



Reduction in Action Case Study

Moreland City Council - Carbon Real-Time System

Building	Results	Period
Civic Centre and Day Care Centre	Estimated 26% energy reduction	2010



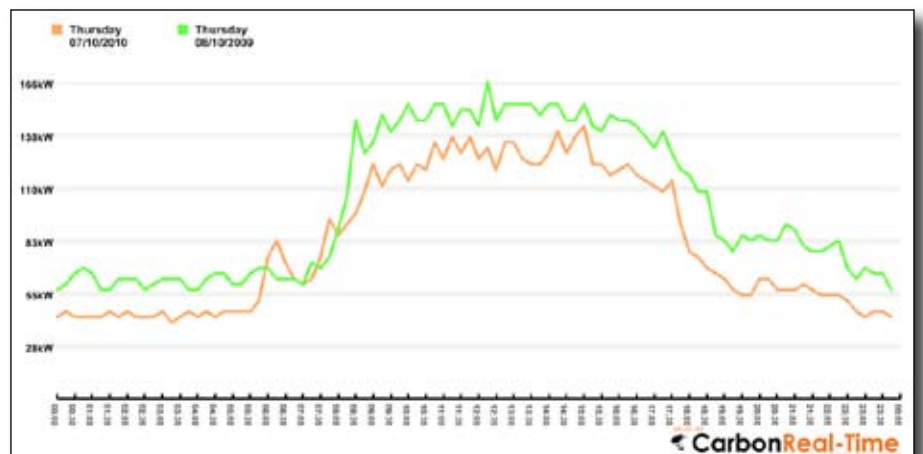
Moreland City Council are leaders in energy efficiency and conservation. But despite their constant focus, Moreland City Council identified that there were still areas in which energy was being wasted. Using the data from the real-time energy monitoring system - Carbon Real-Time - Moreland have been able to make some spectacular reductions - an estimated **26% reduction in energy use and annual cost savings of \$31,346**. The return on total investment, including an “Embedded Engineer” and the Carbon Real-Time system is well below Council thresholds.

Moreland’s Energy Goals

Moreland City Council realised that in order to reduce carbon emissions at the Civic Centre, they had to first accurately measure what their real-time usage was in different areas of the building. For example, their heating and cooling system (HVAC), office light and power, computer server rooms and the Day Care Centre next door. The real-time energy monitoring system - **Carbon Real-Time - helped them analyse their load profile for each of these areas individually** and was instrumental in identifying electricity usage that was being incorrectly charged and wasted water.

They also wanted to measure the electricity produced from their Solar PV system, and be able to demonstrate this - for example, on large display screens in the foyer - leading the community by example.

CarbonetiX tendered successfully to assist Council in achieving their goals. Moreland City Council had known and worked with CarbonetiX for a number of years, through previous energy audits and lighting assessments. There was therefore **a high level of trust in the partnership with CarbonetiX**.



One of the ways that electricity has been saved at Moreland was through reducing the baseload, as shown in this graph. An approximate 15% reduction in baseload translates into cost savings of \$15,000 - \$20,000 per annum.

Contact CarbonetiX
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How Energy Savings Were Achieved

Moreland City Council engaged a CarbonetiX “Embedded Engineer” to manage the set-up and installation of the Carbon Real-Time energy monitoring system and analyse and interpret results. The CarbonetiX Embedded Engineer was present on site for 2 days a week for 4 months. A total of 11 monitoring points were installed - 3 on Solar PV systems, 6 on HVAC, light and power and server and 1 each on the water and gas mains.

Spending regular time on site with Moreland staff - and the opportunity to get intimately acquainted with the heating and cooling (HVAC) system through the Carbon Real-Time data - meant that **inefficiencies and incorrect programming in the building automation system (BAS) and unnecessary operation times could be clearly identified.**

Once the inefficiencies were identified, CarbonetiX recommended to the Moreland environmental group that some immediate energy saving measures be implemented. These included:

1. Optimisation of the air conditioning system
2. Reducing the running times on large systems
3. Programming holidays into the building’s automation systems (BAS)
4. Installation of localised push button timers (manually turning on, automatically turning off)

Carbon Real-Time was then able to **immediately show the result of the works undertaken.**

Results That Speak For Themselves

After the Carbon Real-Time data was reviewed in depth, the results highlighted the massive inefficiency of the current building automation system and has **prompted a substantial overhaul of the existing system.**

A review of the Carbon Real-Time data **uncovered double charging at the Day Care Centre situated next to the council offices ... for the last 12 years.** Council had been paying the Day Care Centre’s electricity, and - as it was metered separately - the Day Care Centre had also been paying the electricity - to the tune of \$8,000 - \$10,000 each year.

The Carbon Real-Time energy monitoring system has the capabilities to measure gas and water consumption. At Moreland City Council, an **error in the water programming was found** in an old sprinkler system, which was wasting considerable water overnight. Once identified, the programming could be rectified, saving a large amount of water wastage.

Due to the clarity of the Carbon Real-Time data, all stakeholders were able to become **involved and engaged in making the necessary changes.**



(CarbonetiX Project Manager) Barney has been fantastic. Everyone loves having him around here and he has been very effective in implementing actions and uncovering energy culprits! As always, it has been great working with CarbonetiX.
 Laura Lynch, Coordinator ESD Unit,
 Moreland City Council



This project used the following highlighted CarbonetiX products and services:

Evaluate

Energy Audit
 Water Audit
 Waste Audit
 School NSSP Energy Audit
Energy Efficiency Consulting
 Carbon Footprint Assessment
 NGRS Reporting
 Commercial Building Disclosure (CBD)
 Building Energy Efficiency Certificate
 NABERS Rating
 Cogen or Renewables Assessment
 Environmentally Sustainable Design (ESD) Assessments

Measure

CarbonMetriX Carbon Accounting Software
Carbon Real-Time
 School Environment Tracking System (SETS)
 Solar SETS
 Customised Software Development

Reduce

Guaranteed Energy Savings Program
 Energy Efficiency Project Management
 Heating & Cooling Optimisation
 Energy Efficiency Guidebooks
 Mirrorlux Reflectors
 Energy Training & Coaching
 Greenhouse Gossip
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 Facility Management Energy Training

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