

steel Australia



AUSTRALIAN STEEL INSTITUTE

June 2014
Vol 27 No.2

ISSN 1447-5359
Print Post Approved
No. PP 25503/01613

Faithful to formula

Monash Green Chemical Futures building,
Melbourne Story – page 14

Integrated steelwork
Tea Tree car park, Adelaide

Securing chain of risk
Five-page safety supplement

PLUS

NZ rebuild opportunities
Tallest tower in the US West
Compliance plan on firm footing

Audit pinpoints powerful energy saving potential

An energy audit conducted on one of the ASI's Environmental Sustainability Charter members, fabricator Stilcon in Melbourne has identified measures able to more than halve its energy usage by over \$50K annually.

Part of the ASI's program to further bolster the business case for sustainability improvements, the audit conducted by consultancy Pangolin Associates sought to ensure the company clearly defines and tabulates all of its onsite energy and to identify possible energy savings measures that could be applied from that baseline data.

The audit indicated that with the implementation of the total of all the savings measures identified and the application of an Energy Management Plan, the fabricator could expect to reduce its electricity usage by 57 percent and deliver total cost savings of \$53,000 allowing the investment in energy improvement to be paid back in 3.9 years.

The savings measures identified in the audit report had an overall capital cost of \$207,000 which if applied would produce an expected annual energy cost saving of \$44,000 with an additional \$9000 saving from argon gas and filler wire reductions.

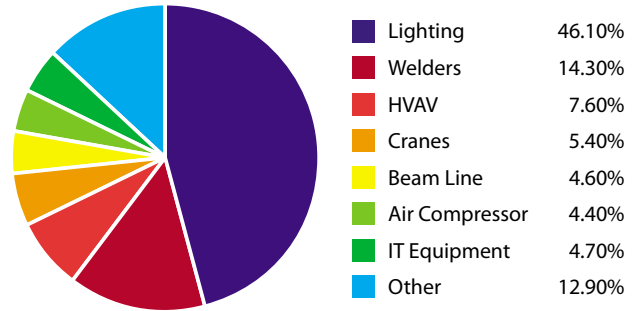
SOURCE	CATEGORY	SAVINGS \$	INSTALLATION COST	PAYBACK YEARS
ELECTRICITY	Lighting	\$25,000	\$70,000	2.8
	Renewables	\$6,000	\$39,000	6.6
	Inverter welders power	\$4,000	\$46,500	11.4
	Supply electricity conditioning	\$9,000	\$51,000	5.8
MATERIAL	Inverter welder savings	\$9,000	Based on 50% reduction in Argon and 30% filler wire for replacement of 6 welders	
TOTAL		\$52,000	\$207,000	3.9

SUMMARY OF ENERGY SAVING OPTIONS

The audit comprised:

- An energy consumption analysis over the past 12 months of site energy usage, electrical consumption patterns and consumption by equipment type, network charges and tariffs
- A site and systems description of operations and equipment and a resultant analysis of energy usage in each area
- Recommendations provided to upgrade lighting, improve power monitoring and management across the facility and replace welding equipment.
- An Energy Management Plan to help manage energy requirements of the site and achieve efficiency gains and ensure an ongoing commitment to energy efficiency.

Pangolin energy audit: Structural steel fabricator



ON-SITE ELECTRICITY USAGE BY EQUIPMENT TYPE

The various energy savings options were provided with the degree of difficulty to achieving each.

The comprehensive lighting audit was conducted to fully assess the upgradeability of a site to more efficient options. Lighting improvements recommended involve upgrading existing T8 fluorescent lights, de-lamping, replacement of high-bay lights and outdoor flood lights, motion and daylight harvesting sensors, zone lighting, more natural lighting and behavioural change.

In addition, an internal energy efficiency campaign was suggested to encourage behavioural change in using energy efficient equipment would work towards energy efficient goals such as 'switch off' signs placed near light switches, appliances and power points to realise additional savings.

Whole of site supply electrical conditioning could be made to perform more efficiently via power factor correction and voltage reduction, and an electrical monitoring and reporting system would be invaluable in heightening awareness of usage, for instance an unexpected increase in electrical load. Solar photovoltaic generation by solar panels was suggested and quantified.

All traditional spray arc welding units were recommended to be replaced with inverter welders which are far more energy efficient and require less filler wire, gas and weld time.

As this edition goes to press, a report just released on the audit of another ASI ESC member, Structural Challenge identifies energy savings measures that would produce an expected annual energy saving of 36.3 percent and deliver cost savings of \$12,885, giving a simple payback of 7.3 years.

For further information regarding energy audits, contact Pangolin Associates on 02 8005 6304 or visit www.pangolinassociates.com