|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | Building efficiency checklist  Savings for businesses and the public sector | | ***Creating a low carbon future*** |  |  |  | | --- | --- | | Version | Draft 0.6 | | Team | **Climate Change Task Force** | | |
|  | SC logo Mar17.png |

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# Introduction

Since 2019 we have had an aim achieve carbon neutrality countywide by 2030 – for more information on this please see our [Climate Strategy and Action Plan](http://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/policies-strategies-and-guides/climate-strategy-and-action-plan/); and [Climate Action](http://shropshire.gov.uk/shropshire-climate-action/).

This guide is intended to be helpful for both commercial and public sectors to support short term easy win measures (2022-2025) and provide next steps and further considerations for retrofitting that would require investment. The intended teams to support are commercial managers, property maintenance and business account holders.

The government’s electricity price forecast for the National Grid estimates a 40% rise in real prices by 2030 and in some instances, they have already gone up by 100% in the last 2 years. This is a massive shock to many, though long anticipated by industry experts. Whilst the UK relies on gas imports the energy prices will go up and be volatile

In summary, reducing operating costs, staffing fees and associated maintenance costs is the smart decision for any site manager. This guide presents an easy win simple set of measures that can be ticked off by facilities managers. Supported by further innovative retrofit opportunities to power down with energy efficiency and power up with renewable energy to secure ongoing low running costs. Utility costs are typically the most controllable overhead for a building; when compared to staffing costs, management fees and maintenance costs.

***Powering down*** with efficiency measures and ***powering up*** with renewables has the following benefits:

* Reduce utility costs and associated carbon emissions.
* Reduced operating costs for service areas – better use of public finances.
* Better managed buildings are more comfortable and productive to work in.
* Improved health and wellbeing benefits ; healthy staff.
* Helping to meet our corporate directive of net zero carbon corporately by 2030.
* This is in line with the Governments Climate Act (2008) and various directives since.
* Comply with MEES (Minimum Energy Efficiency Standards).

**Short term measures include in summary:**

1. **Short term operational ”soft measures”:** facilities management, site managers and correct staff training.
2. **Longer term operational “hard measures”** include designed measures (whether retrofitting or new builds). The running cost of any equipment that consumes energy soon outweighs the capital expenditure.

## Savings and payback

Annual savings can be estimated based on 1. Low-cost measures and 2. Higher capital investments.

Given some knowns (% savings, unit price of utility), the payback period and return on investment for each measure can be calculated. As can the total energy saving (kWh) and carbon saving (CO2e).

Table 1 Savings summary split (short term and long term)

|  |  |  |  |
| --- | --- | --- | --- |
| **Measures** | **Est. savings** | **Assumptions** | **Payback Period** |
| 1. Short term low/zero capital expenditure | £XXX,XXX p.a. | 20% improved heating controls, lighting and behaviour change | 1-5yrs. |
| 1. Longer term higher capital (retrofit) | £XXX,XXX p.a. | 40% savings via fabric improvements and heat pumps | 5-10 yrs. |

Listed in the checklists over the next pages are savings that very clearly add up.

# Short term measures

Please refer to individual [energy reports (DEC’s, EPC’s)](https://shropshire.gov.uk/shropshire-climate-action/energy-and-heating/decs-and-epcs-guidance/) for further information on appropriate measures which are wholly dependent on the individual site circumstances. Short term measures are classed as standard. A zero spend approach should be incorporated into existing operational management and procedures by site managers, building users. A lot of these “easy wins” are associated with behaviour. The **Climate and Energy Crisis** is high on the public agenda and is an enabler for this type of behaviour change.

## Low hanging fruit (good housekeeping)

**Site managers, building-user****s, green champions, service staff.**

Appropriate staff training will be delivered on “good housekeeping” and cover off a range of low or zero cost measures addressing the correct operation and use of existing systems and equipment:

* Heating and cooling systems, controls, and thermostats.
* Heating schedule based on occupancy and set to operational hours.
* Thermostats set at 18°C (the law states this is adequate for the workplace).
* Switch off lights and ICT equipment after use.
* Ensure there is no equipment running on days the building is shut (such as weekends).
* As above - check baseloads outside of operating hours on closed days to ensure it is zero.

