online account regularly.

1c) Attend an online training session with other participating schools

Your lead adult and other regular adult users (including volunteers) should try to attend an Energy Sparks online interactive training session. Book online at https://energysparks.uk/training. The training sessions will guide you through our online tool, school specific energy saving advice and pupil activities and provide hints and tips about using Energy Sparks with eco-teams and in curriculum time. We also run specific sessions for facilities and estate staff and school leadership. The online training will also provide an opportunity to network with Energy Sparks champions at other schools in your area or nationally and share best practice and challenges.

1d) Set up an Energy Sparks pupil club or eco-team

Some schools use parents or other volunteers to run their Energy Sparks or eco team. Aim to meet regularly -ideally at least once a fortnight. Regularly check your school's energy data on Energy Sparks so that pupils, staff and volunteers can see how much difference they are making to your school's energy use, and what they need to do next.

1e) Book an Energy Sparks education workshop

To motivate pupil engagement with energy saving at your school, Energy Sparks offers inspiring in-person and virtual half day education workshops across the UK. Education workshops can include:
- Assemblies
- Eco-team and class workshops
- In-person training on using Energy Sparks for eco-team leads, estate staff and business managers.

We will work with your school to deliver a workshop that meets your school's needs and interests. Sessions can include:

- Energy warriors: Introduce your pupils to the energy we use in our homes and schools. Support them to develop an energy action plan for your school using the consumption data on Energy Sparks.
- Our school, our climate: Learn about how the small changes we make in our school can affect the climate, and the impact of climate change in Antarctica. Some of our educators have first-hand experience of polar exploration.
- Energy detectives: Learn how to conduct an energy audit and identify and reduce energy guzzlers around the school.
- Spot what's hot: Learn how to analyse heating charts and explore temperature and heating in your school using a thermal imaging camera.

Book a workshop at https://energysparks.uk/education-workshops

1f) Involve the whole school

Whether through a notice board, regular assemblies or inter-class competitions, make sure the rest of the school knows why you are saving energy and what they can do to help.

2. Dashboards

Energy Sparks has two dashboards to view a school's data and energy saving recommendations. Each dashboard is focused on a different user type: **Pupil** or **Adult**

2a) Pupil dashboard

The **Pupil dashboard** is publicly available through the link on the school name menu bar, and is the default dashboard if pupils log in using a pupil password. This facilitates pupil engagement at home and promotes pupil led exploration of energy data for other participating schools.

The **Pupil dashboard** is focused on engaging KS1 to KS3 pupils. The first section of the dashboard allows you to compare your school's energy use with other energy consumers:

Or energy generators:

Last year your school used 56,000 kWh of **electricity**.

That's the energy generated by a UK on shore wind turbine in 2 weeks

Find out how much energy has been used

◀   ▶

Let's look at the energy use data for your school:

Or understand how much carbon dioxide is generated by your school's energy use:

Freshford Church School

Adult dashboard 30 points ↑ ♛ 1st

Last year your school used 56,000 kWh of **electricity**.

It will take 12 trees, each living 40 years, to absorb the carbon dioxide released when this electricity was generated.

Find out how much energy has been used

◀   ▶
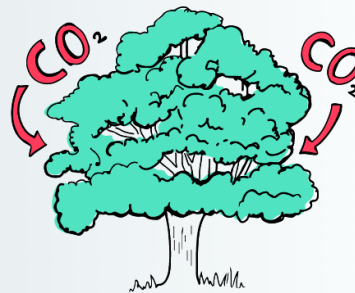
Use the arrows to scroll between different energy equivalences.

Now you can **explore the energy data** for your school in more detail. Choose electricity or gas to find out when energy was used, what it cost and how much carbon dioxide was generated. The data is presented in different ways to allow linking with curriculum topics on charts, graphs and tables.

⚡ Electricity	🔥 Gas

If your school has storage heaters you will see the electricity used to heat your storage heaters overnight split out from the rest of your electricity consumption.

If your school has solar panels, Energy Sparks provides details of the electricity generated by your solar panels, how much of that electricity is exported to the National Grid, as well as your electricity consumption.

Both dashboards provide you with **alerts** of changes in energy consumption and action prompts to help investigate and reduce your school's carbon footprint:

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⚡ Hey Team! - The amount of electricity your school uses overnight is high. Over the last year you used on average 69 kW. In other schools like yours (similar number of pupils), this baseload is 30 kW. Can you bring your baseload down, and save the school £190,000? [Find out more]

⚡ Your school's electricity use over the last year was 920,000 kWh and generated 150,000 kg CO2. This is too high. Other schools with a similar number of pupils use 390,000 kWh. Reducing your electricity use to match this level would save you £290,000. What can you do to help? [Find out more]

The **pupil dashboard** provides you with **suggested activities** to try next:

You've completed 1 activities

Try this one next:

Label lights and appliances to show which should be left on or turned off

5 POINTS / KS1, KS2

[Choose another activity]

Your school hasn't scored any points yet this school year

Complete an activity to score points on Energy Sparks. You only need to score 5 points to overtake the next school!

[See the scoreboard]

You will need to be logged in to see suggested activities for your school.

2b) Adult dashboard

The **Adult Dashboard** is the default dashboard when you navigate to a school from the View Schools page, https://energysparks.uk/schools, and for any logged-in school staff or group users. The **Adult Dashboard** aims to summarise the school's annual energy use, its cost and both long and short term changes in consumption, and potential savings if schools match the most energy efficient schools.

