ensol

ENERGY & ENVIROMENTAL SOLUTIONS

TRIDENT PLATFORM

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

"For buildings that work smarter, not harder."

ENSOL Systems is a leading energy efficiency solutions provider.
We offer a total solution from site evaluation through to maximized energy savings. Ours is a holistic approach to each site we visit looking at maximizing results and savings.

At ENSOL Systems, we look to forge long lasting relationships, gaining a deep understanding of our clients' workplace & needs around energy savings and strive to create improved working environments.

Our bespoke range of options have been tailored into a market leading energy efficiency platform that is unrivalled in the market.

CAP Global Ltd is very proud to join force with ENSOL to serve the Hong Kong and China markets.

Our end to end solution includes:

- Energy Efficiency upgrades and improvements
- Bill analysis
- Accessing Government rebates & grants

Our target is to move any capital expenditure requirements for energy efficiency upgrades into an operational expense by leveraging the energy savings on your power bills into a finance plan. Then sourcing any Government rebates as additional incentives to move ahead with the project.

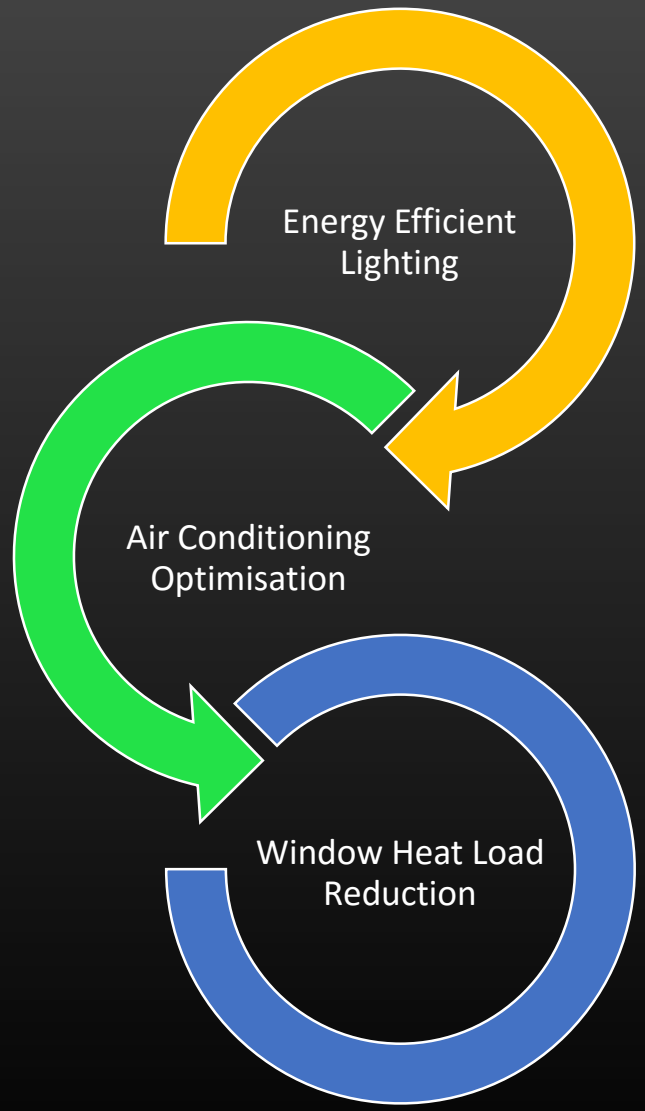
ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

Energy Reduction Planning

Our business offers technology solutions that are world's best practice in energy efficiency. The technologies have been thoroughly tested and measured.

