



Reef HQ Aquarium Townsville

How a thriving aquarium cut their energy consumption by 50%*

Reef HQ Aquarium is home to an extensive cross section of underwater life – in fact, it’s the largest living coral reef aquarium worldwide. As both a bustling visitor attraction and the nation’s Great Barrier Reef Education Centre, the facility plays an all-important role in marine conservation.

Sustainability and minimising ecological impact are among the centre’s top priorities, so in 2007, Reef HQ Aquarium initiated a bold plan to minimise its carbon footprint and offset rising energy costs.

The aim was ambitious – “to cut power use by 50 per cent.”

Federal funding, careful planning and a number of small and large-scale changes saw a steady increase in the aquarium’s efficiency. Six years on, Reef HQ Aquarium is an award-winning facility that sets a benchmark in sustainable practices. Not only does it demonstrate the benefits of taking action, it encourages the community to take their own steps forward. Additionally, the aquarium is now also a registered solar power station!

Savings Snapshot

Big and small changes that made waves



Starting small

Tinted windows, encouraged staff to close doors and turn off idling equipment



Air conditioning

Raised the set-point temperature from 23 to 24.5 and installed a new water-cooled chiller system



Lights

Installed energy efficient LEDs, natural Solatubes and plasma lighting



Pumps

Matched pumping and filtration systems to workload



Future-proofing

Installed a new Building Management System for greater control over energy use

“Another myth that you hear.. is that you can’t reduce your power consumption and grow your business at the same time; but we’ve really found that not to be true. We’ve had our greatest visitation last year in twenty years.”

Sascha Thyer, Technical Operations Manager

Reef HQ Aquarium cut their energy consumption by

50%*

*energy savings shown are from an independent auditor’s measurement and verification, report conducted in 2013.

Money Saving Choices



Clever with cost

Developing a strategic infrastructure plan with an expert consultant was an important step in securing federal government funding. This facilitated further partnerships and covered the cost of new works.



Brighter ideas

Energy efficient LEDs replaced fluorescent tubes and downlights. Solatubes were installed, bringing natural light into the building. The aquarium also introduced Australia's first plasma light to its tanks, an environmentally-friendly alternative to metal halide lamps. This one upgrade alone translated to savings of 3.1%.



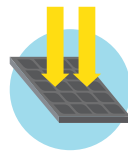
Cooling down

The most significant investment was an upgrade of the aquarium's chilled water system. A poor-performing air-cooled chiller was replaced with a water-cooled solution consisting of a primary-secondary pumping system and a 20kL Thermal Energy Storage tank. Regulated by a new Building Management System, it offers 1.7 times the efficiency of an air-cooled chiller and will save the aquarium around \$4.8 million over 25 years.



Under the pump

A refurbishment of pumping and filtration systems resulted in a \$270,000 return on investment. Pumps were duty-matched, motors were replaced and new low-voltage units were installed, delivering a substantial reduction in energy.



Step by step

Six years on, Reef HQ Aquarium also installed a 205kW solar PV array - the latest rooftop addition to their suite of energy saving solutions. The aquarium has recently been recognised for its sustainability efforts and will be rewarded with cost savings well into the future.



Above: Cooling Towers lifted into the new high efficiency central chiller plant constructed onsite

Your turn

Go to "Save on your bill" at ergon.com.au/business to help you choose an energy efficiency consultant and take the first step towards reducing your energy costs.