These types of measures are very simple and low-cost. Managers and staff alike should take control of their energy consumption by using smart meters to spot anomalies and be pro-active in keeping their utility costs down.

Even without significant investment in building fabric or heating systems, operational changes can encourage energy saving behaviour. A correctly managed approach to ensure equipment and lighting are switched off after use and heating controls, timers and thermostats are set correctly. This method relies on behaviour change, site managers and correct guidance. Measures are listed below and may involve “Green Champions” to assist.

## Green Champions

These are staff within the organisation who wish to champion the future take make practical actions to mitigate and adapt to climate change. Green Champions raise awareness and engage staff to encourage good practice amongst colleagues by setting an example. They should receive “**Carbon-Literacy**” training so they can answer questions on climate change. Green Champions help monitor energy usage and identify opportunities for reduction. Their scope covers energy, water, recycling, reuse, and travel. It helps if they meet regularly to collaborate, share resources, and create a roadmap towards achieving the commitment of zero carbon by 2030.

## Climate Challenge

* Please refer to our [staff energy and water page](https://staff.shropshire.gov.uk/policies-and-guidance/climate-action-for-staff/energy-and-water/) and guide for more information on site monitoring.
* Go to the our new [Climate Dashboard](https://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/climate-dashboard/) buildings section; where you will find links to the portals and efficiency information mapped (DECs and EPCs) for the whole county.
* Check your buildings EPC and DEC, by searching your property postcode. [Here](https://find-energy-certificate.digital.communities.gov.uk/).
* Register with Systems Link, WME and Wave Utilities to obtain a login to their portals.
* The site manager or designated officer should monitor electric, gas and water consumption.
* If no data is available, then *an AMR (automated meter reader) or smart meter may need to be fitted.*

# Site details checklist - score X/20

This is to capture details about the site; building name, address, site contact, function, age, sector, existing energy performance details (consumption, EPC/DEC) and floor area.

|  |  |  |
| --- | --- | --- |
| **Site category** | **Please fill in details:-** | **Check (Y=confirmed/N=missing)** |
| 1. Site name |  |  |
| 1. Site address |  |  |
| 1. Site contact |  |  |
| 1. Management/Maintenance |  |  |
| 1. Building functions – |  |  |
| 1. Commission year |  |  |
| 1. Current EPC | Rating A-G |  |
| 1. Current DEC | Rating A-G (if applicable) |  |
| 1. Efficiency rating (kWh/m2) (0-500) |  |  |
| 1. Target (kWh/m2) | < 150 (office). < 250 commercials. |  |
| 1. Total energy (kWh/yr.) |  |  |
| 1. Total spend (£) |  |  |
| 1. Footprint (tCO2/yr.) |  |  |
| 1. Dwelling emission rating (tCO2/m2/yr.) | DER |  |
| 1. GIA floor area (m2) |  |  |
| 1. Floor area office (m2) |  |  |
| 1. Area residential (m2) |  |  |
| 1. Area commercial (m2) |  |  |
| 1. Is the building retained for more than 5years? |  |  |
| 1. Public access? |  |  |

|  |  |
| --- | --- |
| **SCORE** | X/20 |

# Plant room - score X/9

|  |  |  |
| --- | --- | --- |
| **Item** | **Details** | **Done (Y/N)?** |
| 1. Are meters and distribution boards easy to locate and labelled? | A clearly labelled and arranged plant room is easier to maintain and operate. |  |
| 1. Is the plant room temperature low or cool? | A warm plant room is not good – means heat is being wasted and pipework isn’t insulated. |  |
| 1. Are heating and cooling control systems clearly labelled and integrated? | If linked it ensures heating not on at the same time as cooling. Also heat recovery can be employed. |  |
| 1. Is BMS/BEMS installed? | Building (Energy) Management System |  |
| 1. Weather compensation? | Helps a lot in sporadic weather/seasons |  |
| 1. Seasonal controls set? | Set spring / autumn changeover for old systems |  |
| 1. Is efficiency > 90% | Condensing boilers ratings |  |
| 1. Maintenance to date? | Annual inspection/maintenance |  |
| 1. Is plant room clean/tidy? | Not used to store items and vents clear etc. |  |

|  |  |
| --- | --- |
| **SCORE** | X/9 |

# General comments – site walk around

|  |  |
| --- | --- |
| **Category** | **Comments** |
| 1. Building age and fabric |  |
| 1. Roof /condition |  |
| 1. Building condition |  |
| 1. Heating controls |  |
| 1. Radiators / emitters |  |
| 1. Office space |  |
| 1. Public space and access |  |
| 1. Windows |  |
| 1. External doors |  |
| 1. Lighting |  |
| 1. Lighting controls |  |
| 1. Kitchen / conveniences |  |
| 1. Recycling / reuse |  |
| 1. Renewable power on site |  |
| 1. Renewable heat on site |  |

