

Swimming Towards Sustainability: How to Reduce Energy Costs in Large Pools and Aquatic Centres

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Swimming Towards Sustainability: How to Reduce Energy Costs in Large Pools and Aquatic Centres

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We recommend transitioning from conventional gas-based heating systems to energy-efficient electric heat pumps. Heat pumps offer reduced emissions, can be paired with on-site renewable energy like solar PV, and deliver highly efficient low-temperature water heating, resulting in long-term cost savings. This approach addresses both operational costs and greenhouse gas emissions simultaneously, making it suitable for facilities seeking Net Zero alignment.

Publication context: This article reflects its publication date. Market prices, program rules, reporting duties and deadlines may have changed. Confirm current official guidance before making a decision.

Large Pools and Aquatic Centres around Australia are hubs for recreation and wellness, but they often present Operators with substantial energy challenges. These facilities are among the highest energy-consuming assets for local governments, hotels, private schools, gyms, and Universities, with high gas and electricity use. As a result they are a significant source of greenhouse gas emissions, which must be addressed if Net Zero emissions are to be achieved. However, addressing these challenges and transforming pools into models of low-carbon, energy efficient recreation is now a reality, thanks to the adoption of energy-efficient heat pumps, and some financial support.

Energy Challenges in Aquatic Centres and Pools:

Aquatic centres are energy-intensive facilities, demanding gas and electricity for a range of vital services:

Water heating: Large volumes of water must be heated for the pools, air conditioning systems and showers to ensure the comfort of visitors.

Indoor Climate Control: Maintaining a comfortable temperature and humidity in indoor areas necessitates heating and cooling systems.

Filtration and Circulation: Pool filtration pumps are critical to ensure water quality and safety.

Illumination: Indoor and outdoor lighting is essential for safety and functionality.

Electrical Appliances: Various electrical appliances and equipment are in use for gyms, fitness rooms, administration and other areas.

Whilst many pools use gas for heating, the low water temperature needs, strong policy drivers to 'get off gas', Government grants, Environmental Certificate Schemes, and greater availability of heat pumps in the industry make them a great candidate for electrification.

Efficient Heat Pumps as a Solution:

To tackle these energy challenges, aquatic centres can transition from conventional heating systems to energy-efficient heat pumps. Installation of electric Heat Pumps, supported by contracts for purchase of Renewable Electricity, offer a sustainable and cost-effective solution:

Reduced Emissions: Heat pumps align with emission reduction targets by reducing reliance on gas-based heating, and become powered by an increasingly renewable grid.

Renewable Integration: Aquatic centres can leverage on-site renewable energy, like solar PV panels, to power heat pumps, further reducing their carbon footprint.

Enhanced Efficiency: Heat pumps for low-temperature water heating are highly energy efficient, delivering heating and cooling while minimizing electricity consumption, leading to long-term cost savings.

Financing the upgrade

Whilst heat pumps are a great solution, they are not without challenges. The three big challenges are

Power supply capacity

Space

Finance for the heat pump and any related upgrades to related parts of the facility.

Fortunately there are mechanisms to help with the finance which include:

A Government Grant for aquatic centres if you are a local Government (Community Upgrade Fund)

Environmental Certificates if you are in Victoria or NSW (ESCs or VEECs)

A Feasibility Study Grant if you are a private sector Small-Medium Enterprise (SME) with less than 200 employees

Next Steps

What is your next step and how can we help?

Register a project for Energy Efficiency Certificates in NSW or Victoria

Apply for a Government Grant

Energy Audit of my facility

Feasibility Study

Using this guidance

Check the site's operating conditions, data quality, project stage and current program settings before turning the dated discussion into a scope or investment decision.

Related guidance

Energy audits

Measurement and verification

Contact us

Read the original article for the source publication and its full context.

What is the main energy-saving solution recommended for large pools and aquatic centres?

We recommend transitioning from conventional gas-based heating systems to energy-efficient electric heat pumps. Heat pumps offer reduced emissions, can be paired with on-site renewable energy like solar PV, and deliver highly efficient low-temperature water heating, resulting in long-term cost savings. This approach addresses both operational costs and greenhouse gas emissions simultaneously, making it suitable for facilities seeking Net Zero alignment.

