

Energy Conservation Efforts

Two Oceans Aquarium

Mike de Maine

26% Energy Savings on Total Energy Consumption to date

Installed 4kw of solar panels & a 1kw wind turbine.



PROJECT90 BY 2030
cut carbon · dare to change

- **Shut off the chilling/heating for the restaurant** as these are open air spaces (open doors on all sides) that we cannot control the temperature in and therefore now only have circulating air; no chilling or heating.

- **Changed chiller settings (6 to 9°C and differential from 2 to 3°C).**

Changed old (1978) chillers to new energy efficient chillers that can offload as required.



- **Increased acceptable temperatures in the public spaces (21 to 26°C)** to reduce the load on the chillers.

Installed Variable Frequency drives on all large pumps to reduce consumption.



- Changed all of the **signage lights to LED.**

- Switched off the **hot water taps** for the public bathrooms.

- **Cross use of waste heat water** from chilling process to heat the Predator tank.

Replaced many of our smaller pumps with energy efficient variable speed models using a third of the power.



- Changed outside **walkway lights** to energy efficient bulbs and LED's instead of Metal halides.

Installed heat pumps on three heated systems replacing elements.



- Installed units in the **freezer that control the compressor by the product temperature** rather than ambient temperature therefore preventing continual stopping and starting.

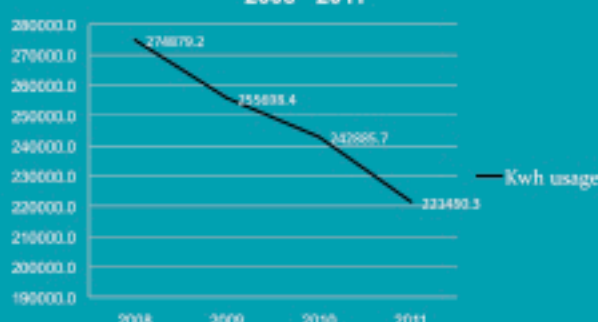
Painted roof with reflective eco friendly paint.



- We have **switched off all space heating elements** as the aquarium is "open" therefore the elements do not make much of an impact on temperature but work fully none the less.

- Changed all the down-lighters throughout the aquarium to **LED (4w & 7w)** saving **2.6% on our total consumption.**

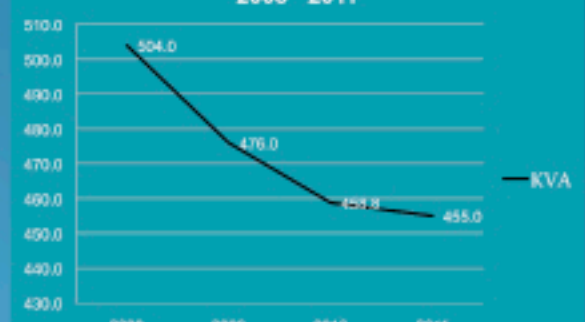
Average Monthly Kilowatt hour usage 2008 - 2011



Daily Year-on-Year kWh comparison



KVA 2008 - 2011



Future projects: Hydro-power, exhibit solar heating, cooling tower replacement with heat exchangers.