# Heating/cooling and hot water checklist - score X/15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Low-cost energy saving tip!** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Is there a vacant building policy that ensures equipment are shut down? | Isolate utilities and ensure space heating and electricals are off | 100%!! | Vacated ensure heating and electrical systems are deactivated (may need a 5C frost protection). |  |
| 1. Is the baseload zero overnight or on days the building is closed? | Energy monitoring: Systems Link / WME | As above | Any loads outside of operational hours – indicates wasting energy. |  |
| 1. Is there a flexible working policy that adapts to building occupancy? | Space heating and electricals | Up to 50% | If building occupied <50%, then shut down heating. |  |
| 1. Is the cooling (A/C) system deactivated in the autumn and winter? | Ensure A/C doesn’t conflict with heating | 40% | In wintertime deactivate A/C .  Set changeover– e.g. April / Oct |  |
| 1. Is the heating system deactivated in the summer? | Ensure heating doesn’t conflict with cooling. | 40% | In summertime deactivate heating system. Set changeover according to season – April / Oct |  |
| 1. Have basic insulation and air tightness steps been taken? | Roof level, cavity wall, Secondary glazing.  Floor insulation | 30% | Insulation needn’t cost the earth and significantly reduce your costs at the same time! |  |
| 1. Are unoccupied areas zoned off and left unheated? | Space heating: TRV’s (thermostatic radiator valves). | 20% | Set TRVs according to occupancy schedule. Ensure only rooms occupied are heated. TRVs off in unoccupied areas. |  |
| 1. Are windows kept shut whilst the heating is on? | Space heating | 20% | Ensure windows or external doors aren’t open when heating is on |  |
| 1. Are wall thermostats set correctly to 18°C? | Space heating | 20% | Set thermostats correctly as law states working environment. |  |
| 1. Are TRVs set correctly | Space heating | 20% | TRVs should be set to medium by default or off if areas are not being used. |  |
| 1. Are heating and controls and timers set correctly? | Space heating – set schedule (daily, weekly, and monthly) | 20% | Ensure timers set to occupancy. Easy to use controls are effective and save expensive callouts. |  |
| 1. Are all immersion heaters set correctly? | Hot water | 20% | Ensure immersion heaters set correctly and on at required time and duration. |  |
| 1. Are draught exclusion and air tightness in place? | Building fabric, external window and door seals | 20% | Ensure windows shut and seals fitted to any external doors and windows. |  |
| 1. Are heating plants inspected and serviced annually? | Space heating and hot water | 5% | Keep heating system checked and serviced correctly. |  |
| 1. Are all hot water and heating pipework correctly lagged with thermal jackets and insulation? | Space heating and hot water | 5% | A warm plant room is warm, then there is a problem. (and that doesn’t mean venting the excess heat outside!) |  |
| **SCORE** | | | | X/15 |