Schools > Pembrokeshire/Sir Penfro > Saundersfoot Community Primary School > Adult dashboard

Saundersfoot Community Primary School

Primary Francis Lane, Saundersfoot, Pembrokeshire SA69 9HB

[Compare schools] [Review energy analysis]

Summary of recent energy usage

			Use (kWh)	CO2 (kg)	Cost (£)	Potential savings	% Change
⚡	Electricity	Last week	1,520	168	£642	n/a	+72% ⬆
		Last year	69,300	7,930	£18,800	£8,930	+9.5% ⬆
🔥	Gas	Last week	1,850	388	£170	n/a	+25% ⬆
		Last year	184,000	38,700	£7,160	£237	-21% ⬇

Electricity data: 19 Mar 2020 - 15 Sep 2023. Gas data: 23 Jan 2019 - 15 Sep 2023. More information ⓘ

Schools are encouraged to set a target to reduce their energy consumption. Once set, Energy Sparks will monitor progress against the target with activity recommendations to help meet your target.

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The **Adult Dashboard** presents **alerts** highlighting recent changes in consumption both positive and negative. Click the 'Find out more' button to learn more about the issue, possible causes and recommendations to cut energy consumption. Click on the "Recent alerts" button to go to a list of all recent alerts for your school. Go to the Alerts section of this document to find out about the benefits of having these sent directly to you.

Act on energy usage

Watch out - term time gas use has increased by 73% costing an extra £61 each week. Check whether heating thermostats are set to 18°C to save energy.   Find out more

Your heating is currently on and the forecast for next week is for warm weather, with an average daytime temperature of 15.5C. We recommend you turn your heating off all together or perhaps only have it on before the school is occupied in the morning. By turning your heating off you could save £130.   Find out more

Recent alerts

The **Adult Dashboard** includes Energy Sparks system prompts of account actions you need to take:

The Energy Sparks team have recently completed an energy audit for this school   Review audit

Your school set a target to reduce its energy usage by September 2023. It's time to review your progress and set a new target for the year ahead.   Review progress

Teach pupils about energy and climate change within the context of your own school by completing our freely available activities   Record a pupil activity

The dashboard charts present your school's energy use over the last year. If several years of data are available you will be able to scroll back a year. The different tabs allow you to view data for electricity, gas, solar and storage heaters if relevant for your school. The colour coding allows you to see when you consume energy. You should be aiming to minimise consumption during the school holidays, weekends and overnight when the school is closed.
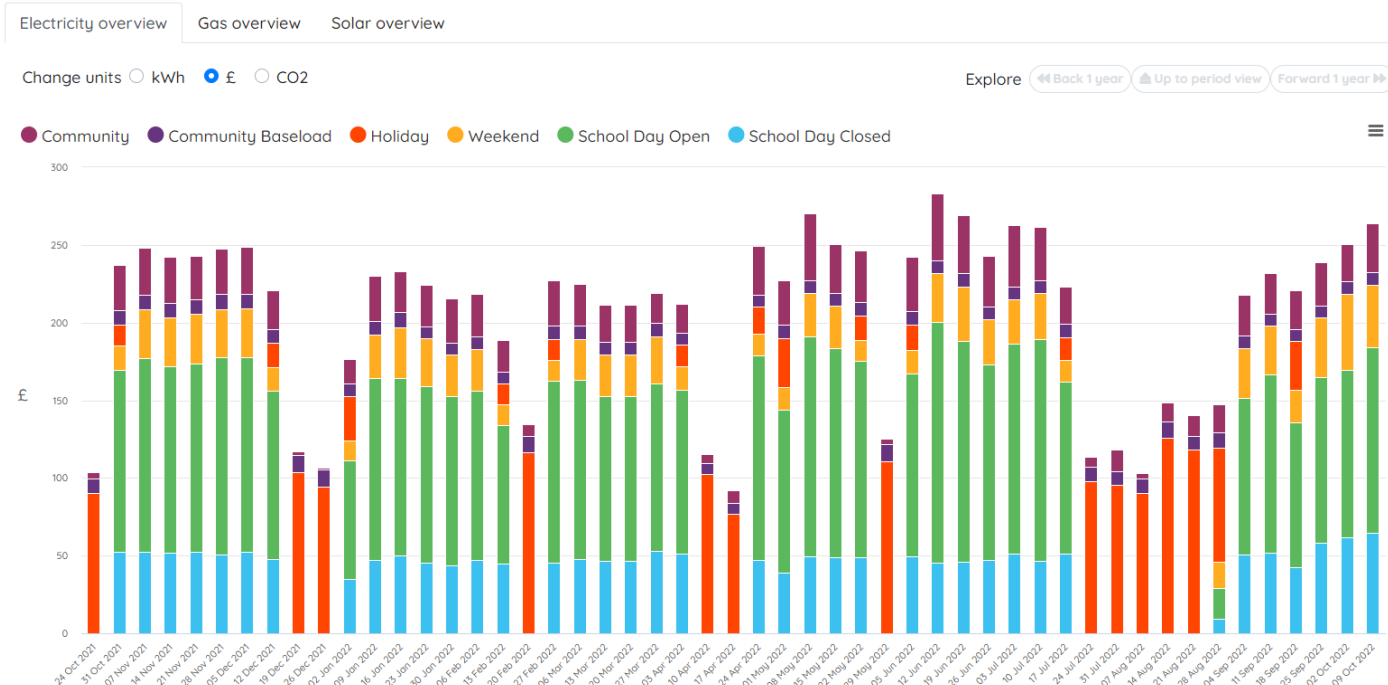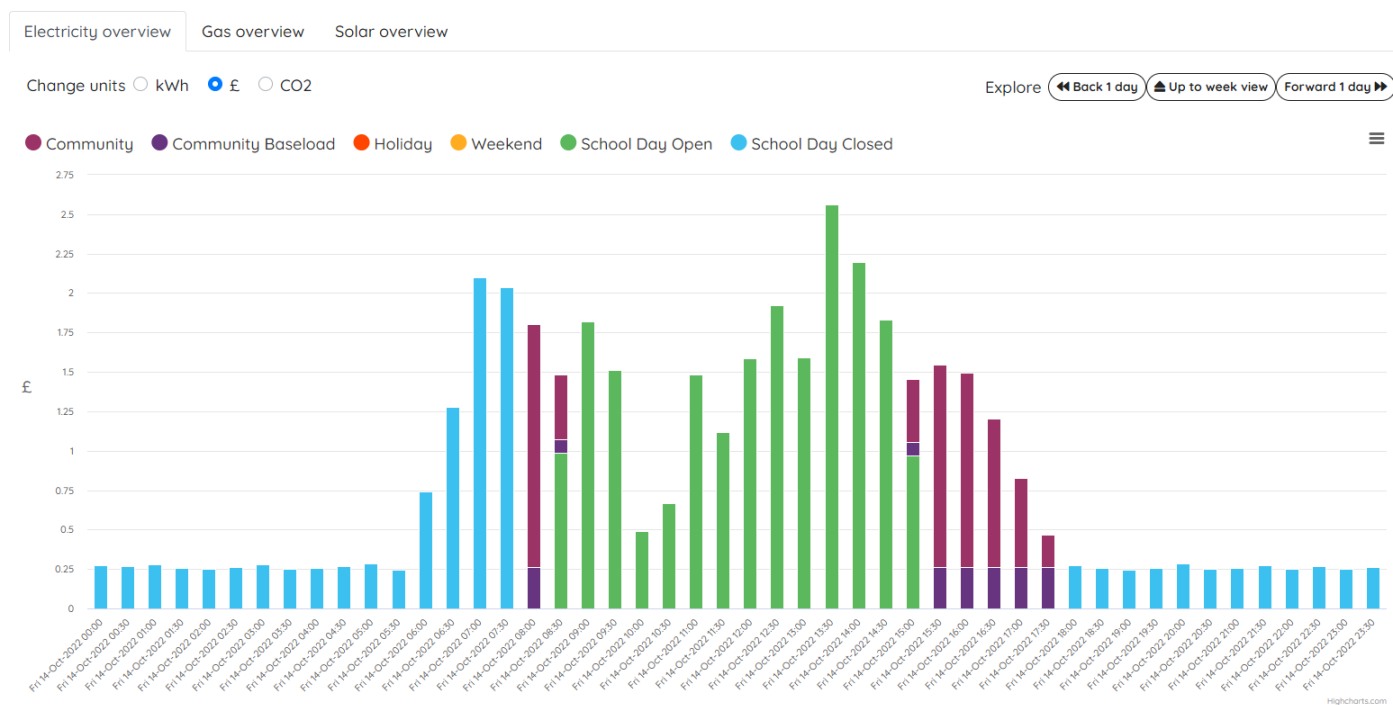