In commercial building applications we not only can achieve a significant energy saving to the site but can achieve the additional improvements:

- Improved lighting levels
- Reduced heat load from lights
- Improved indoor air quality bringing air levels in line with AS 3666
- Reduction in air borne viruses and bacteria's.
- Prolonged HVAC Plant Life
- Significantly reduced window heat loads
- Passive design allows better thermal comfort
- Reduced glare and UV



ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

Our Biggest Issue – Increasing Heat Load

ensol

North facing building – Macquarie Park North Ryde NSW

Images taken 10:00am - 17th of May 2016 – Max. Ambient Temperature 18.5 degrees Celsius

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

The Biofilm Problem

Biofilm is a collection of micro-organisms that have made contact with a surface and between each other secrete sticky polymeric substances that act as a protective shell and source for capturing nutrients like dust that help the biofilm grow.

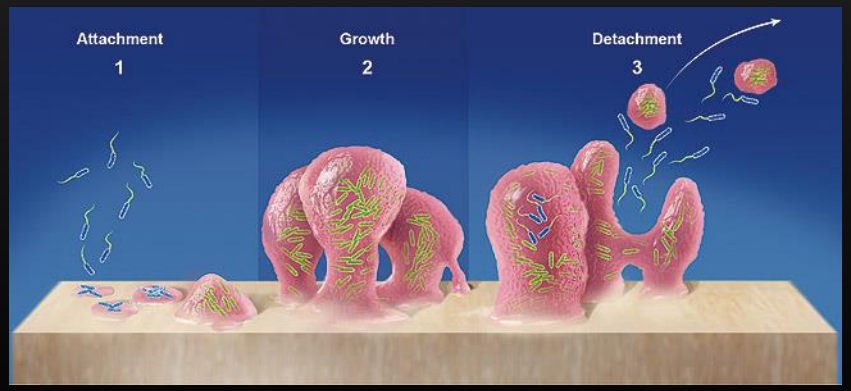
Biofilm is a problem because bacteria latches on to it and release sticky substances so that more and more bacteria attach to the biofilm. Biofilm is hard to remove because these polymeric substances protective shell makes it difficult for traditional cleaning systems to remove.

“Biofilms are the prominent life form of microorganisms and account for over 60% of human infections and virtually all chronic, recurrent and implanted device associated infections.”

(Centre for Disease Control and Prevention, 2000)

The benefits of cleaning your evaporator coils with AerisGuard to remove Biofilm include:

- Energy Savings: Lowers energy costs by improving HVAC system heat transfer and increasing net cooling capacity.
- Maintenance Savings: Continuously cleans coils, drain pans and drain pipes.
- Significantly Improved Indoor Air Quality to above AS3666 as well as our environment.
- Improved performance of air conditioning and refrigeration systems.