# Electrical checklist - score X/12

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Energy saving measure** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Do the meters supply what is expected?   And are they labelled correctly? | Utilities: electric, water, gas.  Metering | 10-50% | You might be paying someone else’s! |  |
| 1. Is utility (energy and water) monitoring in place (AMR where possible)? | Ensure an AMR is installed, and any separate activity is sub metered. | Up to 30% | If you can’t measure, you can’t accurately keep track of spend or carbon footprint |  |
| 1. Are your staff familiar with the climate dashboard? | As above – monitoring | As above | Site managers have access to dashboard and utility portals to monitor use/spend. |  |
| 1. Is the baseload zero overnight or on days the building is closed? | Energy monitoring: Systems Link / WME | As above | Loads out of operational hours is wasted energy. |  |
| 1. Is there a flexible working policy that adapts to building occupancy? | Electrical equipment and lighting | Up to 50% | If occupied <50%, then shut down equipment. |  |
| 1. Have conventional electric wall heaters been replaced with night-storage equivalents? | Electrical space heating | 20% | Advanced storage heaters with flexible controls are available and cheap to run. |  |
| 1. Have all portable heaters been removed and staff instructed not to use them? | Electrical – remove heaters and ensure off after use. | 10% | Fixing your central heating system is more cost effective than portable heaters. |  |
| 1. Are lights low energy? | Lighting – low energy. | 60% (on lighting only) | Should now be LEDs |  |
| 1. Are lights switched off outside occupancy hours and controls working? | Lighting - controls | 20% (on lighting only) | Correct signage and ensure daylight/motion sensors working. |  |
| 1. Are external lights on timers and day sensors? | Lighting - controls | 20% (on lighting only) | Ensure daylight sensor and timers working |  |
| 1. Are all ICT equipment switched off after use? | Electrical | 5-10% | Signage to switch off equipment overnight |  |
| 1. Has a fixed wiring test been done and any issues highlighted been rectified? | Electrical | 5% | Check wiring for load and voltage (220) optimisation, safety and saves energy. |  |
| **SCORE** | | | | X/12 |

# Staff engagement checklist - score X/10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Are staff aware of the[**Climate Dashboard**](http://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/climate-dashboard/) and service area targets? | Behaviour and engagement. | 10-50% | Staff will be issued training to use the [dashboard](https://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/climate-dashboard/). |  |
| 1. Have staff been invited to commit to the ***Climate Challenge***? | Behaviour and engagement. | 5-10% annual reduction targets) | A reduction of 10% per year; competition for bronze, silver, gold “badge”. |  |
| 1. Are staff engaged with their utilities? | utility monitoring |  | Is the site manager familiar with the utility portal? |  |
| 1. Have the utility meters been located and W3W saved? | utility monitoring |  | Save location W3W  “hunt the meter” |  |
| 1. Do staff know how to read the meters? | Electric, gas and water monitoring |  | Send meter reads quarterly to energy and water officer. |  |
| 1. Is the site manager familiar with our energy and water monitoring portals? | Behaviour and engagement – energy and water utilities | As above | Depends on your utility provider. |  |
| 1. Have staff been invited to be a green champion? | Behaviour and engagement. |  | We need at least one green champion in every building. |  |
| 1. Have staff been appropriately trained on energy efficiency? | Behaviour and engagement. | As above | Staff can be keen to engage on the climate agenda whilst helping your profit margins! |  |
| 1. Are staff instructed to keep external windows and doors shut when the heating is on ? | Behaviour and engagement | 10% | Ensure windows and doors closed if the heating is on. If it is too hot, then it’s a thermostat problem. |  |
| 1. Are your staff familiar with heating and cooling controls? | Behaviour and engagement | 10-50% | Correct use of thermostats and A/C not on with heating! |  |
| **SCORE** | | | | X/10 |

Please refer staff to Shropshire [climate action](http://shropshire.gov.uk/shropshire-climate-action/)  and specifically our new [Climate Dashboard](https://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/climate-dashboard/).

# Renewable heat on site - score X/6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Renewable heat sources** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Is renewable heat being sourced and used on site? | Heat pump (ASHP, GSHP), biomass or solar thermal | 2-3X more efficient than oil or gas or panel heaters. | Electric, oil, gas prices all going up. |  |
| 1. Is a district heating low carbon heat being used on site? | Refer CP1 Standard for heat networks | Typically, 50% | Can provide low-carbon affordable and secure heat |  |
| 1. Does heat pump/plant meet MCS criteria and maintained yearly? | Quality assurance and certification | 10% | Check MCS standard – footings, fan clear of debris etc. |  |
| 1. Has solar thermal met MCS criteria and maintained yearly? | Quality assurance and certification | 10% | Check MCS standard – glycol top up, pump maintenance. |  |
| 1. Are renewable heat controls optimised? | Heating controls | 20% | Ensure SPF and COP are optimal. |  |
| 1. Is the site manager familiar with renewable heat controls and login? | Behaviour and engagement – | 20% | Remote login for heating controls. |  |
| **SCORE** | | | | X/6 |

