



Scottish
Swimming

The Future of Swimming Facilities in Scotland

November 2023



sportscotland

Foreword

Since the 1800s and to the present day, swimming pools have become vital community hubs that preserve the safety, fitness and mental and physical health of Scotland's population. But pools are under threat. Ageing venues and high operational costs, exacerbated by the recent energy crisis, point to difficult decisions for refurbishment or replacement to keep these critical community assets open, and providing services to the local communities they serve.

Scottish Swimming, with the support of sportscotland, commissioned OLM Consulting to carry out a facility review to examine the future of facilities and establish what level of investment is required to maintain and sustain pool provision in Scotland. The findings are outlined in this paper which sits alongside a second report focusing on pool operations and energy efficiencies.

Building new pools is essential to ensure there is available, accessible and affordable water space for current and future generations. New pools need to embrace modern technologies to ensure they become sustainable and energy-efficient. They also need to be located in the right places at the right time to deliver a fairer and more equitable society where everyone, regardless of background, can access swimming.

Investing in refurbishment of the current pool stock is critical to ensure continued pool provision. Renovations and refurbishment should make use of new energy-saving technologies to reduce carbon footprints and extend the life of pools.

Without sustained investment into new pools and existing venues we risk pool closures which would fail a generation and compound inequalities by reducing fair and equal access to swimming pools.

By investing in pools now, we can ensure continuous swimming provision for all communities across Scotland and preserve the health and safety of the population for generations to come.

Euan Lowe CEO, Scottish Swimming

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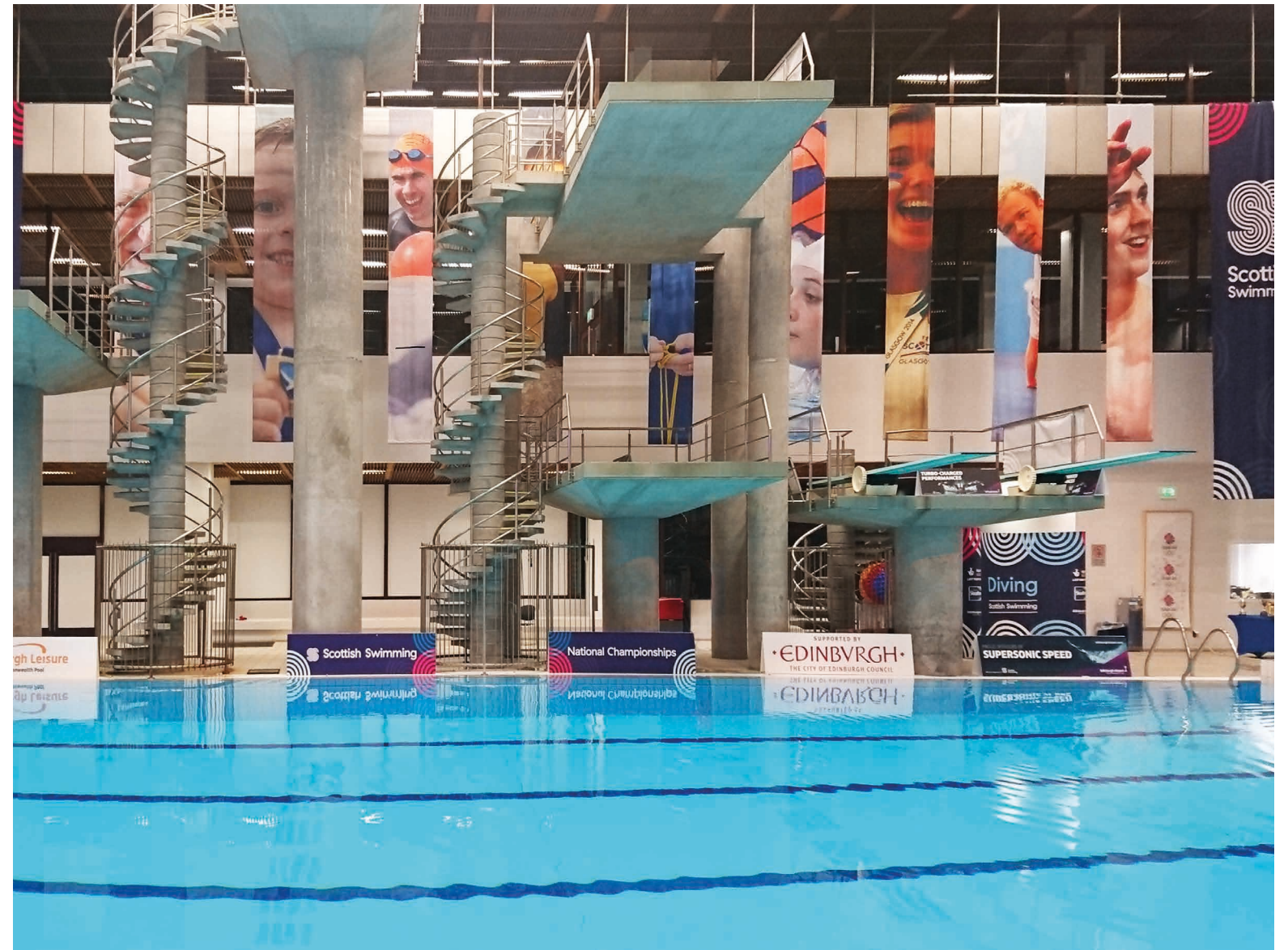
Introduction

Swimming is a vital life skill that brings a wealth of other benefits. It is the foundation for a host of water sports and crucially, an activity that teaches children and adults to be confident, safe and competent in, on and around water. Swimming and water-based exercise are popular recreational activities for positive mental and physical health and often serve as rehabilitation to those with health conditions or injuries. Swimming is also a highly competitive international sport and the best performing sport for Britain at the Olympics in 2021.