You can drill down to view data on a day basis by clicking on the bar for the week of your choice:
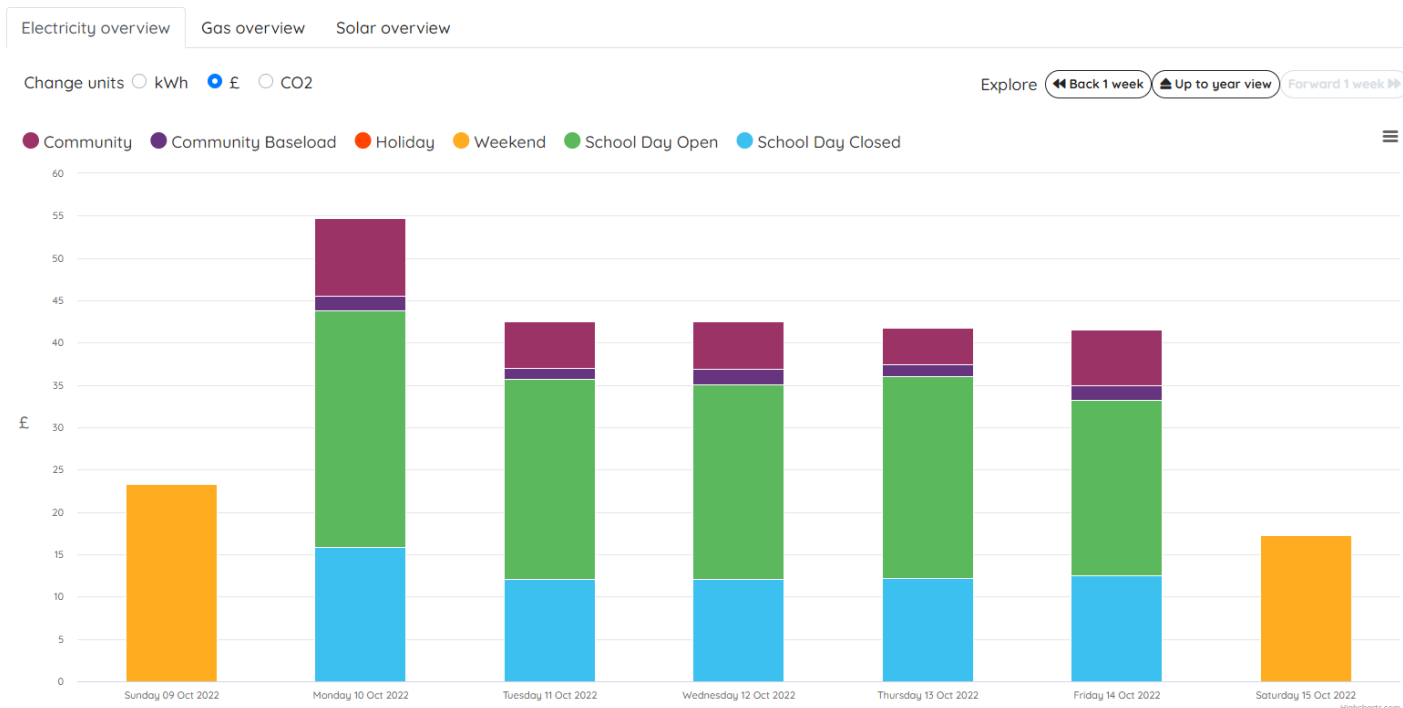
You can change units to view the data in kWh, £ or kg CO_2 and click on any part of the legend to switch that category on or off.