# Renewable power on site - score X/6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Renewable electric power** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Is renewable electric generated on site? | Solar PV (electric) panels or Wind turbine | Typically, up to 50% of onsite electric demand | Electric prices gone up 200%. |  |
| 1. Has the renewable met MCS criteria? | Quality assurance and certification | 30% | Check MCS standard – PV / wind |  |
| 1. Is monitoring in place? | Engagement / monitoring | 30% | ORSIS/Solar Edge for new systems. |  |
| 1. Is site manager familiar with renewables? | Behaviour and engagement – | 20% | Onsite checks helps spot issues early |  |
| 1. Is solar PV checked and maintained annually?   (checks over page) | DC side electrics  AC side electrics | 10% | Ingress, DC cables, inverters, AC MCBs |  |
| 1. Is solar PV generation optimised?   (checks over page) | Panels, local shading; use of optimisers on new systems. | 10% | Check panels annually for soiling, shading and electrical issues above. |  |
| **SCORE** | | | | X/6 |

# Solar PV further checks

|  |  |  |
| --- | --- | --- |
| **Solar PV checks** | **Detail** | **Done (Y/N)?** |
| Remote monitoring | Has the site manager / business account holder have a login to remote monitoring service for PV (and app). |  |
| DC side faults | * No low resistance to ground faults (or shorts) * Check ingress protection (cables, connectors) * Cabling should be installed correctly under MCS accreditation – and ducting. * DC isolation switches ingress protected. * DC isolations switches ON. |  |
| AC side faults | Check AC generation feed from inverter to distribution-board MCB hasn’t tripped.  AC isolation switches ON. |  |
| AC generation meter | Check generation meter and take a quarterly meter reading (this also should have an ORSIS datalogger). |  |
| Shading | No/minimal localised shading (trees/hedgerows) |  |
| Soiling | Panels kept clean. Bird poo etc |  |
| Damage | Sometimes panels get damaged – e.g. schools |  |
| Inverters  (SMA, Fronius, Solar Edge etc) | DC to AC conversion   * Check remote monitoring * Check vents clear, mountings. * Make sure not overheating. * Check display for any fault codes; * Most inverters configured by Bluetooth or wireless.– consult the installer. |  |
| Equipment warranty (panels, cabling, inverters) | Check warranty period if installed within last 5-10 years if any faults occur. Manufacturer warranty for inverters normally 10 years. |  |
| Workmanship warranty | Check with installer the terms of workmanship warranty and period of cover. Normally 2-5 years. All systems should be certified and MCS accredited. Any unresolved issues raised with Trading Standards. |  |

|  |  |
| --- | --- |
| **SCORE** | X/6 |

# Active travel and electric vehicles - score X/7

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Electric vehicles** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Are electric vehicles being used by staff? | Zero carbon transport | 60% (1/3 the cost to run vs petrol/diesel) | Fuel prices rising sharply. |  |
| 1. Are there charge points available on site? | Zero carbon transport | 60% | Fuel prices rising sharply. |  |
| 1. Are there shared EVs available for staff ? | Zero carbon transport | 60% | Fuel prices rising sharply. |  |
| 1. Are there cycle racks? | Active travel |  | Health and fitness |  |
| 1. Are there shared cycles/ebikes available? | Active travel |  | Health, fitness and wellbeing |  |
| 1. Are there showers and changing facilities? | Active travel |  | Health, fitness and wellbeing |  |
| 1. Is there easy access to public transport? | Low carbon transport |  | Reduce traffic on roads |  |
| **SCORE** | | | | X/7 |

# Recycling checklist - score X/5

Please see our [new](https://www.shropshire.gov.uk/recycling-and-rubbish/) [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) section. Commercial recycling is delivered by: [Veolia Shropshire](https://www.veolia.co.uk/shropshire/contact-us#no-back)