Scotland has many public swimming pools – some dating back to the late 1800s, representing a substantial capital investment in the country’s health, recreation, and sports development infrastructure. This paper looks at Scotland’s pools, their social value, the future of those facilities and the cost to operate them both economically and environmentally.

Despite significant investment in public pools, there is a need for ongoing upkeep and maintenance. Pool environments operate at high temperatures, placing greater strain on heating and ventilation systems and increasing the potential for condensation damage. High levels of use will also lead to additional wear and tear, and preventive maintenance regimes must be adequately implemented to preserve facilities.

In the future, many pool owners may have to make the difficult decision between refurbishment or replacement of these essential community assets to ensure continuity of pool provision. Whilst some pools may require replacement due to their location or outdated structure, many will require refurbishment and investment to stay open and provide vital services.



Value of Swimming to Scotland

Swimming, as a high participation sport for children and adults of all ages and abilities from birth upwards, generates significant social value savings for Scotland and can help save lives.

Scotland has higher drowning statistics per head of population than any other UK nation*. For over 100,000 children learning to swim in Scotland every week, swimming teaches them to be confident, safer and competent in, on and around water.

For health, swimming has the potential to generate significant savings for Scotland's healthcare system by promoting healthy lifestyles and reducing the burden of preventable illnesses. Weekly swimming participation in Scotland saves the NHS and social care system millions of pounds† each year with particularly high participation from females, older age groups and those with disabilities‡. Diabetes, depression, dementia – some of our most prevalent diseases, are preventable and manageable through swimming as the diagram opposite shows.

Swimming can have a transformative effect on individuals and communities, providing a way to connect with others, build confidence, and promote equity and inclusivity. Investing in aquatic facilities, can generate economic and environmental improvements, attracting more customers and visitors to local areas. Local authorities play a vital role in providing access to swimming facilities for all members of society, ensuring that everyone has the opportunity to learn this important life skill.

By investing in swimming facilities and promoting swimming as a life skill, Scotland can create a healthier, better connected, and more inclusive society.

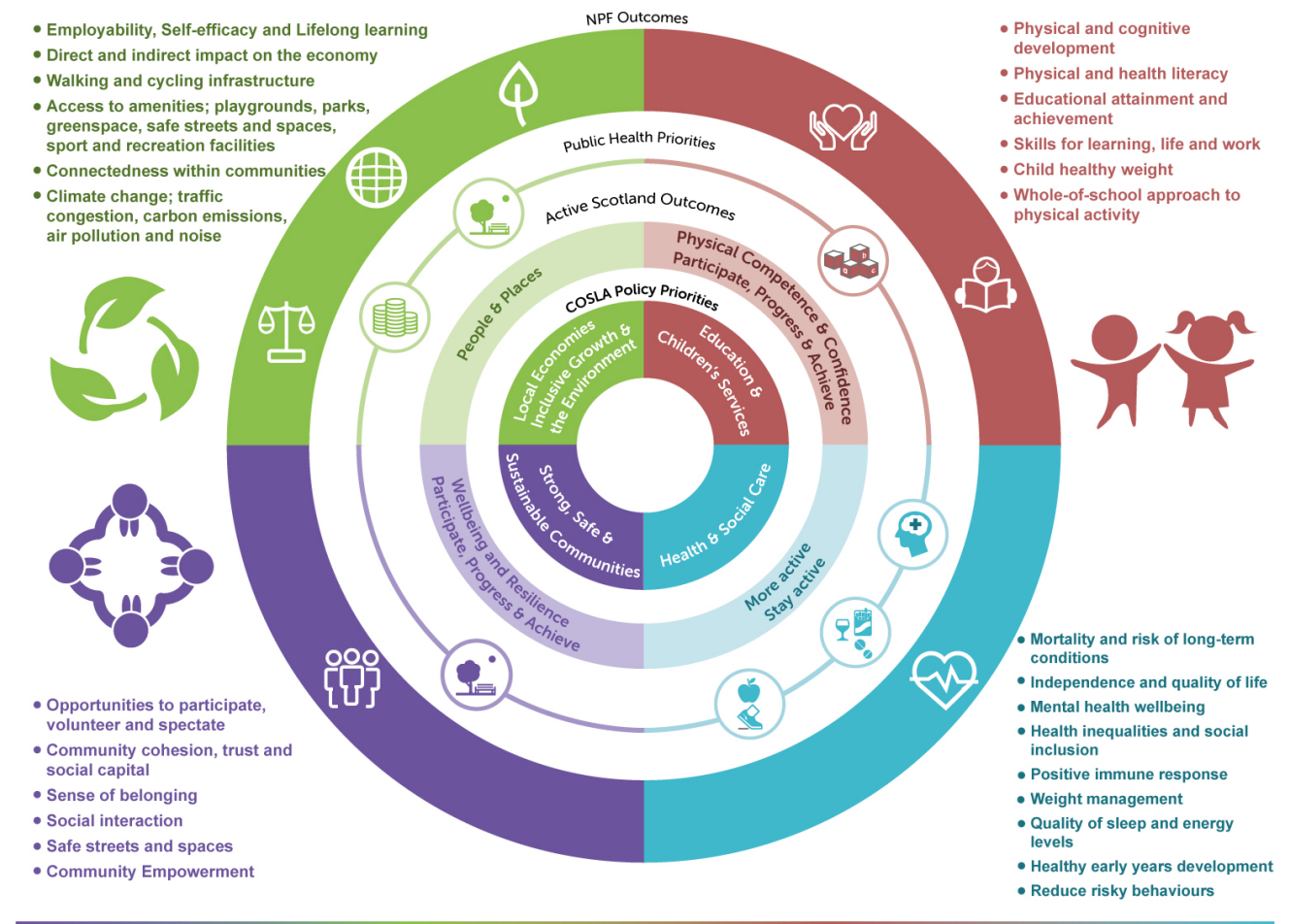
* National Water Safety Forum, 2022, (figures from WAID – Water Incident Database)

