

# INTRODUCTION TO SAVING ENERGY

Guidance and tips for venues

# INTRODUCTION

Within our [Environmental Sustainability Plan](#), the LTA has set an ambition to secure a lasting future for tennis in Britain through positive action on climate change and leadership in sustainability.

The climate crisis, resource scarcity and changes to the natural environment represent global challenges but will have an impact on tennis in Britain at all levels. Whether it be the impact of more extreme temperatures on grass court tennis at Britain's major events, or rising sea levels and severe weather meaning a higher proportion of tennis venues at risk of regular flooding, it is critical that we play our part in tackling these issues.

A core focus within this plan is to support tennis in Britain in the face of rising energy costs and changes to the environment. We want to help the tennis community to be more sustainable whilst mitigating environmental impact.

Reducing energy consumption is now a priority for most organisations, including sports clubs and venues, as the UK aims to transition to net zero by 2050. This guidance has been produced in conjunction with Carbon Control Limited to help venues better procure their energy and understand energy management, so they can make strategic changes and make a sustainable difference.



# CONTENTS

<b>1. MEASURING ENERGY USE .....</b>	<b>04</b>
<b>2. AUDITING ENERGY USE.....</b>	<b>06</b>
<b>3. CALCULATING ENERGY COSTS .....</b>	<b>07</b>
<b>4. BUYING ENERGY .....</b>	<b>08</b>
<b>5. REDUCING ENERGY USE.....</b>	<b>09</b>

# 1. MEASURING AND RECORDING ENERGY USE

An important first step for venues is to understand current energy use. This can be done by creating a spreadsheet to record and track monthly meter readings for electricity, gas, water or any other fossil fuels used at your venue. If you do not currently benefit from automated meter reading (AMR or Smart), implement a process to submit monthly readings to your supplier, ideally online. This will ensure that your bills are based on actual usage rather than an estimate, avoiding large credits or underpayments.

- For gas, most meters record usage in cubic metres (m3). Your supplier bills will display the formula required to convert m3 to kWh
- Water is similarly typically recorded in m3. 1m3 equates to 1,000 litres
- For LPG (liquefied petroleum gas), your storage tank will contain a gauge, located usually under the cover on the top of the tank. This gauge will indicate the % of fuel remaining in the tank. Your supplier invoices should indicate the total capacity of the tank.

Subtracting the current reading from the last meter reading will provide you with the level of consumption for each energy type, equating to annual usage over a 12-month period. Recording monthly usage over time will also provide you with an energy consumption profile, allowing you to identify trends and or unexpected variances, and investigate why this is happening.

## TOP TIP:

**Sustainability should feature in your strategy, so consider creating a sub-committee to focus on your venue's environmental impact. People with the appropriate skillset may already be within your membership/ community – ask around!**



**Figure 1. Example of energy monitoring tracker for 12 months**

Month	Electricity Rate 1 (Day)		Electricity Rate 2 (Night)		GAS (main)		GAS (catering)		GAS (bubble courts)		Water (main)		Water (NTC sub meter)	
	Reading	Usage (kWh)	Reading	Usage (kWh)	Reading	Usage (m3)	Reading	Usage (m3)	Reading	Usage (m3)	Reading	Usage	Reading	Usage
Dec-20	2359200		627700		1352497		10253		7894		138285		100109	
Jan-21	2444623	85423	645581	17881	1373413	20916	10398	145	12869	4975	140077	1792	100127	18
Feb-21	2515497	70874	661245	15664	1390755	17342	10501	103	15481	2612	141661	1584	100131	4
Mar-21	2586372	70875	676870	15625	1405385	14630	10622	121	18582	3101	1833	2191	100148	17
Apr-21	2661264	74892	694907	18037	1416762	11377	10764	142	21357	2775	4121	2288	100173	25
May-21	2731256	69992	714408	19501	1430328	13566	10874	110	22565	1208	6292	2171	100204	31
Jun-21	2801885	70629	736312	21904	1438069	7741	10982	108	22926	361	8723	2431	100242	38
Jul-21	2871910	70025	757365	21053	1444728	6659	11106	124	23171	245	11086	2363	100298	56
Aug-21	2945625	73715	777457	20092	1447942	3214	11235	129	23234	63	13666	2580	100361	63
Sep-21	3011607	65982	797134	19677	1451559	3617	11380	145	23343	109	14367	701	100520	159
Oct-21	3086678	75071	811133	13999	1385	9208	11537	157	23650	307	16309	1942	100622	102
Nov-21	3162340	75662	827145	16012	13039	11654	11712	175	26539	2889	18304	1995	100752	130
Dec-21	3232759	70419	843173	16028	29479	16440	11847	135	29533	2994	20181	1877	100829	77
	Total Usage= 873559		Total Usage= 215473		Total Usage= 136364		Total Usage= 1594		Total Usage= 21639		Total Usage= 23915		Total Usage= 720	
					kwh conversion: 1549458.68		kWth conversion: 18112.091		kWth conversion: 245876.744					
Calculated Total Cost	Total Cost= £125,985.55		Total Cost= £22,066.37		Total Cost= £30,352.35		Total Cost= £588.28		Total Cost= £8,590.93		Total Cost= £36,310.14		Total Cost= £1,093.18	