Find out how you can achieve [economic benefits](https://www.wrap.org.uk/content/economic-and-environmental-benefits) and [resource efficiency](https://www.wrap.org.uk/content/how-wrap-supports-circular-economy).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Are recycling stations centrally located and clearly labelled? | Recycling | (there is a commercial case for recycling) | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Are your staff familiar with our workplace recycling guidance? | Recycling | (there is a commercial case for recycling) | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Are the actions being carried out as listed in our recycling strategy? | Recycling | (there is a commercial case for recycling) | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Have individual general waste bins been removed? | Recycling | This improves recycling rates | You only need one central general waste bin; this encourages staff to get up and walk around and think before they bin! |  |
| 1. Is an officer responsible for collecting compostable waste? | Resources – green waste | n/a – useful for the garden though! | Typically, coffee, tea dregs and green waste can be composted. |  |
| **SCORE** | | | | X/5 |

# Reuse checklist - score X/4

[Warp-it](https://www.warp-it.co.uk/): (Waste Action Re-use Portal) We have initiated a re-use distribution network for repurposing stationary, furniture, and other office equipment. This service helps to repurpose and relocate office furniture and equipment to where it is needed. This service is available for use by Shropshire Council service areas, Town and Parish Councils, schools and academy trusts, charities, and not-for-profits. It is not available for personal use (for which there are services like Freecycle and Freegle).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Are your staff signed up to Warp It? | Reuse | Reusing stuff saves money and helps cross council collaboration! | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Do staff check Warp It prior to purchase of equipment? | Reuse | Reusing stuff saves money and helps cross council collaboration! | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Are staff listing unwanted items on Warp It? | Reuse | Reusing stuff saves money and helps cross council collaboration! | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| 1. Are staff engaging with Warp It when moving office, cleardown or spring-clean? | Reuse | Reusing stuff saves money and helps cross council collaboration! | [resources](https://shropshire.gov.uk/shropshire-climate-action/resources/) |  |
| **SCORE** | | | | X/4 |

Please follow the links above depending on the type of organization:

* + [Town and Parish Councils sign up here](https://www.warp-it.co.uk/company/shropshirecouncil)
  + [Schools sign up here](https://warp-it.co.uk/company/westmidlandsschools/register)
  + [Charities sign up here](https://www.warp-it.co.uk/charities)
  + [Further information for schools and not-for-profits](https://blog.warp-it.co.uk/new-feature-free-assets-for-schools-0) here
  + [Business Partners sign up here](https://www.warp-it.co.uk/register)
  + [Short instructional videos on how to list and claim items](https://blog.warp-it.co.uk/all-you-need-to-know-about-getting-started-on-warp-it)

Make sure you bookmark the correct link. Hit the big green button which says ‘register’ now. Once you register, you’ll get further instructions. You can browse items on Warp-it by hitting the search button.

* Learn how to add an item [here](https://www.warp-it.co.uk/training-add).
* Learn how to claim an item [here](https://www.warp-it.co.uk/training-search).

If you want to know more about the system in general, go to [www.getwarpit.com](http://www.getwarpit.com/) where there are examples of how the system is working well in other organizations just like ours.

You can also check out the Frequently Asked Questions [here](https://www.warp-it.co.uk/faq.aspx).

# [Water efficiency](https://shropshire.gov.uk/shropshire-climate-action/resources/water/) checklist - score X/6

Understanding, reducing and adopting best practice with your water usage can save your business money, help you avoid costly repairs and reduce your carbon footprint. A win-win-win situation. Severn Trent has devised [a three-step process](https://www.stwater.co.uk/businesses/pipes-and-drains/how-to-save-water/) to help you measure your water use, minimise your waste and maintain the results.

<https://shropshire.gov.uk/shropshire-climate-action/resources/water/>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure** | **Type of measure** | **Typical saving** | **Further detail** | **Done (Y/N)?** |
| 1. Have staff been guided to implement water efficiency measures and save water? | Water efficiency. |  | Water also has a cost and carbon footprint. and efficiency measures in place |  |
| 1. Are kitchen and toilets checked regularly? | Taps, washrooms etc. |  | Ensure leaks reported promptly |  |
| 1. Is water monitoring in place? | Water monitoring |  | Is the site manager familiar with the utility portal? |  |
| 1. Has the water meter been correctly located and W3W saved? | Water monitoring |  | Save location using W3W to avoid repeated “hunt the meter” |  |
| 1. Do staff know how to read the meter? | Water monitoring |  | Send meter reads to energy and water officer. |  |
| 1. Is all concealed and underground pipework integral (no leaks)? | Water monitoring |  | Service pipes on client side of supply (from Severn Trent |  |
| **SCORE** | | | | X/6 |