You can drill down again to view data on a half hourly basis by clicking on the day of your choice:

The **Adult Dashboard** also presents longer term **energy saving opportunities** for your school which highlight the potential savings if simple, generally low cost actions are taken. Note, there is another version of this table within the "Review energy analysis" section that enables you to sort opportunities by cost or emissions savings.

Energy saving opportunities

	Cost saving per year	Reduced emissions per year	Delivery cost	
Reduce your electricity baseload	£2,800	3,500 kg CO2	0p	Find out more
Reduce your annual electricity use	£4,100	5,100 kg CO2	0p	Find out more
Switch off the heating in warmer weather	£630	4,400 kg CO2	0p	Find out more
Reduce your out of hours electricity use	£2,800	3,500 kg CO2	0p	Find out more

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The **Adult Dashboard** ends with a timeline of recent activity at your school.

What's been going on?   ⊙ View all events

2022

7 actions

☑ **Completed an activity:** Appoint pupil energy monitors in all classes

Wed 12th Oct 2022

☑ **Completed an activity:** Analyse your school energy use - when is your school occupied?

Wed 12th Oct 2022

☑ **Completed an activity:** Learn about appliances that use energy at home and school

Thu 6th Oct 2022

☑ **Completed an activity:** Review and reflect/ Follow up check

Tue 4th Oct 2022

☑ **Completed an activity:** Watch an animation about renewable energy

Tue 4th Oct 2022

☑ **Completed an activity:** Analyse a school's solar data
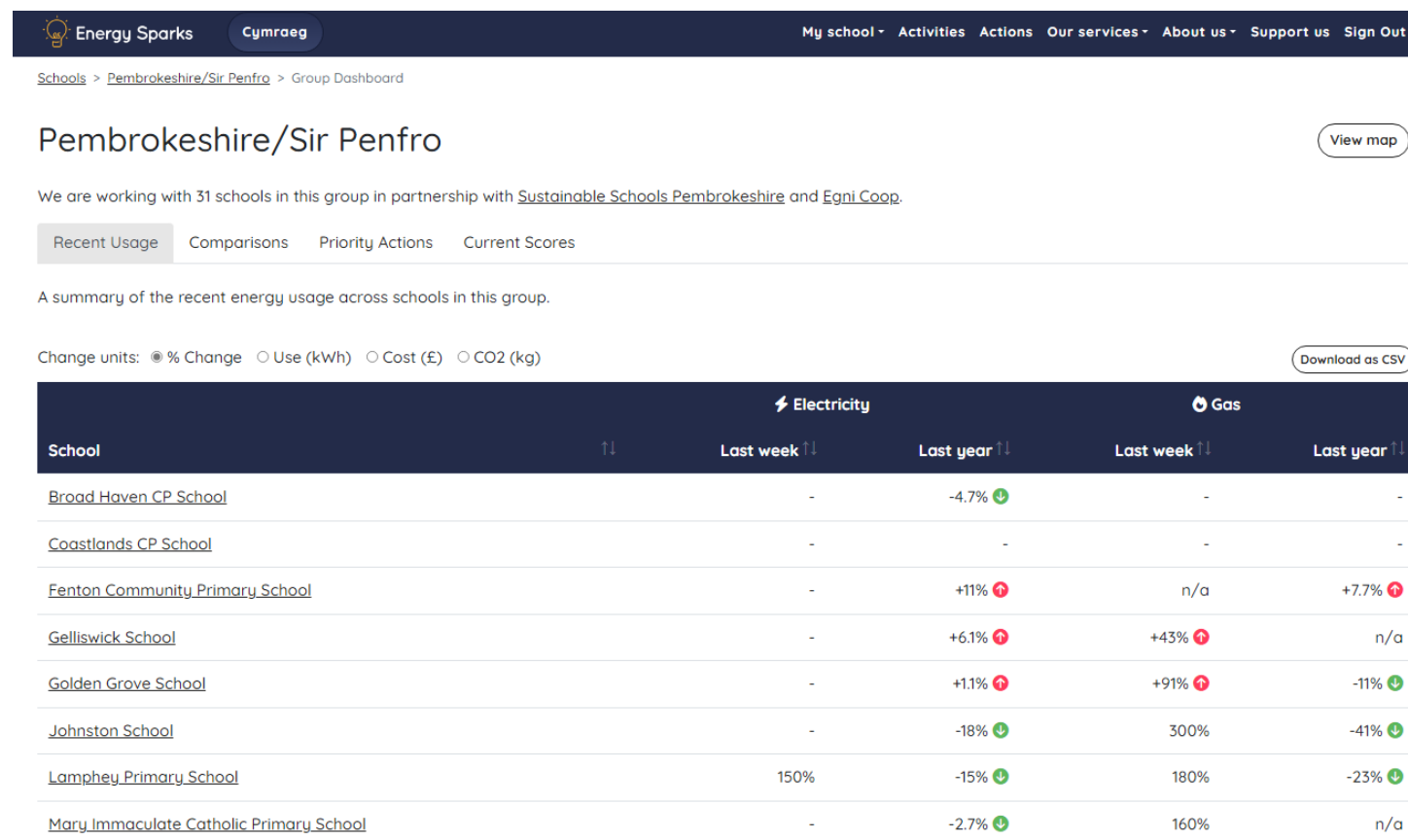
Logging activities and actions taken by your school is really beneficial for several reasons:
- Each logged activity or action will earn points for your school towards termly or annual prizes.
- It reminds you what actions have been taken for annual reporting or eco schools applications.
- It helps track which actions have impacted energy consumption - Energy Sparks even adds a record to your school's charts when actions are logged.
- It helps Energy Sparks to track which actions make the biggest impact and share success stories and advice with other schools.