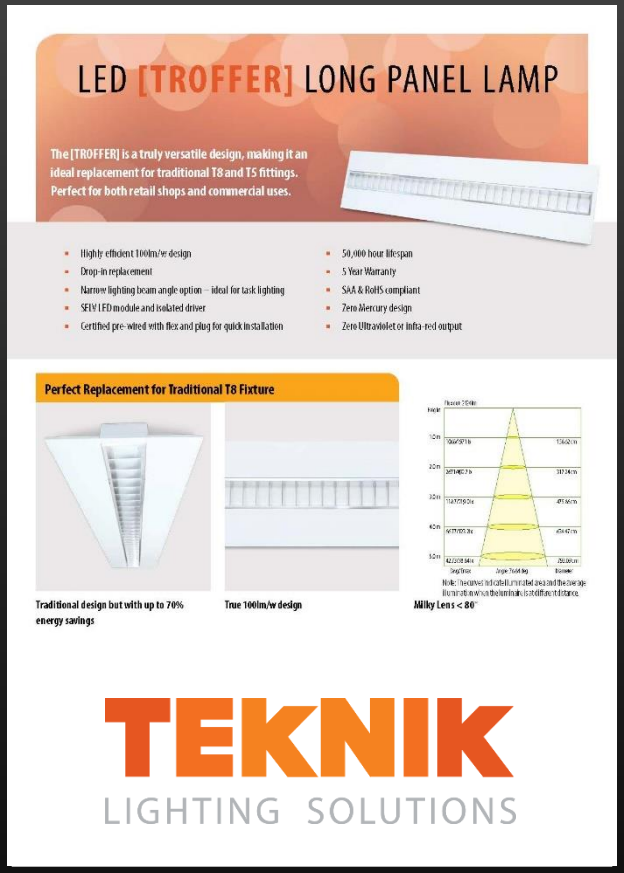
aeris™ SmartENERGY

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

Energy Efficiency Platform

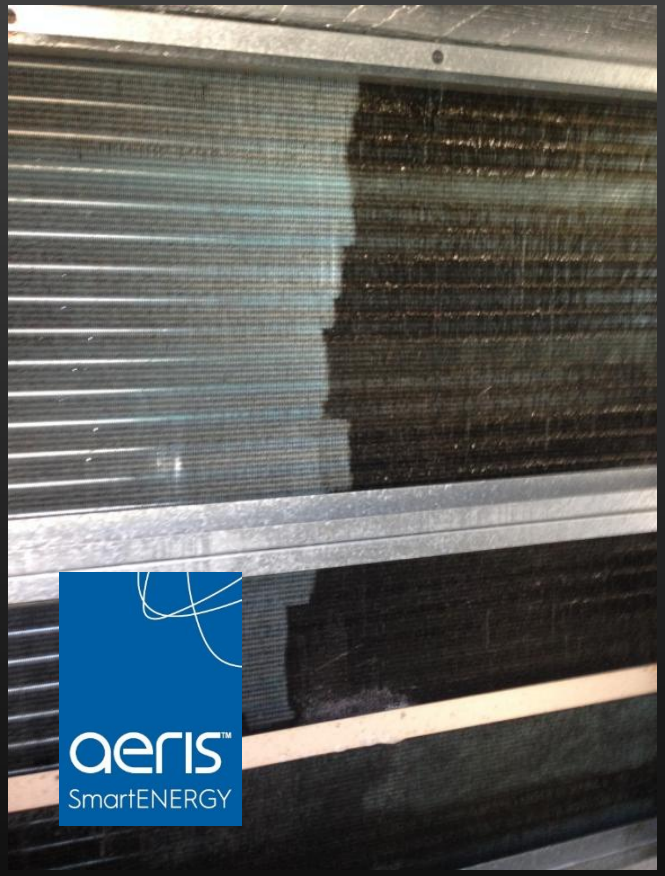
ensol

LIGHTING



10-20% SAVINGS

HVAC - OPTIMISING



12-25% SAVINGS

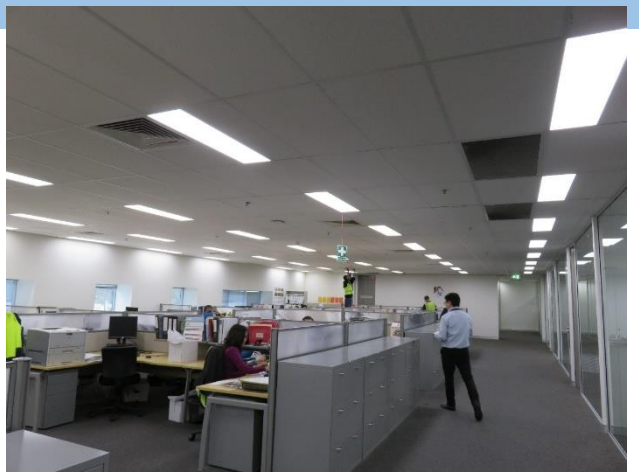
HVAC – WINDOW LOSS REDUCTION

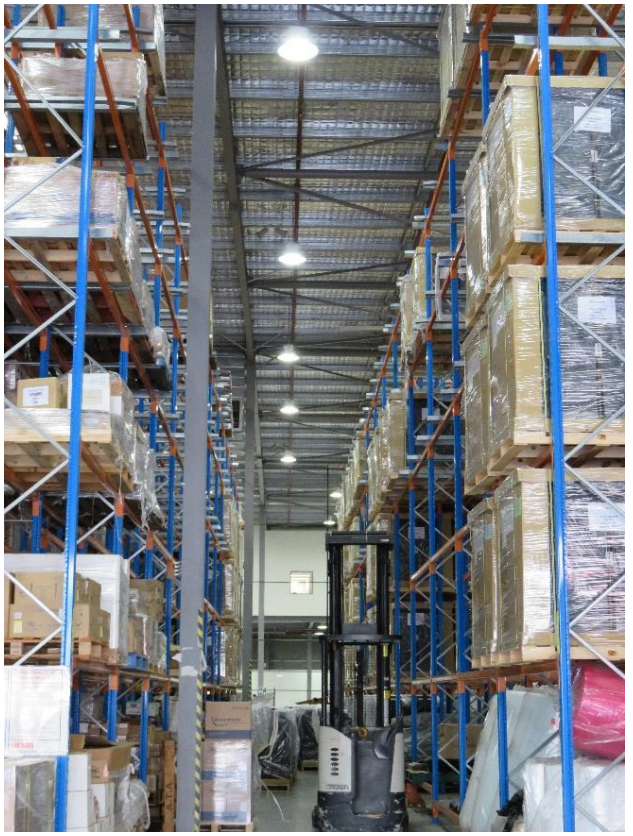
10-30% SAVINGS

Each of these technologies combined together in a single application create a larger energy saving overall, which better balances both the energy and heat loads of a building.

CASE STUDY:

Globally recognised gaming manufacturer reduces their energy usage and carbon footprint by 40% off their TOTAL electricity bill.





Summary

ENSOL Systems as part of their drive to reduce energy use approached the National Facilities Manager of Aristocrat Leisure Limited, Malcolm Saltmarsh to run a *free of charge* analysis on their warehouse lighting costs. The target was to look at reducing the lighting load by at least 50%.

Challenge faced

The warehouses running hours including restocking and cleaning is close to 12 hours per day , Monday to Friday with Saturday work as well which meant limited access and the installation was not to inhibit manufacturing within the facility. The existing lighting was considered to be:

- expensive to run
- In the wrong orientation to the warehouse layout.
- inadequate light levels in some areas.
- Lighting in areas that where not required.

ENSOL carried out a COST of LIGHTING Analysis with their contractor partners Shawbridge Electrical

