



Decarbonising public sector leisure centres in Wales

Background

Energy price rises have put the majority of the 500+ public leisure facilities in Wales under significant financial pressure. Leisure centres are energy-intensive facilities. Analysis of statistical data shows that a larger leisure centre with a pool requires on average more than two million kWh of natural gas and more than half a million kWh of electricity per year. This equates to costs of up to £0.5M in 2023 – more than twice as much as in previous years.

Besides the significant cost implication, leisure centres significantly contribute to a local authority's carbon footprint which becomes of higher importance to stakeholders the closer the 2030 public sector Net Zero carbon deadline arises.

If the leisure service is managed in-house, directly by the local authority, greenhouse gas (GHG) emissions associated with these activities fall under the local authority scope 1 and 2 emissions category. However, if the service is outsourced and the service provided by a third party, emissions fall under scope 3. GHG emissions associated with the local authority's provision for sport and leisure activities are to be reported whether the local authority operates their leisure facilities in-house or whether the service is outsourced. Therefore, from an emission and operational cost perspective, it is of interest to the local authority to reduce energy consumption and carbon emissions at leisure facilities.

“Leisure providers across Wales are seeing their energy bills increase 240% on average, with some reporting energy costs five times higher than before the energy crisis. Facilities have been forced to reduce opening times, pool water temperatures, staffing and aquatic programmes as they face significant risk of closure. This is having a detrimental effect on the safety and the well-being of the nation.

67% of leisure providers are in crisis according to our partners at Community Leisure UK, and with 58% of children leaving primary school without the ability to swim, we are heading towards a water and generational safety crisis.

The knock-on effect of increasing bills for providers is the cost of participating in aquatic activities and taking part in a swimming lesson has increased significantly, leaving those in under-served and economically deprived areas without the opportunity to enhance their wellbeing and learn the lifesaving and life-enhancing skills learned in water.”

Fergus Feeney, CEO Swim Wales



Leisure service delivery

Leisure centres can provide a particular challenge to decarbonise, particularly those outsourced to leisure providers.

Measures to reduce energy consumption and carbon emissions are well understood and achievable given a committed project owner and capital funding. However, some leisure centres can be hard to decarbonise based on the leisure service delivery model used. Delivery models can be categorised as:

- Leisure Provider models where the local authority owns the land, building and equipment while the leisure provider manages the operation of the facilities.
- Local Authority managed models where services are managed in-house by local authorities.

When looking to decarbonise leisure provider models in particular, challenges can arise as a leisure provider would rather not invest in energy-efficient equipment if the leisure service delivery contract length is less than or equal to the time required for a return of investment (ROI). The key elements to be considered are:

Contractual arrangements can be a barrier to capital investments. Typical contract lengths for leisure providers are between 5 – 10 years which can be a similar or even shorter period than some decarbonisation methods take to have any financial payback. This is particularly true for decarbonising heating systems which will have the largest impact on emissions but likely to have limited or no ROI. For these reasons, it's likely the leisure provider will only make energy efficiency improvements at the beginning of the contract if any at all.

Access to reduced energy tariffs can disincentivise investment. Most leisure providers benefit from local authority energy frameworks to access discounted energy tariffs. Some contracts may feature a price cap which protects the leisure provider and transfers the risk of sharp energy cost increases to the local authority.

Complex ownership of building and equipment. Most leisure providers are contractually obliged to run and maintain the leisure centre and related equipment. This usually does not extend past the building shell (such as windows, roof, parking etc.). This can mean that energy efficiency measures such as insulation, upgrading windows and doors or efficient car park lighting are overlooked.

Access to some funding can be limited. Alongside UK-wide public sector funding, Welsh Government provides an interest-free loan to eligible public sector organisations in Wales for energy efficiency and renewable energy projects (reference). If the facility is run by a leisure provider, to access the loan the local authority must both apply on the leisure provider's behalf and administer the loan. This requires additional legal arrangements to account for repayments and other administrative details.

