

# case studies

## CSA's WeatherHawk Assists in Townsville State High School's Renewable Energies Program.

Townsville State High School (T.S.H.S.) undertook to focus on renewable energy technologies from 2002. The initial phase was the installation of 23 solar panels on the roof of A Block in 2003. These produce electrical energy for the school, and any excess energy is fed into the Ergon Grid.

By November 2006 a stand-alone hybrid Remote Area Power System (RAPS) had been installed at the front of the School and made operational. (See Figure 1). This technology is highly visible, comprising a Solar Array Pyramid capturing the sun's energy, a 6 metre tower supporting a Ropatec Wind Turbine and Generator and a fully automated WeatherHawk wireless weather station. The electrical energy produced from the sun and wind can now power the lighting and appliances use in a nearby classroom.



Figure 1: View of the front of T.S.H.S. featuring the RAPS, Wind Turbine and Generator

After assessing the site and requirements for the Weather station at Townsville State High School, C.S.A. provided a WeatherHawk weather station that was positioned on top of the School's Library roof and attached to a C.S.A. custom-built mast. (See Figure 2). The unit is powered by an Integrated Lead-Acid GelCel Battery, charged by a 5W Solar Panel that is also mounted to the mast. A built-in 922 MHz spread spectrum radio provides wireless communications to the school's IT centre.

The WeatherHawk weather station measures Air Temperature, Relative Humidity, Barometric Pressure, Solar Radiation, Rainfall, Wind Speed and Wind Direction. The data collected is transmitted via the built-in radio to a PC, which uses the Virtual Weather software package designed specifically for the WeatherHawk to display this information on the school's website. (See Figure 3.)

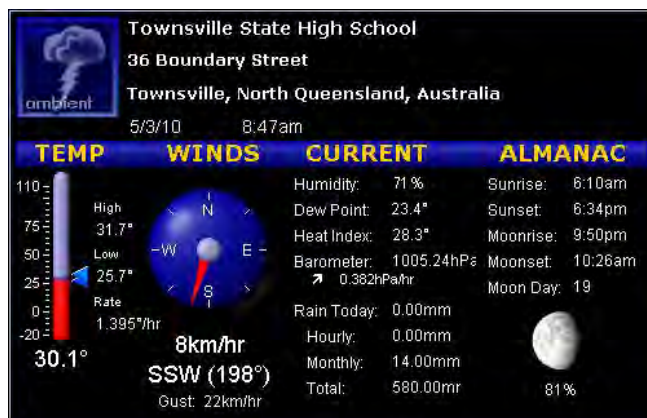
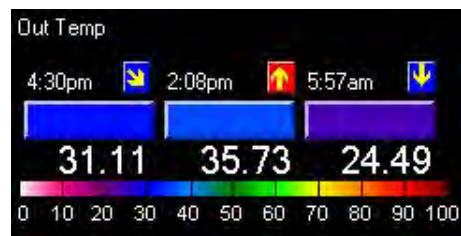


Figure 2: T.S.H.S. WeatherHawk mounted on the Library Roof.

This simple, easy to install software application enables the T.S.H.S. WeatherHawk weather station to monitor, archive, manage and display the weather sensor measurements, and post the weather station data as images on the school

website. It is also capable of automatically exporting data from the school's computer to several weather service websites by registering with them as a data contributor. Registration with those third party weather service sites is typically at no cost and allows the user to obtain a forecast for their location on the respective weather service website using an internet browser.

Figure 3: Screen Shots taken directly from TSHS Website.



WeatherHawk data is automatically formatted for transmission to the GLOBE program. GLOBE is an international exchange of weather knowledge that brings together the children of more than one hundred countries.

The WeatherHawk fully automated weather station provides a vital addition to Townsville State High School's Renewable Energies Program and is available with a variety of options from Campbell Scientific Australia.

### National Solar Schools Program

The National Solar Schools Program will help Australian schools take practical action to tackle climate change by offering grants of up to \$50 000 (GST exclusive) to install solar power systems, rainwater tanks and a range of renewable energy and energy efficiency measures. Schools will be able to improve their energy and water efficiency as well as reduce their ongoing energy costs. In particular, for schools with a mains power supply, surplus electricity generated by solar power systems on weekends and during school holidays may be able to be sold back to the electricity grid for extra electricity and greenhouse savings.

#### For more information contact:

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