Why are aquatic centres considered a major energy challenge for operators?

Aquatic centres are among the highest energy-consuming assets for local governments, hotels, private schools, gyms, and universities, requiring significant gas and electricity for water heating, indoor climate control, filtration and circulation, lighting, and electrical appliances. This concentration of energy demand creates substantial operating costs and greenhouse gas emissions that operators must address to achieve Net Zero targets and manage facility budgets.

Why are heat pumps particularly well suited to pool water heating?

Heat pumps are effective for pool applications because pools require relatively low water temperatures compared to other heating duties, making them ideal candidates for heat pump technology. Additionally, strong policy drivers exist to transition away from gas heating, Government grants and Environmental Certificate schemes are available to support the upgrade, and the heat pump industry increasingly offers proven solutions for aquatic applications. These factors combine to make heat pumps a practical and economically viable choice.

What are the three main challenges operators face when implementing heat pump upgrades?

The primary barriers to heat pump implementation in aquatic centres are power supply capacity constraints, limited available space for equipment installation, and capital financing for both the heat pump system and any necessary facility upgrades such as electrical infrastructure improvements. Understanding and planning for these constraints early in a feasibility assessment helps operators develop realistic project timelines and identify the scope of enabling works required.

What financial support mechanisms can help fund heat pump upgrades at aquatic centres?

Multiple funding pathways are available depending on facility ownership and jurisdiction. Local government-operated aquatic centres may access the Australian Government's Community Upgrade Fund grant. Facilities in Victoria or NSW can pursue Environmental Certificates (VEECs or ESCs) to offset investment costs. Private sector SMEs with fewer than 200 employees may qualify for Feasibility Study Grants. We assist clients in assessing eligibility for each pathway and integrating multiple support mechanisms into investment cases.

How can aquatic centres further reduce their carbon footprint beyond switching to heat pump heating?

Beyond eliminating gas-based heating, aquatic centres can deploy on-site renewable energy such as solar PV panels to power the heat pumps, dramatically reducing operational emissions. Additionally, operators benefit from an increasingly renewable electricity grid over time, meaning the carbon intensity of grid electricity continues to decline. This combination of electrification, on-site generation, and grid decarbonisation creates a pathway to substantially lower emissions over the facility's operational life.

What information should operators prepare before requesting a feasibility assessment for heat pump conversion?

Operators should assemble current energy bills and consumption data, details of existing heating equipment and capacity, operating schedules and seasonal variations, space constraints and available locations for heat pump installation, current electrical supply capacity and configuration, and any known plans for facility upgrades or asset replacement. This information allows Northmore Gordon to scope an appropriate assessment, identify measurement requirements, and establish realistic timelines for the

next decision.

What does a feasibility assessment involve for aquatic centre heat pump projects?

A feasibility assessment investigates technical viability by evaluating temperature requirements, heat demand profiles, electrical supply constraints, available space for equipment, and integration with existing systems. The assessment also examines commercial viability through cost modelling, comparison of technology options, and identification of applicable funding pathways. Our approach documents assumptions, equipment options, and dependencies to support reliable investment decisions and scheme eligibility verification.

How should operators approach comparing heat pump options and upgrades?

A sound comparison should evaluate complete project options—not just equipment specifications—including installation scope, electrical infrastructure upgrades, controls and integration requirements, maintenance implications, and operational reliability provisions such as backup systems. All options should be priced consistently against the same duty requirements and assumptions. Keeping capital costs, operating savings, maintenance changes, and certificate proceeds separate ensures management can understand trade-offs and make resilient investment decisions.

What practical next steps does Northmore Gordon recommend for operators beginning an energy cost reduction programme?

We suggest operators begin by conducting an Energy Audit to identify priorities across all energy-consuming services, then undertake a Feasibility Study focused on heat pump conversion to establish technical and commercial viability. In parallel, operators should assess eligibility for Environmental Efficiency Certificates in their jurisdiction and apply for available Government Grants. A defined project brief describing the facility's operating requirements, constraints, and decision timeline enables Northmore Gordon to establish an appropriate starting scope.