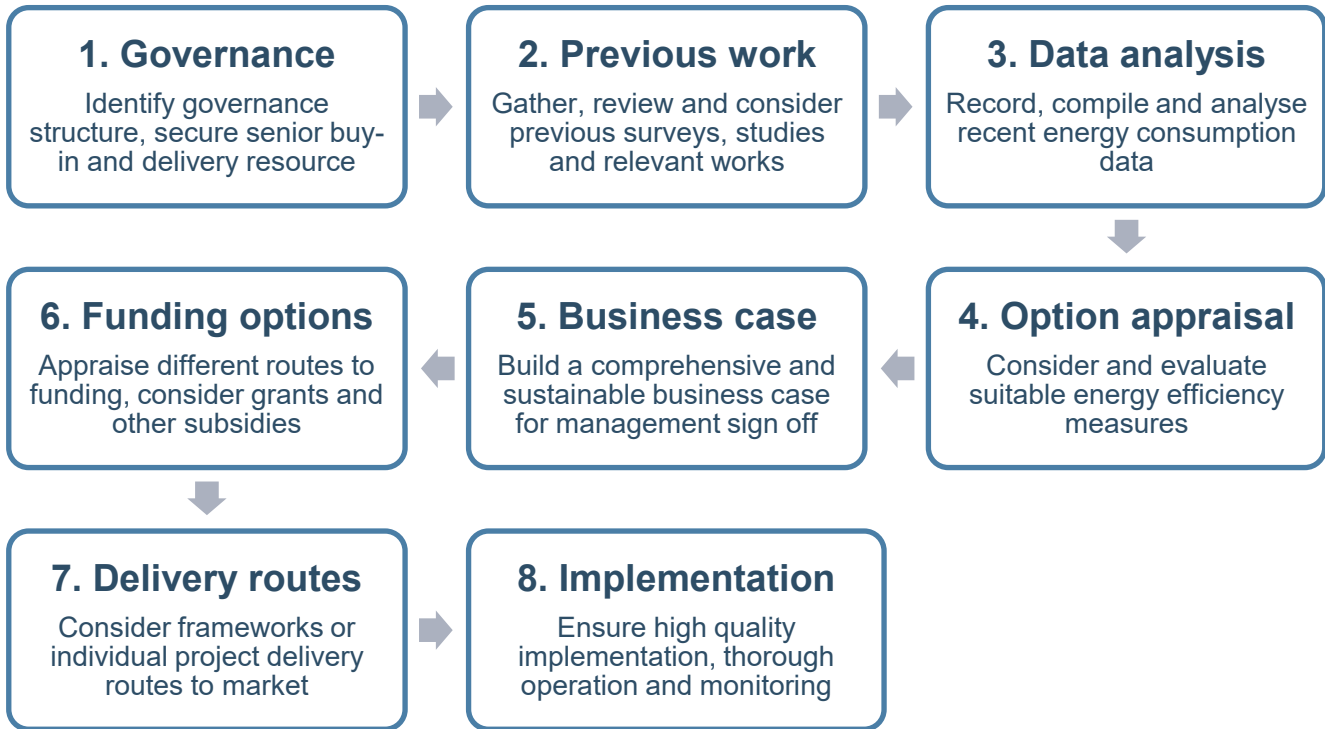
Combined Heat and Power engines (CHP) are often used in leisure facilities. CHPs generate savings which can supplement revenue generated from management fees paid by the local authority and direct income from leisure services provided to customers. However, there are high carbon emissions associated with the heat and power they generate. They can also add further complexity; CHPs are often managed on separate contracts with the sole aim of offsetting running costs rather than environmental credentials.

Stakeholder buy-in and clear governance is essential. It is important that both leisure provider and local authority are aligned on any planned projects to remove the risk of the project being blocked by either party at a late stage of project development. It also needs to be appreciated that resources are necessary to deliver the projects.



Delivering projects in leisure centres

There are 8 main stages recommended to deliver a successful decarbonisation project at leisure centres:



The eight delivery stages in detail are as follows:

1. Governance: Securing senior sponsorship from both leisure provider and local authority and reviewing legal arrangements between relevant parties is an important first step. A leisure provider will be reluctant to invest significantly if a contract is due for renewal. Likewise, a local authority will struggle to allocate resources if a project is not prioritised. It is recommended that sponsorship is secured at director level, clear timelines are established, and resources are allocated from the project inception.