# Summary observations

|  |  |
| --- | --- |
| GIA (Gross Internal Area)  measure of the floor area in m2. | * Clarify floor areas. |
| Building primary function (sector or service area) | e.g. social care |
| Building functions if mixed use  (residential/office/commercial/arts/hospitality) |  |

|  |  |
| --- | --- |
| **Item** | **Building condition (current state – examples only)** |
| General condition/age | Heritage (Victorian or pre), 1900-1950s, 1950-1980s,  1980s-2000, 2000 or newer. |
| Heating and cooling | Heating and cooling systems not easy to use or conflict. Timer’s schedule set incorrectly and no weather compensation. |
| Hot water | Immersion tank poorly lagged and timers not functioning well or easy to use. Is it set to use cheap electric at night? |
| Electrical | Several portable heaters seen. 2kW wall heaters in kitchens.  No signage to switch ICT/lights/equipment off after use.  No timer fitted on communal hot drinks boiler. |
| Lighting | Lighting all fluorescents, seemed to be on all the time on arrival in the daytime (when good natural daylight). No controls or signage present. Timers/controls not seen for external lighting. |
| Building fabric | Current roof insulation is only 30mm roc-wool. No cavity wall, solid wall-insulation or ground floor insulation. |
| External windows and doors | For example – poor seals on windows and doors; single glazed. |
| Metering arrangements  (electric/gas/water) | * The XX meter though supplies XX and office areas. * The commercial units have separate electric and water meters individually (but no gas).   Confusing layout or poorly labelled (example) |
| Active Travel and EVs | * No active travel measures or EV charge points in place. |
| Renewable heat and power | * No renewable energy generated or sourced on site |
| Recycling and reuse | * No recycling or re-use measures seen or in place. |
| Water efficiency | Water meter not easy to locate, taps on or dripping. Leaks. |
| Staff awareness | Staff currently don’t feel empowered to make any changes although they are keen to make a difference with climate agenda |

(examples only shown)

|  |  |
| --- | --- |
| **Total Score**  Add up the points out of 100 | **XX out of 100 = XX%** |

# Actions to achieve targets

(examples only shown)

|  |  |
| --- | --- |
| **Item** | **Recommended actions / retrofits or refurbishments** |
| General | * Action based on the items marked **N** in the checklist. * Make EPC/DEC visible in entrance foyer. |
| Heating and cooling | * Optimise heating and cooling system integrated. * Controls operated centrally – BEMS with weather comp. * Heating schedule is set to reflect occupancy and off outside of operating hours (make baseload zero). |
| Hot water | Improve lagging or replace more efficient thermal store.  Fit functional easy to operate timer control (such as Eddie). |
| Electrical | * Remove wall mounted (2kW) heaters from kitchen areas * Signage to switch off lighting, heating and ICT equipment outside of working hours. Or automatic controls. |
| Lighting | * Fix the motion sensors for lighting in communal areas. * Change out the fluorescent lighting for LEDs. |
| Building fabric | Uplift insulation (roof space, ground floor and interna/external walls where possible). Air tightness for new buildings. |
| External windows and doors | Fit secondary glazing , or new double/triple glazing.  Draught proofing and seals where possible. |
| Metering arrangements  (electric/gas/water) | Label metering correctly and clearly.  Fit sperate commercial and residential AMR meters.  Fit heat meters for commercial or residential tenants. |
| Active Travel and EVs | * Fit EV charge points using OLEV grants and cycling facilities. |
| Renewable heat and power | Look at roof capacity for solar thermal and PV  Look at switching heating system to a heat pump. |
| Recycling and reuse | * Put centrally located recycling facilities in office (kitchen). |
| Water efficiency | If large user fit AMR otherwise Limpet system. |
| Staff awareness | Clarify site management and maintenance responsibility.  Enlist a Green Champion and monitoring of the utilities. |

