



## Case Study – Box Hill



### REAL RESULTS IN SUSTAINABILITY

Switch Automation helps Box Hill students see the real benefits of energy efficiency.

### CHALLENGE: REAL LIFE LEARNING FOR STUDENTS

Box Hill Institute is a technical training and further education (TAFE) college in Melbourne that equips apprentice tradespeople with the skills for careers at the forefront of industry best practice. In a world where green building technologies are increasingly in demand, it's important for the institute to walk the talk when it comes to sustainability and energy efficiency. Chief Information Officer John Italiano says a new green skills learning hub is designed to demonstrate the future of sustainable building to Box Hill students.

*"Green skills are a big part of our teaching, we have a whole diploma dedicated to it. We wanted to create a green building with solar panels, wind turbines, a water collection system and weather station to up-skill our apprentice plumbers, electricians and air conditioning students in the area of sustainable buildings,"* Mr Italiano says.

The building not only acts as a learning tool for students, but a way to reduce the institute's carbon footprint. But the challenge was to make sustainability tangible for students and to provide visible results that could be improved upon.

*"To do this we needed to collect a huge range of data – the power generated, the power used, as well as the weather conditions and present it in an easily accessible way,"* says Mr Italiano.

### SOLUTION: USEABLE INFORMATION THAT BRINGS LEARNING TO LIFE

Mr Italiano says Switch Automation was able to provide Box Hill with a simple solution to a complex problem. The Sydney company set up an online server to collect information from the many green technology devices around the building and a website portal, through which the students could access the data and see what energy the building is using.

*"This is the kind of tool that brings the class room alive and is priceless for their learning. Students are able to access customised information, easily and quickly,"* says Mr Italiano.

Switch's system allows customised graphs to be created, based on specific requirements. The information is available to visitors too via a massive visual display screen that displays the data outputs in the college foyer.

Mr Italiano says the energy savings for the institute and reduction of its carbon footprint can already be seen.

*"On a sunny day our solar panels may have generated 5KW of power. That may not sound like much, but it's enough to run our air conditioning system, which all adds up to energy savings,"* Mr Italiano says.

### THE BUSINESS BENEFIT: LEADING BY EXAMPLE

Mr Italiano says Switch Automation's data solution provides Box Hill students with a real life example of the benefit of green buildings that they will take with them into the work force – as well as a compelling brand statement for the public about Box Hill's green credentials.

# Case Study

*“The results are all visible and this was part of the strategy. When people are in the institute, it’s obvious they are in a green building. All you have to do is look at the screen in reception to see how much energy we are saving. Our students, staff and visitors can see up front the changes we are making and in turn that encourages them to consider how they can be more sustainable in the way they live their lives,”* Mr Italiano says.

## DELIVERY

Irwin Consult and Digital Living designed the system around a Switch Control Server (MCR-SRV) because there was already an element of Clipsal C-Bus lighting installed onsite and the Switch platform interfaces with C-Bus.

Switch expanded the functionality of their Energy Management module to provide interfacing to each of the components on the system. The Switch Control Server monitors and collects the data for each element of the system and stores this data to a database on the cloud (internet).

The consulting engineers Irwin Consult, specified the following equipment into the project:

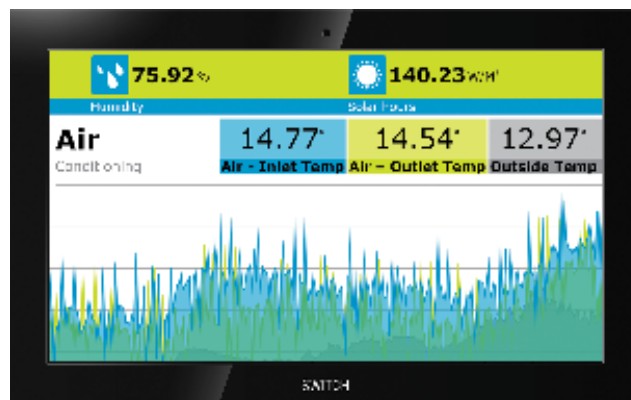
- Smart meter – measures mains power coming off the grid. The EDM1 meter is also capable of measuring pulse water inputs and gas but in this case we are only measuring the power used.
- SMA Windy Boy Wind Turbine – generates wind energy and this power goes back to the grid. We need to measure the amount of energy generated.
- Selectronic SP Pro Solar Energy system and inverter – this system generates solar energy and stores the energy into a battery onsite. Any excess energy is put back onto the grid.
- Campbell Scientific Weather Hawk – measures environmental factors such as temperature, humidity, rainfall, sunlight hours, wind speed and direction.
- Solar hot water system with Siemens immersion sensors for measuring the temperature of water inputs and outputs on solar hot water system.
- Water tanks for collecting rain water – water level readers for measuring water levels
- Temperature sensors for measuring room temperature and air conditioning package inputs, outputs and exhaust.
- C-Bus lighting control system connect via RS232 for control of lighting in the institute
- Motion sensors connected via security system

The project requires a public display of energy data that can be projected onto a screen in the main reception area of the Box Hill Institute to promote the system and the Box Hill Institute. This large display will be viewed by anyone who visits the Green Skills Learning Hub so the design for this display must be visually appealing.

## SUMMARY

The Box Hill Institute project is an example of how industry collaboration with a group of manufacturers and integrators can provide a tailored solution for commercial and educational use to provide an energy management solution for the facility and at the same time deliver ground breaking tools for the education unit.

State-of-the-art energy management and web based tools provides advanced interactivity allowing the Institute staff and the students to run an energy efficient building and to have access to real meaningful data for making strategic decisions to reduce energy use.



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