2c) Group dashboard

The Group Dashboard can be access to a group from the View Schools page, https://energysparks.uk/schools; by clicking on the school group name in the breadcrumbs at the top of an adult or pupil dashboard; or by using the the **My School** quick links in the top menu bar and selecting **My school group**.

The Group dashboard is split into four tabs - Recent Usage, Comparisons, Priority Actions and Current Scores.

The **Recent Usage** tab brings together information from the summary table found on the Adult dashboard for each school in the school group. Users can switch between seeing this information as % change, Use (kWh), Cost (£) and CO2 (kg). All of the information in this table can also be downloaded by using the **Download as CSV** button. This will also include school pupil numbers and floor areas in order to perform your own comparisons between schools.

The **Comparisons** tab summarises how many schools in the group fall into the exemplar, well managed or action needed ratings. See the Energy Analysis section below for more explanation of these ratings.

The **Priority Actions** tab summarises the potential savings across all schools in the school group for each priority action. See the Energy Analysis section below for more explanation of priority actions. Click on the name of each priority action to see details of the schools which have been highlighted as being able to make savings with this action. Note that this table only lists those schools which meet a certain threshold, other schools may also be able to save money or CO2 by taking this action.

The **Current Scores** tab lists all the schools in this school group and their current scores for logging actions and activities. For some school groups, their schools may fall into different regions of the country so this is the only place to see all scores in one place.

3. Pupil Activities and Scoreboards

Energy Sparks pupil **activities** are available to all users of the site via **Activities** on the main menu bar.

Energy Sparks activities are sorted into six categories: Analyst, Change-maker, Communicator, Detective, Explorer and Home Learning.

The activity search feature allows you to find activities by keyword, and filter by key stage and subject.

Recording an activity on the Energy Sparks website earns enrolled schools between 5 and 75 points depending on how long the activity takes to complete and its impact. Points automatically go towards your school's position in the **Energy Sparks scoreboard** nationally and for your region:
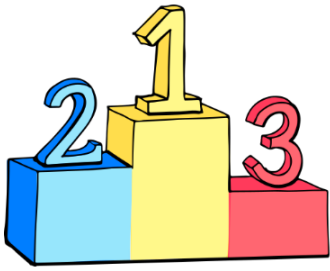
Wales scoreboard

Schools score points by recording their activities to investigate their energy use, learning about energy, and taking energy saving actions around their school.

There are 71 schools competing on this scoreboard

These were the final scores from last year. **View the current scoreboard**

Position	School	Score
1	Penyrheol Comprehensive	485
2	Ysgol Bro Ingli	365
3	Saundersfoot Community Primary School	325
=4	Johnston School	180

Energy Sparks activities include **downloadable lesson plans, activity plans, and pupil worksheets**.

If you log into the site, then you also have the opportunity to access activities with **embedded Energy Sparks charts**, which can make it easier to explore the Energy Sparks data with pupils.

Some activities are incorporated into **Energy Sparks programmes** which are designed to guide teachers and pupils through a sequence of activities in order to maximise their energy saving engagement and impact. All schools are auto-enrolled onto the Get Energised programme when they first join Energy Sparks.

Our Programmes   View all programmes

Short programmes of related activities that pupils can work through step-by-step to achieve greater impact.

GET ENERGISED!

Get Energised!

TAKE A BITE OUT OF FOOD WASTE WITH ENERGY SPARKS

Take a bite out of food waste

The BIG Question

The BIG Question - How can switching off appliances help reduce our carbon footprint?

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4. Energy Analysis

The Analysis pages are designed for adult users of Energy Sparks or older pupils. Much of the analysis should be accessible to KS3 to KS5 pupils. Some of the more advanced analysis options such as Boiler Control are most relevant to Building or Site Managers. If you need help using the Energy Sparks analysis please contact us on hello@energysparks.uk. The Analysis pages can be accessed via the **My School** quick links in the top menu bar, or via '**Review energy analysis**' on the **Adult dashboard**

This takes you to the **Energy efficiency advice** section, which helps your school to identify and prioritise energy efficiency improvements that your school can make. This page has three tabs, overview, priority actions and recent alerts.

4a) Overview tab

Down the left hand side there are a number of links to pages. Each page provides a different view into your electricity or gas consumption, along with benchmarks that indicate how well you are performing in that area.