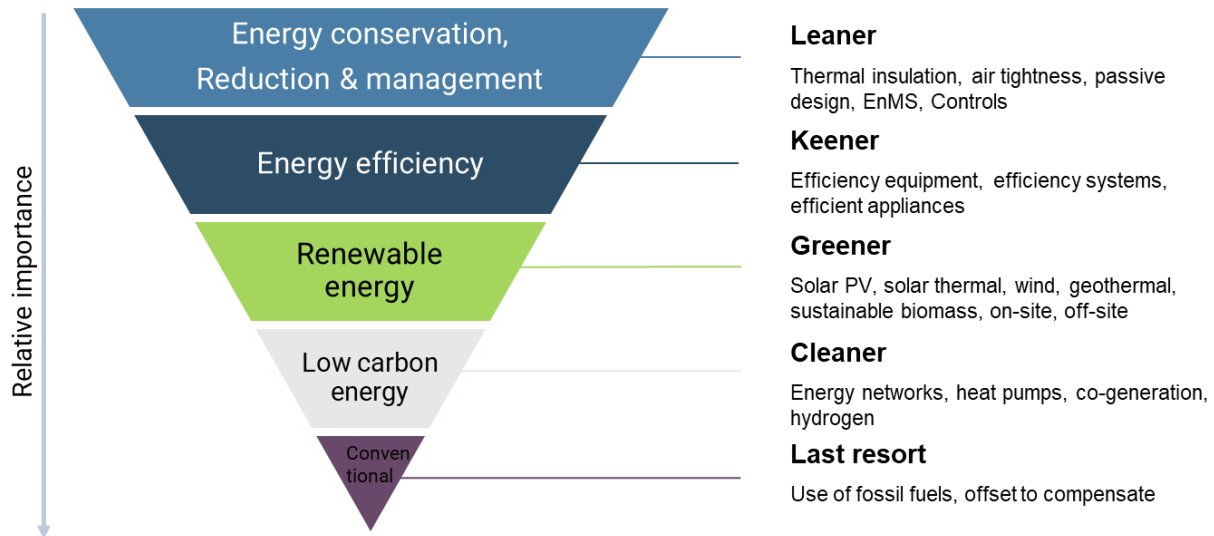
2. Previous work: Any previous work conducted will help inform the scope of work for any options appraisal. In many cases, condition surveys or other studies may have been conducted for energy-intensive and public-facing properties such as leisure centres.

This could include any installed energy efficiency measures such as LED lighting upgrades, pool covers or other relevant work as well as any reports such as feasibility studies and condition surveys. Site-specific stakeholders such as a site managers should be engaged to establish any work that has been done already. It is also important to consider planned works such as scheduled maintenance activities or repurposing or abandonment of the site.

3. Data analysis: Recent energy consumption data is critical for a meaningful feasibility study and should be captured in a half-hourly format for a representative amount of time (i.e. at least one full year, ideally over multiple years). Paired with information about how the facilities are used and in conjunction with ambient temperatures (i.e. degree days), the operational hours and the floor area, the site can be benchmarked against similar sites within the local authority's portfolio and beyond.



4. Options appraisal: Once all relevant information is collected, the amount of actual feasibility work is minimised and a tailored option appraisal of relevant energy and carbon reduction activities can be conducted. The avoidance of energy consumption should be of the highest priority (such as reducing the pool temperature) and offsetting activities (such as purchasing green electricity) the lowest. All energy-relevant activities should be reviewed.



5. Business case: The success of a project relies on a viable and successful business case. A good business case requires a strong understanding of the priorities of decision-makers. Until now, most pro-active investments needed a return on investment (ROI) in order to be justified and is still the primary driver of many decisions being made. However, several Welsh public sector organisations have now declared climate emergencies and want to comply with Welsh Government’s ambition to decarbonise the public sector by 2030. To achieve this, it is not enough to reduce consumption and adjust user behaviour. The decarbonisation of the provision of public services requires investment which may not come with a ROI. Therefore, the impact of future carbon emissions should be considered alongside financial performance, particularly as potential future costs may be incurred from a highly competitive carbon offsetting market.

6. Funding options: An integral part of a successful project development is robust financing and the available options should be investigated as thoroughly as technical options. Public sector organisations in Wales may have different financing options available depending on whether they are concerned with health, education or other services.