## 2. AUDITING ENERGY USE

### Where is energy being used?

The next step is to identify where this energy is going so you can manage it and reduce consumption. Despite variables between venues, the use of electricity, gas or other heating fuel and water will be generally accounted for in the following ways:

#### Electricity

- Indoor and outdoor lighting (including floodlights)
- Everything that is powered by electricity throughout the premises including office equipment, white goods, bar equipment, CCTV, fans, under desk fan heaters, water dispensers, treatment rooms, kitchen and catering equipment. If it has a plug on it or it is connected to an electrical supply, then it consumes electricity!
- Heating, ventilation and air conditioning (HVAC) including supply and extract fans, circulating pumps for heating, hot water, irrigation systems, control panels, air conditioning systems or split units, electric point of use water heaters, electric heating systems and airhalls

#### Gas or other heating fuel

- Central heating system(s)
- Hot water generation for WCs, showers, kitchen/catering facilities, bar sinks, etc.
- Heating for ventilation systems (air handling units)
- Airhalls

#### Water

- Drinking
- Hot and cold water
- Showers
- WCs
- Food preparation
- Irrigation (grounds and courts)



## 3. CALCULATING ENERGY COSTS

Your venue's energy costs comprise the energy used (kWh) multiplied by the cost/kWh of energy.

For example, if you currently pay 25p/kWh for electricity and you use 10,000 kWh in a month, you can expect to pay £2,500 for the electricity consumed.

On top of that you will pay standing and capacity charges. These non-commodity costs may well be identical month to month, regardless of energy use. When comparing energy supply contracts for electricity and gas, you should therefore consider the total cost of **consumption** and **standing charges**.

You can calculate the energy running cost of any energy-consuming device or equipment where you are in possession of its **energy rating** measured in Kilowatts (kW). This is useful in setting court hire or facility hire fees.

For example, if you operate floodlights with a total energy rating of 5 kW for one hour and the cost of your electricity is 25p/kWh, then the cost of operating your court floodlights for one hour is £1.25.

### TOP TIP!

Always check your supplier bills are correct upon receipt. You should be able to calculate your own energy costs to compare with the bill if you create an energy tracker to monitor monthly usage and apply the details of your energy tariff (p/kWh for consumption and associated standing charges and VAT).



## 4. BUYING ENERGY

With costs for electricity and gas at historically high levels, it's crucial to choose the optimum contract that meets your needs.

Some venues use an energy broker to research the market and advise on the best price and contract term for electricity and/or gas, but also other factors such as available electricity capacity and eligibility for reduced VAT.

A specialised team from the LTA Buying Group Energy Club will save you time and money by leveraging the most competitive rates, managing your energy account, terminating and managing the transfer of your energy account to a new supplier or negotiate the best renewal price. The LTA Buying Group has supported venues with their energy provision in gas, electric, water, utilities, solar, green energy, electric

vehicle charging and more, ensuring a holistic approach to utility management.

**Using the LTA Buying Group is free for LTA registered venues. Find out more [here](#).**



## 5. REDUCING ENERGY USE

Best practice for reducing energy consumption, costs and GHG (greenhouse gases) emissions follows the **energy hierarchy**, illustrated below.