† The Value of Swimming, Swim England, September 2023

‡ Scottish Household Survey 2021, April 2023

The Positive Contribution of Physical Activity and Sport to Scotland

Physical activity and sport provides a range of physical, mental, social, environmental and economic benefits:



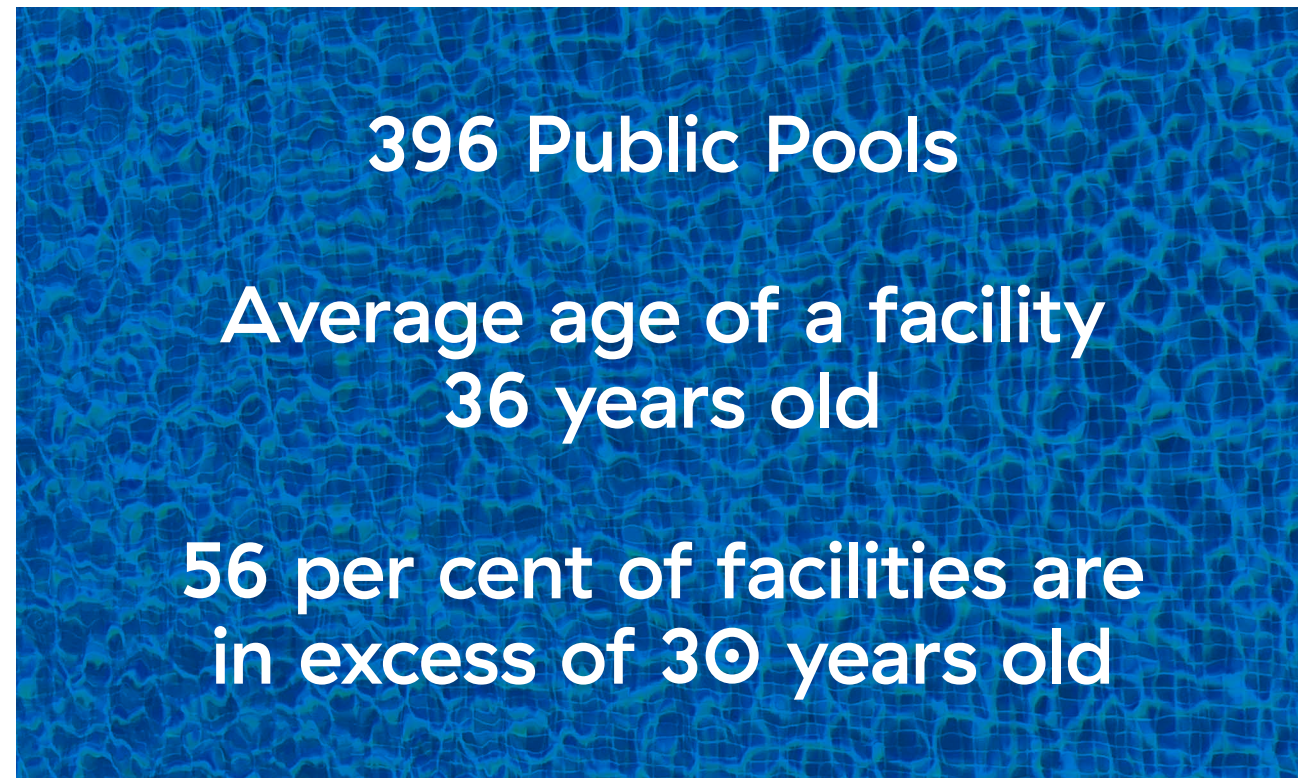
Lifespan of Facilities

Scotland has a total of 578 swimming pools; some facilities have more than one pool. Of these, 396 pools are under public ownership – 38 per cent of which are 25m in length and less than 2 per cent (7 pools) are 50m in length. The average age of Scotland's public pools is 36 years old. This is concerning, not least because the potential lifespan of a swimming pool has been estimated to be between 38 and 60 years old.