Considering the leisure sector, the most straightforward access to funding is when the leisure provider uses their own capital, without contributions by the local authority. However, these investments will almost always be financially driven and unlikely to capture elements without considerable ROI, such as the decarbonisation of heat. If the local authority has to provide the funding, they can consider using their own dedicated capital, use the [Public Works Loan Board \(PWLB\)](#), use the [Wales Funding Programme \(WFP\)](#), or apply for third party funding (such as third-party grants). A general approach to decisions around funding routes might be:

- are there any grants available;
- is the project eligible for WFP;
- is there any internal budget available;
- or do we need to seek PWLB capital?

However, this may vary from project to project; there is no perfect solution that applies to all projects universally. There might be other ways of funding possible, such as private lending, crowdfunding etc which are not considered here. All available options should be assessed financially and considered by the decision maker, as the best option for a given project might not always follow the order suggested here.



7. Delivery routes: Once the finances are considered, procurement and delivery routes must be decided on. Given the capital intensive nature of leisure centre decarbonisation projects, it is unlikely that any meaningful activity could avoid the full public tender process including the development of technical specification and associated reviews. Utilising an existing framework (or establishing a new one) is the only way to avoid this process. Therefore, it should be considered what frameworks the local authority is on and whether they could be employed effectively. This will have a significant impact on how the project is being managed.

An individual tender will of course require more individual management whilst using an established framework may be less resource intensive but potentially more expensive. As with the financial options, there is no one-size-fits-all approach. Procurement for each project will depend on many factors such as technical team resource, the desire for project ownership, attitude to risk and many more, but in general it can be said: the bigger the investment, the more feasible it is to employ frameworks and outsource project management.

8. Implementation: To make sure the ultimate benefits of the project are realised, it is of the utmost importance to define how the project will be handed over to the users, how the technology will be maintained and how the performance will be monitored. The months or years it takes to generate feasibility studies, conduct stakeholder engagement, complete technical option appraisals and financial modelling as well as all the other elements required can easily distract from the ultimate aim of delivering a carbon reduction project.

It is therefore important to know upfront what the anticipated project is expected to achieve in terms of financial and carbon savings and to review whether it does so after implementation. Creating operational guidance and a performance monitoring strategy should therefore be a priority. Some frameworks, especially those including energy performance contracts, have a thorough handover and monitoring procedure in place but this should not be taken for granted. It is also best practice to share learnings by producing a case study after each delivered project and making it available for colleagues within the local authority and beyond.



Combined Heat and Power (CHP)

CHP units have historically been used in leisure centres as they meet the very high electricity and heating demands, and the electricity generated is significantly cheaper than the market value.

However, the UK Department of Energy Security and Net Zero conducted a call for evidence on CHP during 2020¹ and again in 2021², with the main finding being that ‘there are no options in the short term for existing or new natural gas CHP stock such that carbon will be saved in the face of grid decarbonisation’.

As the electricity grid is transitioning to a low-carbon future, the carbon emission savings associated with CHP have diminished to the point where operating a CHP now increases carbon emissions compared to importing electricity from the grid and running a natural gas boiler. It is predicted that by 2030 the carbon intensity of a gas CHP will be around five times that of a heat pump.

The UK policy position for CHP has now shifted to discouraging natural gas CHP. For example, England’s Public Sector Decarbonisation Scheme grants (phases 1, 2 and 3) will not fund natural gas CHP, and instead target low-carbon heat projects. In addition, natural gas CHP for large-scale heat networks now struggle to satisfy carbon criteria for Heat Networks Investment Project finance.

Looking forward the continued use of, and maintenance budgets for, an existing CHP unit should be carefully considered, and weighed against the alternative investment options for low carbon heating.

New CHP installations are strongly discouraged, and it is recommended that no major replacement of failed units should be undertaken, and no major maintenance budget spend allocated to CHP.

¹<https://www.gov.uk/government/calls-for-evidence/combined-heat-and-power-chp-the-route-to-2050-call-for-evidence>

²<https://www.gov.uk/government/calls-for-evidence/combined-heat-and-power-pathway-to-decarbonisation-call-for-evidence>

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