



The manufacturing industry uses enormous amounts of energy running production plants. The print market is increasingly competitive and Webstar is always looking for ways to create sustainability competitive advantage.



Webstar, one of New Zealand's largest commercial printers, implemented BraveGen's energy monitoring system. Within the first few months, Webstar was saving energy and were clearly on track to exceed annual targets.

"Without a sustainable focus, businesses will not survive, and collaborative businesses are going to be more successful."

Bernie Roberts
CEO, Webstar

In addition to the direct energy and carbon reduction results, BraveGen's robust, proven continuous improvement-driven approach to monitoring and energy efficiency has provided Webstar with additional benefits, including operating cost reduction of an estimated \$500k per annum. This is achieved through improved utilisation of key plant, extended service life of equipment, and reduced maintenance costs and downtime.

7.99%

ENERGY REDUCTION

\$54K

ENERGY SAVINGS IN THE
FIRST 12 MONTHS.

AND
\$250K

SAVINGS TO DATE

Background

Webstar is a large commercial print provider specialising in high-volume, high-quality catalogues, magazines and directories, delivered to millions of New Zealand homes and business each week. Print plant includes printing, cooling, drying, trimming, folding and packing machines, all of which consumes significant amount of energy.

In its pursuit of continuous improvement Webstar went looking for ways to identify actionable and sustainable operational improvements driven by its ISO based continuous improvement process. Key also was achieving initial results fast and demonstrating to the board of directors of progress and value for money.

Approach

Specialised sensors and data collection equipment was implemented at Webstar, focussing on major plant. 28 key plant assets are monitored in detail, including individual presses, air compressors, chiller pumps, dryers, binding machines, and offices. Data is gathered for electricity, gas and water across the sites and consolidated in BraveGen's cloud analytics platform. Sub-load monitoring provides continuous 15-minute data enabling continuous monitoring to target specific end uses as needed. On site data is securely transferred to BraveGen's cloud platform hosted on Amazon Web Services (AWS) and accessible 24/7.

BraveGen automatically collects sensor data, enriches and correlates it with production data (e.g. number of print impressions and hours of operation) efficiently adding onsite context and meaning. The data is tested, validated and analysed by BraveGen's team of data scientists and engineering experts with specific experience in the manufacturing sector to target the identification of practical solutions.

The BraveGen team set to work, developed an understanding of Webstar's key production metrics and assessing existing sensors and data. An internal steering group was also introduced to the engagement to help with this process and gain buy in.

Within a month, a review was carried out which resulted in the BraveGen engineering team presenting a set of prioritised actions. The team initially recommended small automation changes such as re-routing air leaks and isolating air to provide the quick wins desired.

Through BraveGen's partner status with EECA, Webstar chose BraveGen due to their experience with large manufacturers and commercial clients.

"Monitoring tells you if your equipment is working the way it is supposed to – if your chiller is the temperature it says it is. If a 3 degree set-point window is actually operating at a 1 degree window, that equipment is working three times harder than it has to and that can be fixed."

*Mark Rossiter,
Bindery Manager*

Air compressors are the largest energy users in the printing plant and BraveGen helped to identify more efficient configurations for Webstar. For example, three compressors were oversupplying the factory with compressed air. Reconfiguring these machines halved the usage hours, significantly reducing energy costs. Following this the chiller system was reconfigured to shut down when not in operation.

Additional planned improvements

- Optimising controls and modes for air compressors, dryers and chillers.
- Identifying and redirecting air leaks.
- Securing a power factor correction to reduce oversupply of mains electricity.
- Early detection of any equipment malfunctions and/or R&M needs.
- Optimising control set points and plant commissioning · Improving LED lighting controls.
- Prioritising plant upgrade opportunities to align with Webstar's requirements.

TO DATE

524

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ESTIMATED

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ANNUAL PRODUCTION
COSTS REDUCTION,
ADDITIONAL TO ENERGY
SAVINGS.

Outcomes

"We were looking for operational gains but now realise that the smart preventative maintenance impact is also a significant cost saving because it extends the lifespan of our equipment."

***Dirk Legmann,
Engineering Manager.***

EECA's funding target was achieved by Webstar within nine months with 5.7% energy savings. Since starting, a 3.3 GWh energy reduction has been achieved. This represents approximately \$168,000 in electricity and \$82,000 in gas costs, including significant reduction of penalty fees. As a result, Webstar received a rebate from their electricity provider.

BraveGen provides Webstar a more comprehensive and cohesive data set than previously available. This has enabled visibility of the optimal utilisation of plant and any unusual patterns, such as when a machine is drawing more energy than usual. This has resulted in early identification of mechanical issues, greatly reducing downtime and waste, and reducing catch-up production time.

This smart preventative maintenance approach protects the plant and provides Webstar with better control of its servicing and maintenance requirements, rather than relying on generic maintenance schedules.

As plant operators saw early results, their behaviour changed, as they started taking responsibility for ensuring shutdowns at the end of their shift, further contributing to the energy saving achievements.

Lighting upgrades have led to improved work environment and increased staff wellbeing, with the right lighting for the right environment improving staff alertness, attention span, and productivity.

Running an operation as efficiently as possible gives Webstar an edge in an industry that is more competitive than ever. On May 2017 Webstar won the Green Ribbon Award from the Ministry for the Environment for waste minimisation - proving sustainability makes good business.

The results have been so positive that Webstar has now installed BraveGen monitoring systems in three other plants, including their large Masterton plant, which is already showing significant gains. Over the next year Webstar is looking at introducing more automation of controllers and timers to further consolidate its energy savings management system.

KEY RESULTS FOR WEBSTAR

TO DATE

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Why Partner With BraveGen

BraveGen is an award-winning expert in energy efficiency and decarbonisation. BraveGen's software will enable you to more effectively collect, manage, analyse and report on your carbon emissions data.

We have helped organisations like yours integrate sustainability and energy efficiency into your business to cut carbon emissions as well as costs, helping you to make impact and take climate action - not waste time doing climate admin.

The time is now. The climate is changing, and we must change with it. Legislators, investors, stakeholders, staff, consumers and the global community all expect more from businesses on their journey to carbon zero. BraveGen will help you meet - and surpass - those expectations.



Store all information in a centralised place.



Tools for long- and short-term planning.



Information is fully auditable in software.



Complements existing systems.



Create reports that include all necessary data.



Regular training to ensure efficient use of the software.

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Next Steps

BraveGen solutions and consulting provide the most cost-effective results - for the long term. Our focus is on creating actionable initiatives for our clients so you can focus on delivering outcomes.

Visit bravegen.com or call our team today to discuss how we can help deliver your sustainability goals.

BraveGen is the trading name of Energy Solution Providers Limited.

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