The *Ticking Time Bomb* paper (2000) identified a maximum lifespan of 60 years before a facility reached the end of its life and required replacement. Within that 60 years it would be expected that a facility would undertake a number of refurbishments. Swim England stated within their *Decade of Decline* report (2020) that the average age at closure of a swimming facility in England was 38 years old. This offers an alternate methodology to the 'Ticking Time Bomb' paper however it is questionable due to the number of facilities older than 38 years old that still remain open. This remains in excess of 40 per cent of the total stock, equal to over 1,000 pools within England. This will result in the average age at closure increasing as those facilities eventually close.

Taking the above reports into account, this study has modelled Scotland's facilities on both a maximum lifespan of 60 years and 38 years to provide a range for comparison

During the past decade in Scotland, 64 new pools have been built at 28 sites. 54 pools of these pools are public. On average, 5 pools have been built per year at an average of 4 sites. This metric has been used in this report to help calculate future pool provision.



Water Space Per Head of Population

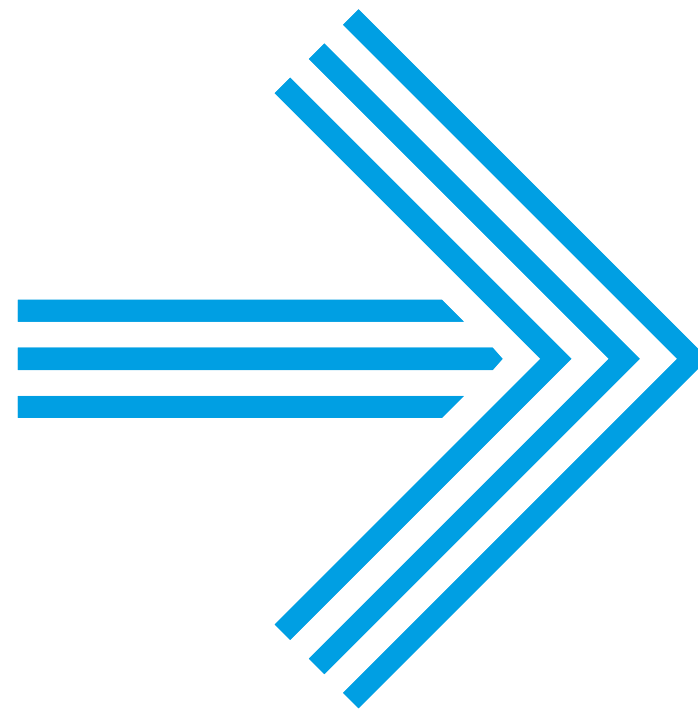
'Ticking Time Bomb' — 2000

5,062,940
Population

14.9m²
of water space per
1,000 head of population

76,414m²
of water space

338
Pools



Present 2023 (public only pools)

5,563,000
Population

14.8m²
of public water space per
1,000 head of population

81,574m²
of water space

396
Public pools

The Threat Facing Facilities

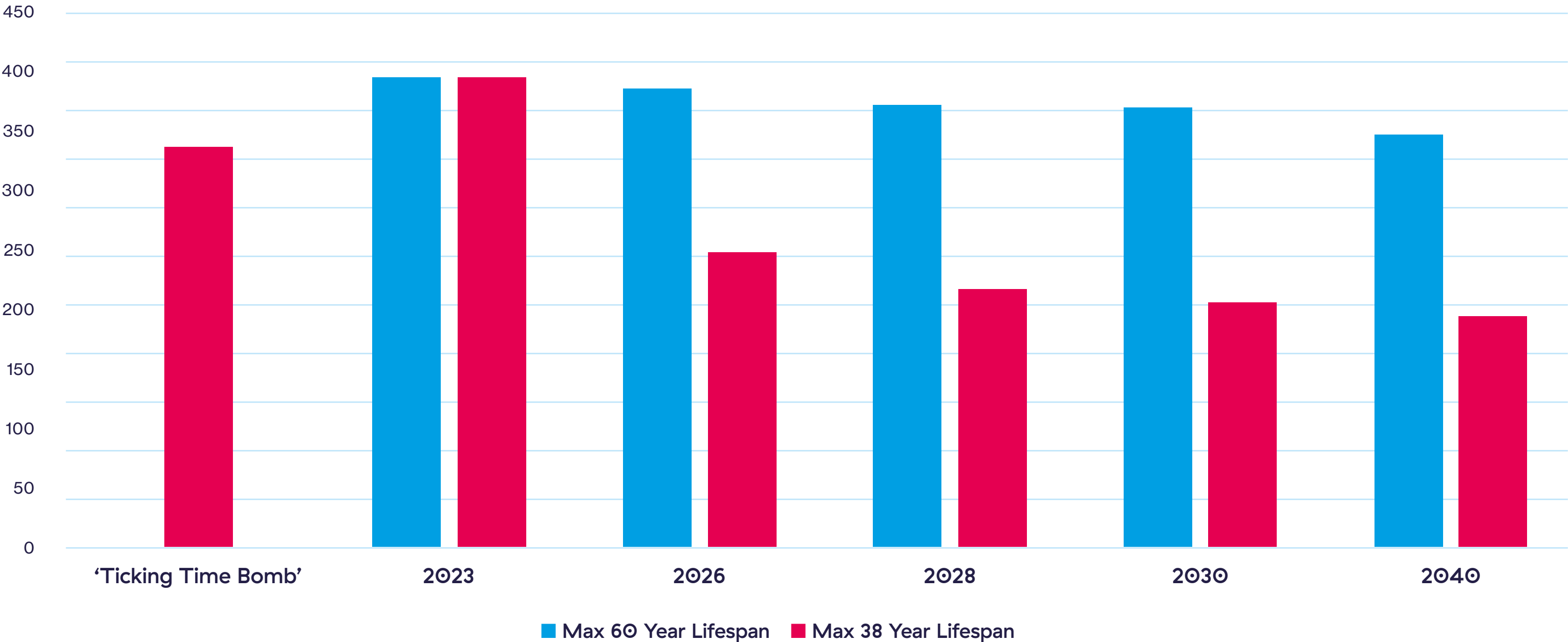
The chart overleaf demonstrates that based on the maximum 60-year life span and on past build rates, Scotland's pool stock will slowly decline, reducing the availability of water to communities. By 2030, if the above projections are realised, Scotland will have 13.8m² of water space per 1,000 head of population (2023 population figures). The data assumes the average number of pools being built each year is 5. Providing consistent capital investment in the pool estate is maintained, then it should be possible to minimise facility closures, however there is still a significant risk.

