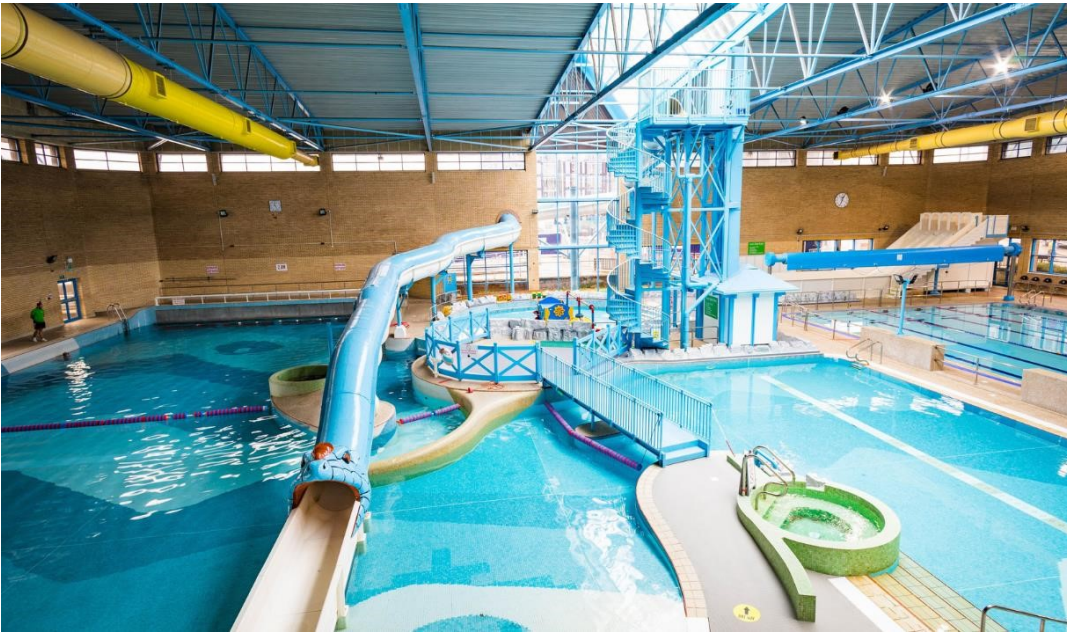


## Leisure Efficiency



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## Introduction

Around 30% of leisure center costs are utilities (energy and water) and collectively Shropshire's leisure centers are responsible for around 3,000 tonnes CO2 and cost around £1m a year to run. so there is ample opportunity for efficiency improvements to reduce running costs and improve the environmental impact. Maintenance costs can also be reduced by introducing appropriate and effective efficiency measures.

Any savings made allow service area budgets to go further. In terms of funding, an invest to save model is advised to set out the commercial payback and delivery options are listed at the end of this document.

## Standard Efficiency Solutions

The correct use of heating systems has a high impact running costs. Common issues with little cost to implement include correct setting the heating schedule (based on occupancy), thermostats and switching off equipment outside of operational hours. These types of interventions are simple and low-cost. Managers and staff alike and should take control of their energy consumption by using the [WME Energy portal](#) to spot anomalies and become pro-active as opposed to reactive in keeping their utility costs down.

[Standard efficiency measures](#) secure very quick payback periods. These include “behind the scenes” measures in plant rooms; efficient condensing boilers, insulation jackets, thermal lagging, heating system controls and pool covers. These typically achieve 20% saving for each intervention. Controls should set correctly, and timers can be set to use the cheaper overnight economy electric tariffs (~10p/kWh).

Efficient ICT equipment and LED lighting can also make a big difference and now classed as “standard”. LED's typically 60% more efficient than older technologies. Adding lighting controls such as motion sensors and daylight sensors also help and can make them 80% more efficient than fluorescents.

[A useful webinar from Carbon Trust](#) goes over efficiency measures for the leisure sector.

## More Innovative Solutions

If the primary heating system is gas or oil; efficient condensing boilers should be employed with thermostatic radiator valves (TRV's) and set zones. For larger buildings, a building management system (BMS) such as may be preferable. Replacing gas or oil boilers altogether with a heat pump is the only option to decarbonize heat.

A “whole building solution” with multiple innovative measures: -

- BMS (Building Management System) and weather compensation.
- Optimized Heat Ventilation Air Conditioning (HVAC) systems.
- Heat exchangers and heat recovery.
- Variable Speed Drives (VSD).
- De-stratification fans for high-ceiling sports halls.
- Voltage and load optimization, power factor correction.
- Thermal accumulator – hot water store using solar PV or cheap tariff to store excess.
- Heat Batteries (phase change materials) or Battery Storage.

## Low Carbon Energy

In urban areas mains gas may be the main heating fuel, in rural areas oil may still be used. For both scenarios electric driven heat pumps can help decarbonize together with solar PV (photovoltaics) or solar thermal.

[Heat pumps](#) are becoming a popular method to heat swimming pools; with examples in [Dorset](#), and [Devon](#).

So, in summary the following options are recommended:

- Solar PV or Solar Thermal (suitable urban or rural locations if there is suitable roof/aspect).
- Heat Pumps air, ground, or water sourced (ASHP, GSHP, WSHP)
- Biomass - for rural locations instead of oil – if access for fuel deliveries (wood pellets/chip).

## Next Steps

1. Obtain DEC's (Display Energy Certificates and their Advisory Reports) where available.
2. Find out repairs and maintenance costs associated with heating and electric.
3. Obtain 2 years utilities data where possible.
4. Carry out further technical assessments (energy audit) based on recommendations.
5. Estimate capex spend/payback for standard measures.
6. Estimate capex spend/payback for innovative measures.
7. Estimate annual savings.
8. Prepare an outline business case based on above and funding source.
9. Use industry pricing with quality assurance for the public sector.

## Finance and Delivery Options

There are a few finance options; central government grants are sometimes available, public sector finance such as [PSDS \(Public Sector Decarbonization Scheme\)](#) and [SALIX finance](#) – which is a low interest loan payback model. Delivery options include (non-exhaustive list):

- [Carbon Trust](#)
- [Local Partnerships Re:fit](#)
- [SALIX public sector finance](#).
- [Save money cut carbon](#)

## Further Information

- [Shropshire Climate Action](#)
- [Commercial efficiency guidance](#).
- [Energy and heating guidance](#).
- [Carbon Trust sector guidance](#) and [webinar](#)

## Case studies

- [Energy efficient swimming pool ventilation air handling units](#)
- [Portland leisure center \(Dorset\)](#)
- [Leisure Energy case studies](#)
- [Devon](#).