### Use less energy

Using less energy through eliminating energy wastage is underpinned by the principle of **only using equipment when required**. For example:

- Switch off unnecessary lights
- Turn off or turn down heating / air conditioning. Industry guidelines recommend that internal spaces are heated to 18 – 19°C and only cooled once the temperature exceeds 25°C
- Use a boiling water tap for a cup of tea, rather than a full kettle
- Ensure equipment is switched off after use (or when not in use)

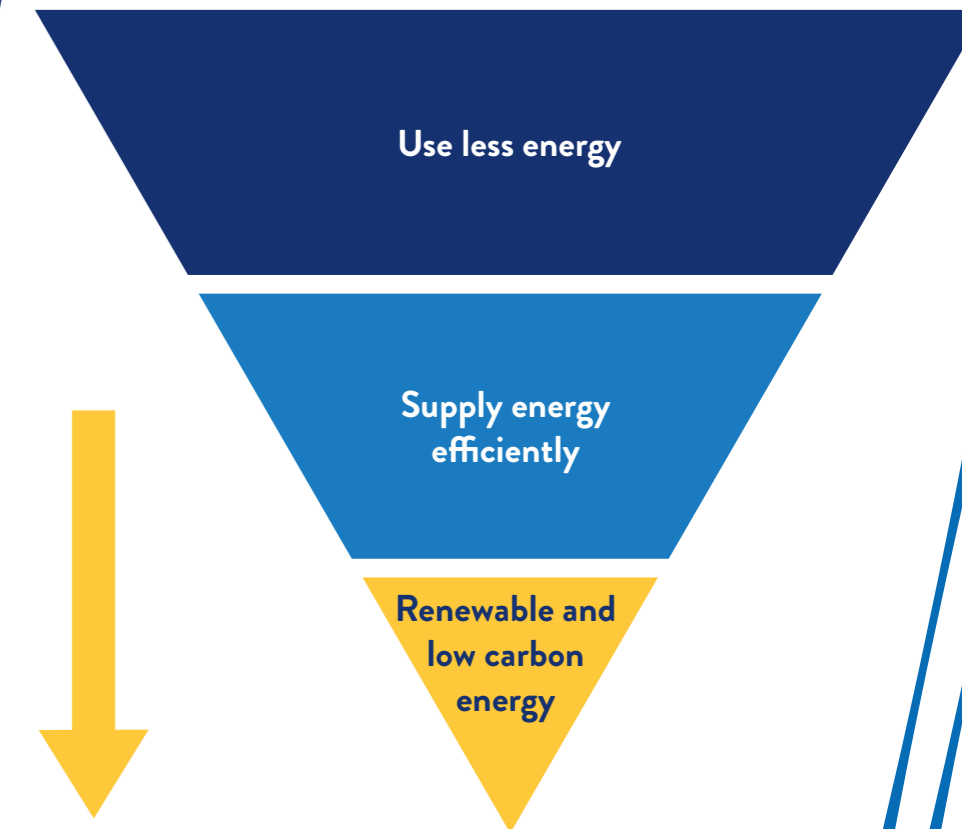
An end of day workaround is an effective approach to ensure that equipment is not left on unnecessarily overnight. Savings of 10-15% in energy usage can be achieved through implementing and maintaining an energy management policy.

PIR (passive infra-red)/occupancy sensor controls for lights or water consuming devices such as urinals eliminate the requirement for manual checking and can pay for their implementation in a few months.

Other major sources of energy consumption such as heating, hot water, ventilation, air handling or air conditioning equipment can be controlled via time schedules aligned to your operating hours and temperature set points.

### TOP TIP!

Where heating and air conditioning are installed in the same area, it is imperative that their respective controls are interlocked to avoid simultaneous heating and cooling. This is a common occurrence in sports, leisure and hospitality settings.



# ENERGY EFFICIENCY

Having minimised energy waste, the next stage in the hierarchy is to identify and implement energy efficiency measures. For example, replacing a 50W halogen lamp (bulb) with a <10W LED alternative dramatically increases the efficiency of the light source, reducing consumption and therefore cost. Typical savings of 50 – 60% can realistically be achieved by upgrading to LED light sources.

**A word of caution:** if you are looking to convert existing floodlights to LED, the lux levels and uniformity must meet LTA guidelines. Applying the principles of energy cost calculation, if the current lights are only used for a short period of time per week in the winter months, the cost benefit of upgrading to LED or equivalent may be marginal.

For high energy consuming equipment, such as refrigeration, there may well be a compelling reason to replace or retrofit the equipment in order to increase the efficiency and deliver a financial saving

over time. The accepted method of comparison between different items is to use whole life cost analysis, to look at the total cost of ownership over the equipment's lifecycle, as opposed to merely comparing initial purchase costs.