With increasing operational costs and pressures on public finances, it will become more difficult to obtain investment in the near and distant future. If external pressures on public finances result in further facility losses, for example, closures follow the trend predicted in the 38-year-old closure model, then we will witness a sudden drop in available water space for communities. In this instance, Scotland could have a net loss of over 150 pools by 2040.

Utilising the 'Ticking Time Bomb' prediction that the maximum limit in terms of lifecycle for a facility is 60 years, it is reasonable to assume that any facility over 40 years old is entering the final third of its lifespan and may require replacement in the next 20 years. It also must be noted that these are projections. Scotland still operates many pools over the age of 60 years providing there is investment and a commitment to maintain a facility for longer.

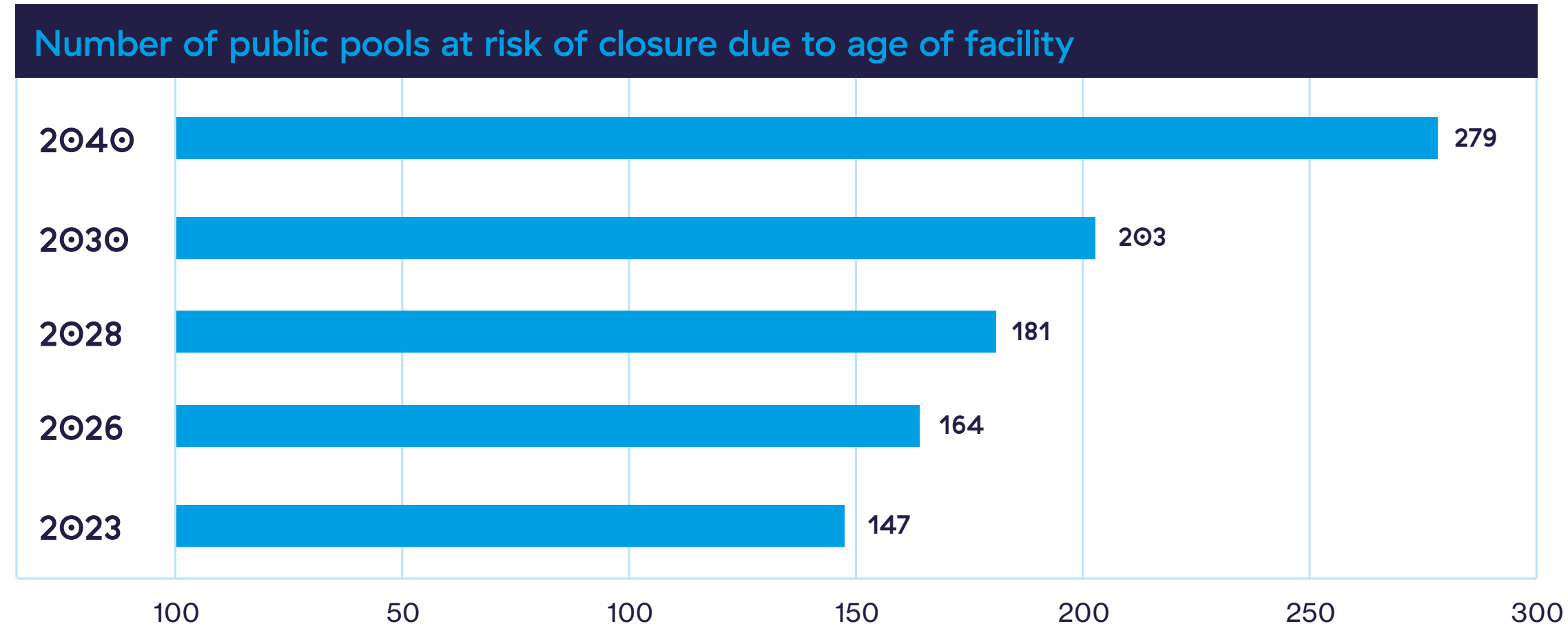
Number of Public Swimming Pools (using predictive models)

Assumes 5 pools built per year



Facilities at Risk of Closure Due to Age of Facility

The graph below identifies, in 2023, the number of pools in Scotland at risk of closure is 147 due to these pools being in excess of 40 years old. That could rise to as high as 279 in 2040 if we fail to increase investment in facility refurbishment and replacement.