# Target performance

|  |  |
| --- | --- |
| **New target score** | **XX out of 100 = XX%** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Performance rating** | **Units / parameter** | **Current** | **Target** |
| Efficiency score | % | 40% | 80% |
| EPC | A-G |  | B |
| DEC | A-G |  | B |
| Current efficiency rating | kWh/m2/yr. |  |  |
| Dwelling emission rating | kgCO2/m2/yr. |  |  |
| Running cost/m2 | £/m2/yr. |  |  |
| Total utility spend | £ |  |  |
| Total carbon footprint | tCO2 |  |  |
| Saving | £ |  |  |
| Saving | tCO2 |  |  |

# Building decision flow chart (reference)

This is a simple flow chart with the aim of helping to prioritise and deliver efficiency works:-

Legally requires a DEC, so commission a Non-Domestic Energy Assessor (NDEA)

And make the certificate publicly visible in the building entrance/reception.

If non-active, ensure utilities shut down

***OR***

If leased or sold MEES –legally requires to be an **EPC B by 2030**..

***OR***

If being used AM/FM/PSG refer to EE checklist, EPC Recommendation Report (RR) and sector-based guidance.

**Yes**

**START**



**END**

**Is the property**

**retained for > 5**

**years?**

**Yes**

**No**

**Does it have a**

**DEC?**

**Yes**

**Uplift DEC & EPC to B by 2030 ; using the RR to prioritise accordingly.**

**Use the evidence (EPC and DEC) to scope works. Assess funding options (PSDS/Salix/Refit). Deliver works and monitor performance post commission.**

**Operational checklist to save money and carbon**

**Is the property a**

**public building?**

**Yes**

dfddgd

If non-active ensure utilities shut down

***OR***

If leased or sold MEES –legally requires an EPC. MEES (EPC B by 2030)..

***OR***

If used prior to sale; AM/FM/PSG refer to EPC Recommendation Report (RR), sector based guidance and EE checklist .

**No**

**Is the property >**

**250m2 GIA**

**GIA?**

**No**

# Further information (reference)

* [Carbon Trust](https://www.carbontrust.com/)
* CIBSE [Benchmarking](https://www.cibse.org/knowledge/digital-tools/the-energy-benchmarking-tool-(beta-version)) tool
* [Climate Dashboard](https://shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/climate-dashboard/).
* [Commercial guidance](https://www.shropshire.gov.uk/shropshire-climate-action/business/)
* [Commercial hints and tips](https://shropshire.gov.uk/shropshire-climate-action/business/hints-and-tips/)
* [Climate action for businesses](https://shropshire.gov.uk/shropshire-climate-action/business/)
* [Energy and](https://www.shropshire.gov.uk/shropshire-climate-action/energy-and-heating/) [heating](https://www.shropshire.gov.uk/shropshire-climate-action/energy-and-heating/) [guidance](https://www.shropshire.gov.uk/shropshire-climate-action/energy-and-heating/)
* [Energy saving guide for offices](https://www.carbontrust.com/resources/guides/energy-efficiency/employee-awareness-and-office-energy-efficiency/#guide-download)
* [Energy efficiency checklist (measures for the short term)](https://www.shropshire.gov.uk/media/21380/ee-commercial_short.pdf)
* [Historic buildings](https://www.shropshire.gov.uk/shropshire-climate-action/energy-and-heating/historic-buildings-guidance-for-communities/)
* [Shropshire Climate Action](https://shropshire.gov.uk/shropshire-climate-action/)
* [Sector-based guidance](http://shropshire.gov.uk/shropshire-climate-action/business/sector-guidance/)

Energy certificates

* [Find EPC (Energy Performance Certificates) and DEC (Display Energy Certificates)](https://find-energy-certificate.digital.communities.gov.uk/)
* Further info on DECs <https://www.gov.uk/check-energy-performance-public-building>
* [Explanation of EPCs and DECs](https://shropshire.gov.uk/shropshire-climate-action/energy-and-heating/decs-and-epcs-guidance/)
* [Open community’s data (MHCLG)](https://epc.opendatacommunities.org/)

MEES (Government Minimum Energy Efficiency Standards)

* [Non-domestic](https://www.gov.uk/government/publications/non-domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance) [MEES](https://www.gov.uk/government/publications/non-domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance) [guidance and legislation](https://www.gov.uk/government/publications/non-domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance)
* [Domestic MEES guidance and legislation](https://www.gov.uk/guidance/domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance)