

Torbay Leisure Centre, Paignton

Grant value
£1,849,899



A 0-25
B 26-50
C 51-70
D 76-100
E 101-125
F 126-150
G Over 150

A
14
Improved from
C 58

Energy Efficiency (DEC)

318 tonnes

DECREASE IN ANNUAL CO₂ EMISSIONS DUE TO 100% REDUCTION IN GAS CONSUMPTION



69%

REDUCTION IN ANNUAL ELECTRICITY CONSUMPTION



3.2

Seasonal coefficient of performance (sCOP)

Project Overview

Torbay Council received funding of £1,849,899 from Phase 1 of the Public Sector Decarbonisation Scheme grant for the implementation of a decarbonisation project at the Torbay Leisure Centre. These works will assist with the Council's commitment to be carbon neutral by 2030, reducing annual gas consumption and carbon emissions.

Working together with Parkwood Leisure, the facility operator, Leisure Energy was asked to carry out an in-depth energy survey, assist with the compilation of the technical aspects of the application and project manage the installation of new energy equipment as Principal Designer and Contractor. This facility is Parkwood Leisure's first zero fossil fuel leisure centre and won the Energy Efficient Partnership of the Year category at The Energy Awards 2022.

Technical Overview

Leisure Energy undertook an appraisal of the energy usage and condition of equipment at the leisure centre for the submission of the grant documentation. The facility was constructed in 1976, with an extension built in 1984. A new control system for the pool air handling and variable speed drives were installed in circa 2015 which resulted in some energy savings but no further improvements have been installed since then. Energy consumption in 2019 was approximately 2,638,866 kWh with a carbon emission level of approximately 524 tonnes.

The following issues were identified which would give rise to savings in carbon emissions and cost if addressed by the allocation of the grant and Council money:

- No true renewable technology currently at the leisure facility including solar panels.
- The heating system was commensurate with the age of the building and was in need of full replacement
- 4 out of the 10 boilers were out of action and the others were operating ineffectively
- The 3 main air handling units were beyond economical repair and required full refurbishment
- Building Energy Management System was operating ineffectively and found to be obsolete.

The annual electricity consumption reduction of 69% is as a result of improved management of energy at the facility. Carbon emissions have reduced by 61% due to the removal of the gas boilers and installation of air source heat pumps.

Energy Saving Measures

- Air source heat pumps
- Replacement AHU fan motors
- BEMS upgrade
- Battery Storage
- Water Management Controls
- Solar photovoltaic panels
- Low energy lighting and sensors

Air source heat pumps

We installed 2 x 250 kWh ASHP and an optimisation target of over 3.5, currently achieving an sCOP of 3.2.

A 1000 litre storage tank and associated 4 no. new Grundfos circulation pumps with variable speed drives, valves, pipework and control panel.

Several new LTHW heat exchangers were also fitted to interface with the existing heating circuits and pool water pipes.

Replacement air handling unit (AHU) fan motors

We replaced 3 fan motors and controls within the air handling units in the facility.

Built-in software and connectivity provides constant real-time monitoring of energy use, speed, torque and temperature which allows automatic diagnosis of HVAC system issues.

This ensures maximum energy efficiency and enables demand-side management.

Building energy management system (BEMS) upgrade

The existing controls for the building were via a partial Trend system. The system was extended to incorporate smart controls for the ASHPs, battery system and photovoltaic inverters.

“This award is a fantastic way to recognise and celebrate our extensive energy management initiatives throughout the estate and in particular the work with Torbay Council and Leisure Energy. We’re incredibly proud of this project and the benefits it’s created for Torbay Leisure Centre, and it demonstrates our commitment to the extensive support we provide to our customers.”
Glen Hall, Managing Director, Parkwood Leisure

Battery Storage

A 100 kW, 205 kWh battery storage system was installed. This has allowed for any excess electricity generated during the day to be stored and used during hours of more expensive tariffs instead of being sent to the grid.

Water Management Controls

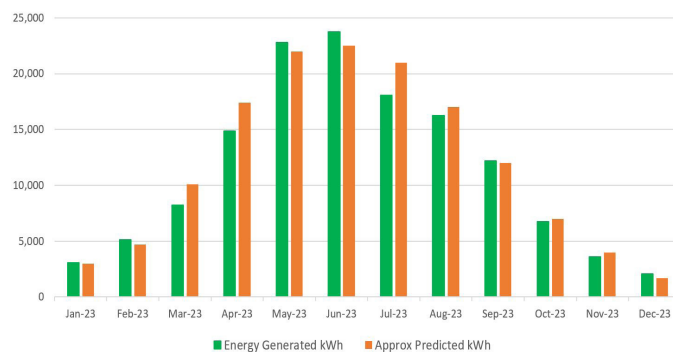
Integration of pool heating circuits and the new microfiltration system ensures maximum efficiency of heat transfer and minimum water losses. The filter is saving the site about £1000 on water consumption each month compared to the previous sand filtration system.

Solar photovoltaic panels

We installed an array of 476 photovoltaic solar panels providing 162hWp on the centre’s roof to provide electricity to reduce the amount of electricity from the grid.

Low energy lighting and sensors

We replaced internal fluorescent light fittings in pool hall, sports hall and gym, corridors, and squash courts with 474 fittings and specialist low energy lamps. These lamps will reduce electrical loads whilst improving existing illumination levels. ‘Intelligent’ lighting controls, such as daylight sensing, were used where possible.



Who we are

Leisure Energy is an award-winning energy consultancy and principal contractor, who specialise in identifying and delivering energy conservation reduction measures through to full decarbonisation solutions to the leisure sector.

Contact us

For more information on how we can help your organisation investigate energy usage and reduce carbon emissions:
Email: info@leisure-energy.com
Website: leisure-energy.com

Our client

Torbay Council is a local government unitary authority in Devon, providing services to Torquay, Paignton and Brixham and surrounding villages. Torbay Leisure Centre is located in Paignton and managed on their behalf by Parkwood Leisure.