Facility Analysis

In order to test the methodology of the maximum 60-year lifespan indicated by the 'Ticking Time Bomb' paper, site visits were undertaken to a representative sample of 10 pools to identify the condition of facilities and their energy usage. It was not practical to visit all pools in Scotland, therefore the sample needed to be a representation of the most common type of pool, identified as a 25m, 6-lane pool. This provided an average water space/volume which enabled the study to compare the energy usage of facilities across differing age profiles.

In order to get a true representation of the national stock, facilities of a certain age were selected. For instance, if 30 per cent of pools were built during the 1970s, 30 per cent of the sample was made up of facilities built within that decade.

The following sections outline the findings and what this means for the wider pool estate.



Energy Cost Impact

Why use Energy as a metric to determine the availability of a facility? Energy is a critical element of a facility's operation. It accounts for the largest expenditure in its operational costs and the increase in energy pricing in the UK has had a huge impact on public leisure facilities, especially swimming pools.

Rising energy prices directly affect the operational costs of public leisure facilities, including swimming pools. Pools require a significant amount of energy to operate, including heating, lighting, ventilation, and equipment such as pumps and filtration systems. As energy prices increase, the overall expenditure on energy rises, putting pressure on the budgets of public leisure centres. This can lead to budget constraints and limited resources for facility maintenance, upgrades, and service improvements affecting accessibility, affordability and availability.

- **Accessibility** To mitigate the impact of high energy prices, some public leisure facilities have been forced to reduce their opening hours. By operating for fewer hours, facilities can limit their energy usage and reduce costs. However, this reduction in opening hours negatively affects the availability and accessibility of swimming pools to the public, limiting access and opportunities for physical activity and recreation.

- **Affordability** In order to offset rising energy costs, public leisure facilities in some instances have increased their admission fees. Higher fees can be a deterrent or barrier for some individuals and families, particularly in areas of deprivation, making it more challenging for them to afford regular visits to swimming pools. This can have a negative impact on the overall affordability, accessibility and inclusivity of public leisure services, potentially leading to decreased participation and a decline in public health and wellbeing.
- **Availability** Public leisure facilities often serve as community hubs, offering a range of programmes and activities for people of all ages and backgrounds. The increase in energy prices has affected the availability and affordability of community programmes, such as swimming lessons, aqua aerobics, and water-based therapy sessions. These programmes may either be discontinued or offered at higher costs, making them less available to individuals and groups who rely on them for physical exercise, skill development, and social interaction.

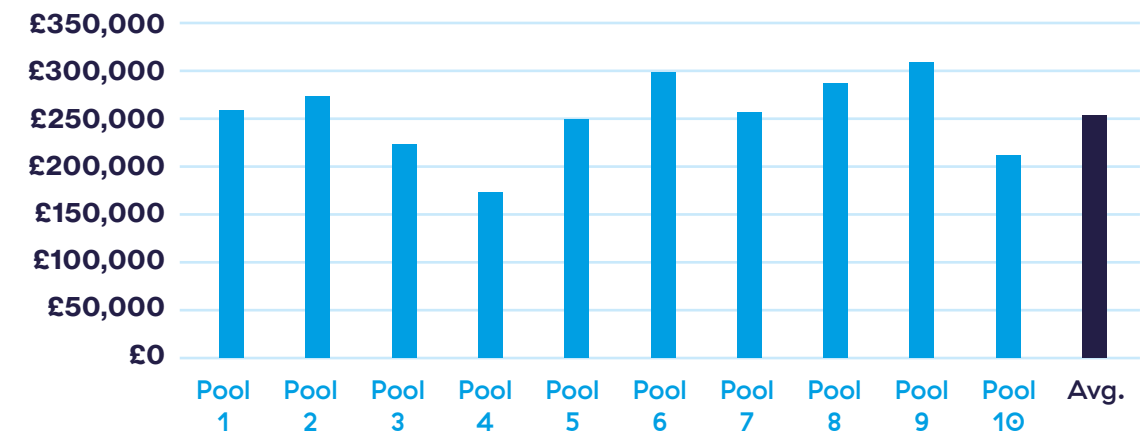
The increase in energy pricing in the UK has placed financial strain on public leisure facilities, including swimming pools. This has resulted in budget constraints, causing reduced opening hours, potential increases in admission fees, and limitations on community programmes. This was evident during the sample visits that were undertaken as part of this study.

