Optimising energy use in an existing commercial building: a case study of Australia’s Reef HQ Aquarium

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(The world’s Largest living coral reef Aquarium)
BEFORE - 2006

2438 MWh/yr

Reef HQ aquarium

Peak demand 490 kW

HVAC

Lighting

Machinery
ENERGY SAVING RETROFIT AT REEF HQ AQUARIUM

1160 MWh/yr
Down 50%

Peak demand 231 KW
Down 46%

Building management system

Reef HQ aquarium

Significant business growth

$ Savings

Less 66%
Less 40%
Less 37%

HVAC
Lighting
Machinery

24.5°C - 23°C

AFTER - 2014
Dolphin-hugger

*Noun*

Dol-phin hug-ger

(*plural* dolphin-huggers)

(derogatory) An environmentalist who is considered to be too earnest
Climate Change is the most serious threat to the Great Barrier Reef

Conserve Act Rehabilitate Educate
Lighting free from the sun
It’s 24.5°C
65% humidity
inside...

So what is the perfect temperature for happiness?
Thermal Comfort for Occupants

Results
SUN

ENERGY

CORAL POLYP

Chloroplast inside ALGAL CELLS

CO₂ + WATER

SUGAR + OXYGEN

ENERGY - FREE FROM THE SUN
Our solar power station is currently 206kW with another 50 kW coming in February 2019
Business Case for new carpet

- Levels of Service
- Aesthetics: Education
- member Feedback
- 100% recycled, 5% ghost nets
- Building presentation
- Risk Management
- No Glue Fumes
WHEN IN THE COURSE OF HUMAN EVENTS IT BECOMES NECESSARY FOR ONE PEOPLE TO DISSOLVE THE BANDS THAT HAVE CONNECTED THEM WITH ANOTHER.
ENERGY - FREE FROM THE SUN (after payback)
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https://link.springer.com/article/10.1007/s12053-017-9556-x