The table in the middle of the page gives a brief description of what is covered in each page and a red / amber / green rating to tell you how your school is doing against those benchmarks compared to our most energy efficient schools. Green means that your school is in line with the best performing 17.5% of

Energy Sparks schools, amber means your school is in line with the best performing 30% and red means that your school is outside the best performing 30% and therefore has good scope for improvement.

4b) Priority actions

The priority actions tab gives a table of actions your school can take to reduce energy consumption. The table is automatically sorted with the action that saves the most money at the top. The table can also be sorted to prioritise the highest CO2 savings by clicking on the CO2 table heading.

There are other things to think about when prioritising actions. Electricity is more expensive than gas so reducing electricity consumption will save the most money for your school. Gas consumption causes more CO2 emissions per unit than electricity, so reducing gas will have a bigger impact on your school's carbon footprint. On the whole, gas can be reduced relatively simply, by one or two people making changes to boiler settings, whereas reduction in electricity will often require more effort from more people.

Note that "Reduce your annual electricity consumption" and "Reduce your annual gas consumption" actions are comparing your school with our benchmark energy efficient schools, so won't necessarily give immediate actions to take.

Energy efficiency advice

Advice			Overview	Priority actions **6**	Recent alerts **14**				

Priority actions

Prioritise the following actions to reduce your costs and carbon dioxide emissions.

Use the table headings to sort the recommendations. Potential cost savings for the same fuel type are not additive.

Fuel ⇅			Energy (kWh) ⇅	Cost (£) ⇅	CO2 (kg) ⇅
⚡	Reduce your electricity baseload		29,000	£12,000	4,900
⚡	Reduce your annual electricity use		21,000	£8,700	3,500
⚡	Reduce your peak electricity consumption		5,200	£2,200	920
🔥	Turn the heating down by 1°C		7,100	£650	1,500
🔥	Switch off the heating in warmer weather		2,900	£270	620
🔥	Set your heating to come on later in the morning		2,000	£94	430

Sidebar navigation:
- 🏠 Advice
- Energy use summary
- ⚡ Electricity
  - Baseload
  - Intraday
  - Long term changes
  - Out of school hours
  - Recent changes
  - Tariffs and costs
- 🔥 Gas
  - Heating control
  - Hot water
  - Long term changes
  - Out of school hours
  - Recent changes
  - Tariffs and costs
  - Thermostatic control
- ⚙ Solar
  - Solar PV

(Savings column header spans Cost (£) and CO2 (kg))

4c) Recent alerts

Where the dashboard gives three or four alerts, this page lists all of the recent alerts for your school. They are organised into Priority alerts; Recent changes in your energy usage; Comparison with other schools; and Long term trends and advice. We recommend school users to also sign up to receive alerts by email. However, group users may wish to be able to view alerts for each school without receiving alert emails for every school.

4d) Individual advice pages

Each individual advice page also has three tabs and all follow the same layout.

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Insights

The Insights page is split into four sections:

- Definition (for example "What is baseload") - this gives a brief explanation of what we're trying to measure on this page.
- Your current performance (for example "Your current peak electricity use") - this gives figures for how your school is currently performing in this measure. If appropriate, this will also show whether performance in this area has got better or worse in the last week or year, rather like the summary table on the adult dashboard.
- How do you compare? - this section defines the red / amber / green ratings for your school. These ratings are calculated for each school type - primary, secondary, special etc. For electricity, all ratings are calculated on a per pupil basis and for gas, they are calculated on a floor area basis.
- What should you do next? - this section gives some top priority activities for students to do and actions for staff to take if making improvements in this particular area is a priority for your school.
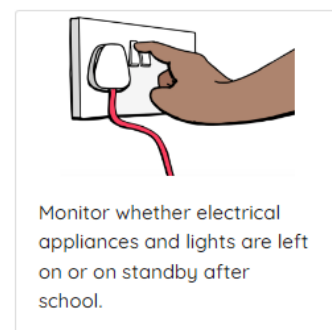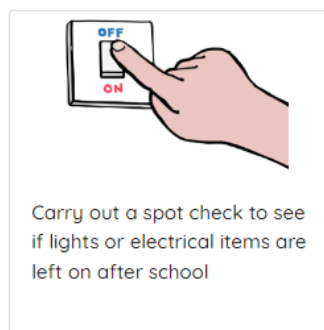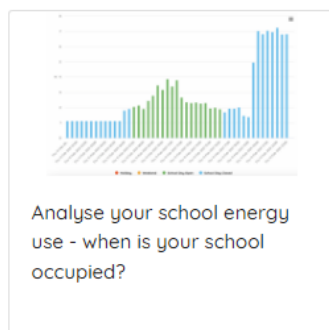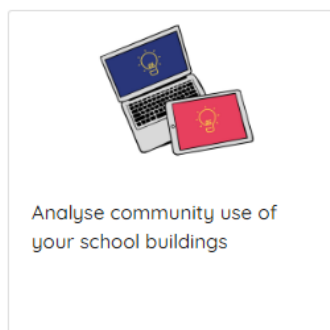
Analysis

The analysis tab is where you can really dig into the energy efficiency performance of your school. Each page will contain charts and explanations for things to look for in the charts as well as some commentary on potential improvements and savings your school could make.

Learn more

This tab is the same for every school. It gives a more detailed explanation of what the pages are showing, things to look out for in your data and ways to improve your school's performances against this measure.

5. Energy Usage via the pupil dashboard

The energy usage sections provide a pupil friendly way to explore the energy data for your school. These sections can be accessed via the pupil dashboard as described.

On all the Energy Usage pages the data is presented via questions encouraging pupils to explore when energy was used, what it cost and how much carbon dioxide was generated. The data is presented in different ways to allow linking with curriculum topics on charts, graphs and tables.