Energy Results

During the 10 site visits data was collected to explore if there was any correlation between the age of a facility and its energy consumption. The study involved analysis of the sample facilities, gathering detailed data on the M&E (Mechanical and Electrical) plant that operates each pool. This data was then used to produce energy consumption and carbon dioxide (CO₂) figures. Graph E.1 demonstrates the cost to operate each facility and Graph E.2 demonstrates the CO₂ emissions of each facility. It is important to understand the carbon emissions do not directly correlate to energy cost. This is because carbon is fuel dependent, for example an all-electric facility would have considerably lower carbon emissions than a facility utilising gas to fuel heating, however the energy cost would be considerably higher.

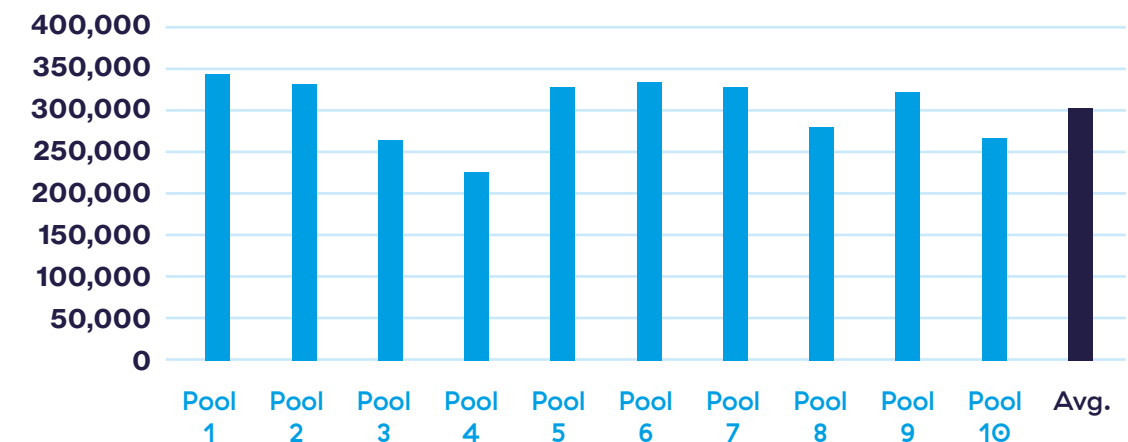
The primary findings of the site visits in relation to energy are that there is very little correlation between the energy consumption of newer versus older facilities. The site visits found that pools built in recent years had not incorporated advancements in energy saving M&E, resulting in a moderate decrease in energy consumption. The report also found that facilities in general had plant equipment that was well maintained and had been upgraded and replaced within the appropriate maintenance schedules.

E1 Est. Annual Energy Cost*



* Price per kWh for gas was benchmarked at 21p per kWh, electricity 41.2p, water per m³ was £3.29 – average price paid Q1 2023

E2 Est. CO₂ Emissions (kg)

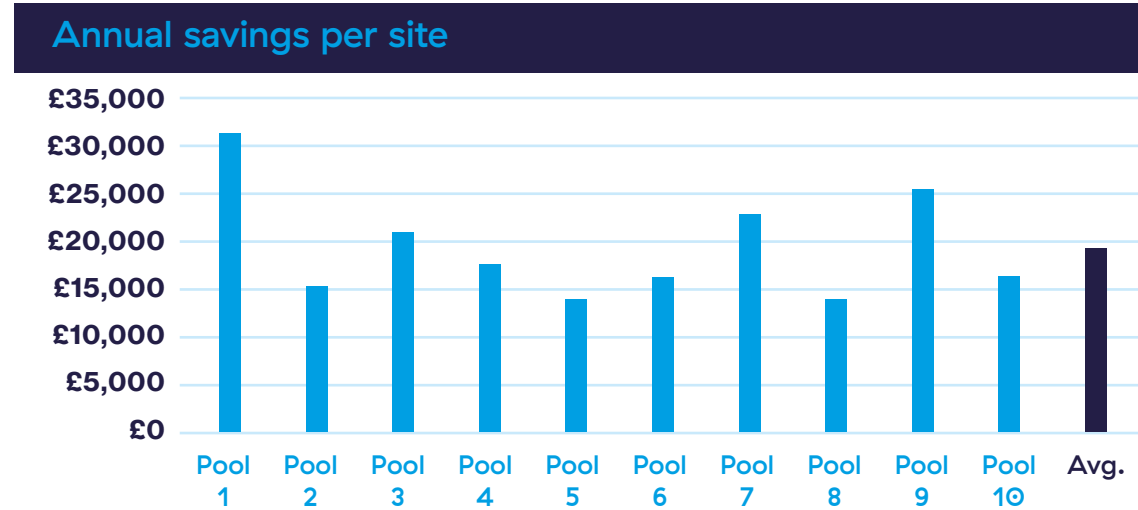


Identified Savings

The site visit reports identified a number of possible savings. These were largely down to fairly simple alterations in operation and application of certain equipment.

Most notably, the application of a pool cover when the pool is not in use, combined with correct management of the air circulation rates and temperatures, can lead to significant savings. Some facilities were also suffering from excessive heat loss through filter vessels and heat exchangers. The savings are evidenced in the table on the right and are based on the unit rates for energy utilised throughout this report. CO₂ savings will also be achieved. For each site visit, a full detailed energy review was completed which identifies areas for savings for each individual site.