**CLUB SUCCESS STORY**  
**STRIVING TO BECOME A CARBON POSITIVE TENNIS CLUB**  
The phenomenal success of Halton Project Zero

Halton Tennis Centre, Buckinghamshire

**BACKGROUND**  
Halton Tennis Centre in Buckinghamshire offers a choice of 18 indoor and outdoor courts for year-round play. The premier facilities include a clubhouse, fully equipped gym and practice, and the existing programme is accessible and inclusive. Besides offering great tennis experiences, Halton aims to demonstrate leadership in environmental sustainability. In 2016, in response to the climate emergency, the club decided to set a target to become net zero for carbon emissions. This challenge was met by the club in 2023, with the aim of pioneering the world of sports to transition to net zero.

**TOP TIPS!**

- Have a clear vision and strategy before you start your journey.
- Get the support of your management and staff.
- Do you have a carbon footprint? Do you have the skill set for your management team? Do you have a budget? Do you have a team? Do you have a plan? Do you have a timeline? Do you have a budget? Do you have a team? Do you have a plan? Do you have a timeline?
- Think short-term and long-term.
- What are your current energy and water usage? E.g. lighting, gym, water, etc.
- Identify energy saving projects and start planning now e.g. lighting upgrades, alternative sources of energy.
- Research solutions. There are many options available and you should be able to find a solution that works for you.
- Join the LTA Energy Group, which is a free resource for clubs to share their experiences and learn from each other.

**HALTON PROJECT ZERO - PHASES 1-4**

A future-focused club, always looking over the horizon, Halton aims to operate with positive social, environmental and economic impact. Reducing carbon emissions and improving the club's environmental performance through 'Halton Project Zero' has led to a range of benefits and savings, with a carbon footprint of zero. This is a significant achievement for a club of this size and has been a key part of the club's success in 2023.

HALTON

# CLUB SUCCESS!

## Halton Tennis Centre

Due to their extensive use of outdoor lighting, Halton Tennis Centre switched 13 courts from halogen to LED floodlighting. Estimated energy savings were nearly 25,000 kw per annum (5.2 tonnes of CO2), resulting in cheaper running costs in excess of £15k per annum.

[Club Success Story](#)

# RENEWABLE AND LOW CARBON ENERGY

As organisations seek to mitigate the impact of high energy prices, coupled with the transition to net zero by 2050, on-site low carbon and renewable energy systems may seem attractive options.

It is essential that an expert undertakes a full technical and economic feasibility assessment prior to your venue making a significant investment in systems such as **solar PV (photovoltaic) electricity generation** or **heat pump technology**.

Demand is increasing for electric vehicle (EV) charge points, as more drivers transition to electric or hybrid vehicles. People will increasingly expect provision of (faster) charge points, and grants may be available to your venue.

Consult an expert before embarking upon installing EV charge points. Consideration must also be given to:

- the site's available electrical capacity
- the proposed location of the charge point(s), which affects the installation cost
- variations between manufacturers (e.g. user payment options, automated load management provision, integration with on-site solar PV electricity generation).

**CLUB SUCCESS STORY**  
**COMMITTED TO CONSERVATION**  
How Hoole is making a difference in the community with a green agenda

Hoole LTC, Chester

**BACKGROUND**  
Hoole LTC is based in Mickle Trafford, Chester, and won LTA Club of the Year in 2020. Innovative and progressive, the club built a new venue and clubhouse through the sale of their previous site, LTA loans and club funds. Hoole opens up tennis to a range of ages and abilities and takes pride in making a positive impact on the wider community. Establishing a 'green agenda' is now one of their strategic priorities, and various projects are already making a difference in the community.

**TOP TIPS FOR CLUBS**

- Building and maintaining positive links with the local community is key. Hoole has provided links with local green bodies to enhance the club's environmental agenda, to consider green or energy audit.
- Hoole is a member of their local Greener group. This network provides a way for communities where they live and work. Housing, business and leisure are key priorities for development.
- Hoole is also a member of the Chester Green group, which is a network of all over the UK where the community collaborates to discuss green initiatives.

# CLUB SUCCESS!

## Hoole LTC

Hoole LTC has established a strategic 'green agenda' and is a member of their local Greener group. Variations of this network exist all over the UK where the community collaborates to discuss green initiatives.

[Club Success Story](#)

## Acknowledgements

We would like to thank Carbon Control Limited for their help in producing this guidance. Carbon Control have advised on and implemented a broad range of energy efficiency and renewable energy integration projects for several LTA affiliated venues.