5a) Electricity Usage

5b) Electricity and Solar Usage

If your school has solar PV panels Energy Sparks either uses your real solar generation, on-site consumption and export data to let you know exactly how well your panels are helping you to save energy, or if Energy Sparks does not have access to real data from your solar panels it estimates your solar PV generation, on-site consumption and export data using weather data and live solar PV data from around the country collected by the University of Sheffield (https://www.solar.sheffield.ac.uk/pvlive/)

Here's the **electricity and solar** data for your school

I want to…

find out **when** the electricity was used	find out about **solar**	compare the electricity used in two different weeks
compare the electricity used on two different days		

I want to look at…

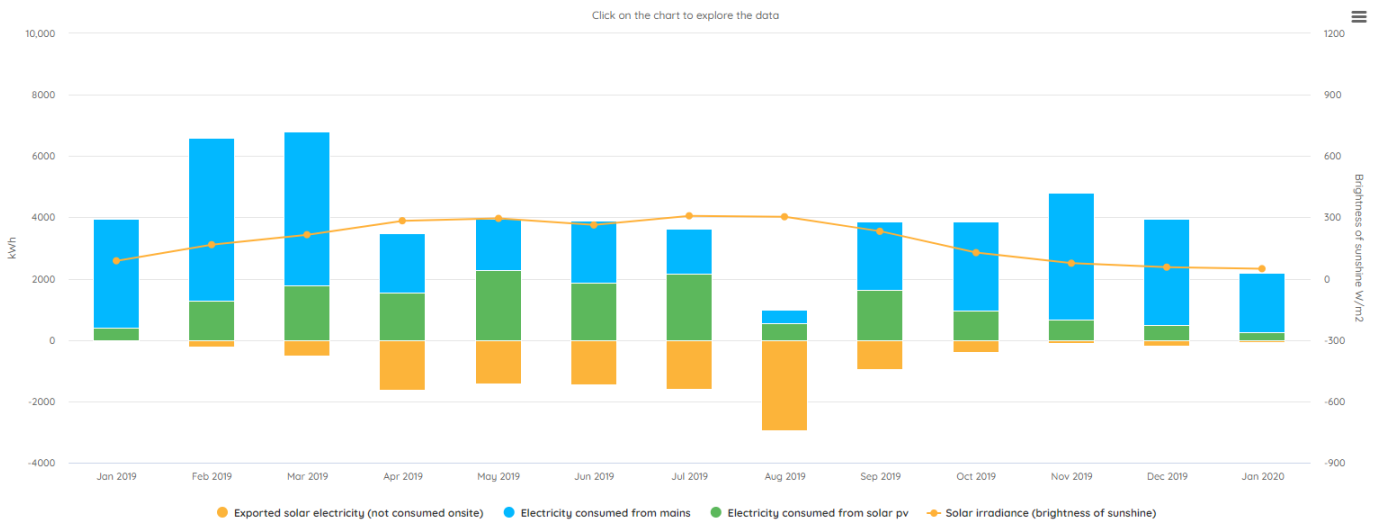|		
Pie charts	Bar charts	Line graphs

Click on **'find out about solar'**:

Back

How my school's solar PV panels reduce my school's mains electricity consumption (kWh)

Back 1 year

Click on the chart to explore the data

Legend: Exported solar electricity (not consumed onsite) · Electricity consumed from mains · Electricity consumed from solar pv · Solar irradiance (brightness of sunshine)

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5c) Gas Usage

Back

Here's the **gas** data for your school

I want to...

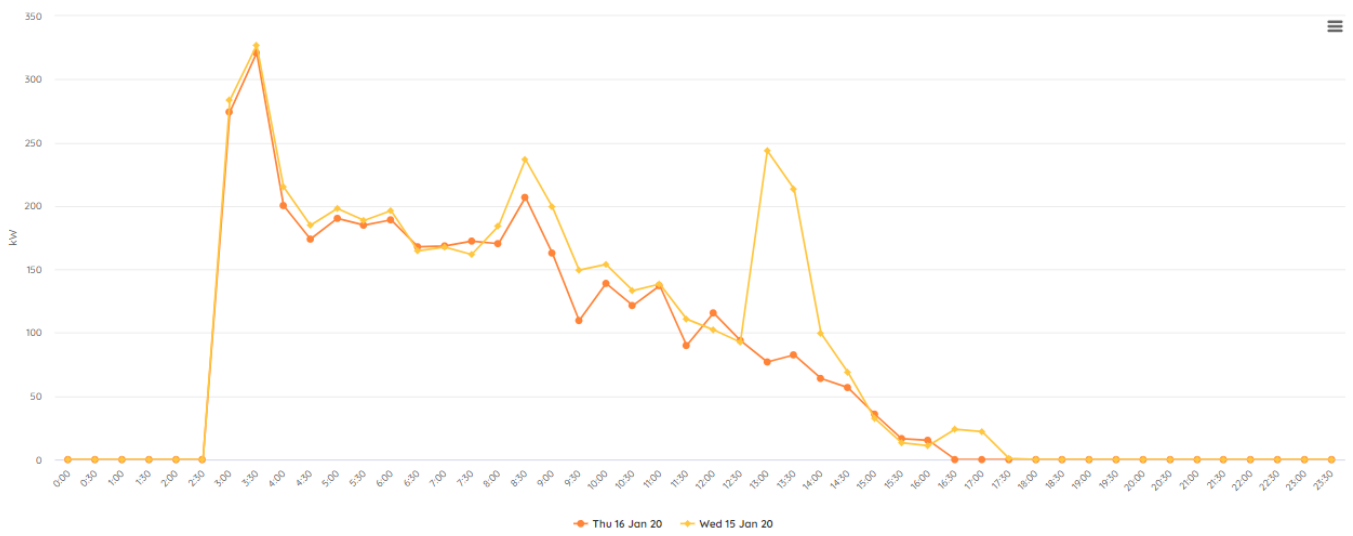|		
find out **when** the gas was used	find out **how much** the gas cost	find out how much **carbon dioxide** was generated
compare the gas used in two different weeks	compare the gas used on two different days	

I want to look at...