Further detail on pool efficiency and energy savings can be found in the secondary report **A Sustainable Future: Enhancing Energy Efficiency in Scotland's Swimming Pools**. Overleaf we can see the total energy consumption of Scotland's pools and the savings that can be made.



Identified an average saving of **£19,209** per site per year

£64.03 per m²

Costs & Savings

Energy Results

£68m per year*

Cost to power Scotland's Public Pools
The study found the average energy cost per m² of water was **£841.39** per year.

*Calculation based on average cost per m² of water from graph E1

81,853
tonnes CO₂

Released per year

Savings with Energy Efficiencies

National savings of over

£5 million
a year

CO₂ savings of

5,000 tonnes
per year

Condition of Facilities

The condition of the 10 facilities selected for visits was good overall. The condition of pool plant M&E stood out as well maintained and in good working order with no facilities identified as having a pool plant that was at the end of its lifecycle. The older facilities did require cosmetic changes and, in some instances, demonstrated a poorer build quality. However overall, no immediate concerns were identified and even facilities in excess of 40 years old evidenced there was still a number of years of operation left in them, providing adequate refurbishments were scheduled.

Our findings correlated to that of the 'Ticking Time Bomb' report, that a facility has the potential to be operational for an average of 60 years of age providing maintenance and refurbishments are undertaken adequately.



Future of Facilities in Scotland

During the past decade, 50 per cent of all new public pools built within Scotland have been 25m in length. This continues to be the most popular type of facility and should provide a good platform for competitive swimming within Scotland in the future. However, there is also a need to ensure there are adequate deep water facilities for Diving, Artistic Swimming and Water Polo. Currently, on average, Scotland builds 5 pools per year within an average of 4 sites. This will protect us against the risk of reducing water space due to the potential closures identified within this report, but requires a continued level of investment of £40.5m per year.* This investment is the new build requirement and does not account for investment needed to refurbish and maintain existing facilities.

*Based on 5 pools across 4 sites (9,000m²) at £4,500per m² gross internal floor area (GIFA), enhancing GIFA to ensure we promote additional investment to incorporate energy saving technology in new build facilities will require annual investment of £40.5million. This is based on the working below:

3 × single pool site at 2,000m² = 6,000m²

1 × two pool site at 3,000m² = 3,000m²

9,000m² at £4,500 per m² = £40.5 million

£40.5m per year

**Level of new build investment
required to maintain current
provision of water space**

Refurbishment Requirements

It is imperative that investment into new pools does not minimise the importance of maintaining existing stock through a robust refurbishment programme. This report highlights the potential lifespan of 60 years for a swimming facility. In order to achieve that and possibly even greater longevity, refurbishments must be undertaken to ensure a pool continues to provide essential water space to communities. It is also imperative that refurbishments to plant and M&E must look to incorporate the latest technology to reduce operational costs and, where possible, carbon emissions. The cost of refurbishments can range from tens of thousands of pounds to, in some cases, millions and this capital needs to continue to be made available to pools within Scotland.

Sustainability is critical to a facility's continued operation and its benefit to communities. Financial sustainability is hugely at risk due to rising operational costs. One of the significant findings of this study was the minimal correlation between energy consumption and age. Future design for both rebuild and refurbishment must address the energy usage of facilities. Development in technologies to reduce energy consumption and carbon emissions has progressed in recent years. Current and future facilities must embrace new technology to address climate change and energy costs.



Conclusions & Recommendations

→ Scotland's pools are ageing rapidly

Without continued investment, the number of facilities is predicted to slowly decline. Pools have a lifecycle of approximately 60 years, but only if we invest in maintenance and refurbish them effectively. It is essential that investment in pools is continued to ensure pools are available, accessible and affordable for local communities.

→ Energy savings are critical

The report has highlighted the increasing costs of energy and carbon emissions. This puts pressure on budgets affecting not only the availability of pools and swimming as an affordable activity, but the long term sustainability of facilities in a greener economy. Reviewing energy usage and capturing savings wherever possible is critical.

→ Future builds and refurbishments must embrace technology

With very little correlation between age and energy consumption and emissions, it has been evidenced that recent builds have not fully utilised new technologies. Technology needs to be incorporated into new build and refurbishments to ensure future pools are more sustainable to operate. With changes to building regulations and recent climate targets this should become compulsory, however we must continue to push innovation in technologies that facilitate greener, more efficient swimming pools.

The report has highlighted the risk of an ageing stock of facilities and how increasing energy costs have placed great strain on Scotland's Swimming Facilities. This report identifies the need for investment in refurbishment and rebuild, however what is more prevalent is the need to ensure that investment produces sustainable facilities, both economically and environmentally. Scottish Swimming has therefore commissioned an accompanying report **A Sustainable Future: Enhancing Energy Efficiency in Scotland's Swimming Pools** which will highlight modern technology and how it can be utilised to reduce operational costs and emissions. This will ensure Scotland's facilities reduce their carbon footprint and meet government green targets, providing a sustainable future for swimming.



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