Pie charts	Bar charts	Line graphs

On the energy usage pages, if you pick '**compare the gas (or electricity) used on two different days**' you can specify two days of your choice on which to compare your consumption. If your school has more than one gas or electricity meter, then you have the option to view the data for all your meters or choose just one meter. This can help you investigate the energy use in a smaller part of your school.

Back

Your school's half hourly gas use on your chosen day

Thu 16 Jan 20   Wed 15 Jan 20

Select day	Compare to	Which meter?
Thursday, 16 January 2020	Wednesday, 15 January 2020	All Meters

Gas data is available from Tue 15th Aug 2017 to Thu 16th Jan 2020

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5d) Storage Heater Usage

If your school has storage heaters, Energy Sparks will attempt to split this consumption out from the rest of your electricity consumption, to provide separate heating-focused presentation, alerts and analysis.
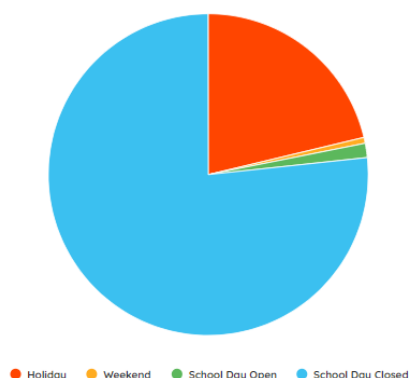

On the energy usage pages if you pick **pie charts** you can see how much energy was used when the school was open to pupils or during the holidays, weekends or overnight during term time:

6. Alerts

Energy Sparks **alerts** appear on all dashboards providing:

- warning of changes in your school's energy use
- highlight long term problems with your energy consumption with focused recommendations to save energy
- let you know if you are doing well compared to other schools and your past performance.

Act on energy usage

Click on the **Find out more** button to learn more about the alert and get suggestions for activities to reduce your energy use. Click on the **Recent alerts** button to go to a list of all recent alerts for your school.

The alerts can also be sent to people with an Energy Sparks account or directly by **email or text message** to a mobile phone. We strongly recommend that each school has at least one member of staff receiving Energy Sparks alerts by email so that you are prompted to address unexpected changes in consumption promptly to minimise waste.

Short term consumption change alerts are sent weekly. Alerts telling you about your long term energy use are sent termly.

Email and text alerts can be set up as part of your initial Energy Sparks account set up, or alert contacts can be changed, added or removed via the **Manage alert contacts** page accessed through the **Manage School** drop down list.

7. School Comparison Tool

Energy Sparks provides a **School Comparison tool** to allow you to compare your school's energy saving performance with other schools in your local authority, school trust or across all schools participating in

Energy Sparks. This can be accessed by going to the Schools page https://energysparks.uk/schools, picking your chosen schools group and clicking **Compare Schools,** via the **My School** quick links in the top menu bar or by clicking **Compare schools** at the top of the Adult dashboard**.**

You can choose to compare your school against other schools in your school group, all schools in your country or all schools on Energy Sparks and against different types of schools. You can then choose the benchmarks against which you want to compare your school, for example:

Energy Cost Benchmarks

- Annual energy use per pupil
- Annual energy costs
- Annual energy use per floor area

Electricity Benchmarks

- Annual electricity use per pupil
- Change in annual electricity consumption
- Electricity out of hours use
- Last week's baseload versus average of last year (% difference)
- Baseload per pupil
- Reduction in baseload in the summer holidays
- Peak school day electricity comparison kW/floor area
- Benefit of estimated optimum size solar PV installation
- Change in electricity consumption since last school week
- Change in electricity consumption between the 2 most recent holidays
- Change in electricity consumption between this holiday and the same holiday the previous year

Gas and Storage Heater Benchmarks

- Annual heating cost per floor area
- Change in annual heating consumption
- Gas: out of hours use
- Storage heater out of hours use

8. Manage School

The **Manage School** functionality is accessible to the **Energy Sparks School Admin** account holder (normally the person who set up the Energy Sparks account), and allows the **School Admin** to edit their school details such as their **pupil numbers and floor areas** which are used for comparing your school's energy performance against other schools of a similar size. The **School Admin** can also update the **school calendar and opening times** which are used by Energy Sparks to label your energy use within and outside school opening times. The Manage School functionality allows the **School Admin** to **add or remove users** to the school's account and **add new alert contact**s for email and text alerts. Finally, **Manage tariffs** allows school admins to make changes to the tariffs displayed for the school. See Tariff Editor User Guide for more information.

9. Manage School Group

The **Manage School Group** functionality is accessible to the **Energy Sparks Group Admin** account holder, and allows the **School Group Admin** to edit their school group preferences and settings. **Chart settings** allows the group admin to change the default settings for charts seen by schools in their group. We recommend using kWh if tariffs are likely to change over time so that users observe real changes in consumption rather than changes to costs. **Manage clusters** allows group admins to set up clusters of schools within the group. **Manage tariffs** allows group admins to make changes to the tariffs displayed for all schools in the group. See Tariff Editor User Guide for more information.