CASE STUDY:

Major Northern Region Club achieves a 15-18% energy savings annually off a large HVAC (Air Conditioning) Chiller.

In conjunction with mechanical service contractor Northern Air (Lismore) and energy auditor Powersmart Energy Efficiency (Lismore), Sydney based ENSOL Systems introduced the Lismore Workers Club to the Aeris Smart ENERGY HVAC Solution to reduce the clubs air conditioning costs.

Aeris Environmental installed the Smart ENERGY platform and onboard monitoring of the 132kW Multi-power chiller as to accurately gauge the performance of the Smart ENERGY Technology pre & post installation. The trial period was carried out from June to July 2015. The system was activated on the 1st of July 2015.

The monitoring was carried out under the IPMPV International Protocol which ensures results are to the international standards.
Over the trial period the system achieved the following results:-

CURRENT DEMAND SAVINGS	TOTAL CONSUMPTION SAVINGS	COIL AIR VELOCITY	FAN POWER
36.8% KVA	34% KWH	31% IMPROVEMENT	6% IMPROVEMENT

The return on investment was just under 3 years based off the energy savings alone. The results also included cleaner indoor air conditions and enhanced coil life.

Lismore Workers' is pleased with the result with club General Manager Steve Bortolin saying ***"the results speak for themselves. I'm more than impressed with what's been achieved!"***

COIL BEFORE

COIL AFTER

ENSOL Systems
Level 3, 31 Market Street
Sydney NSW 2001
T: 1300 720 551
F:+61 (2) 9662 6040
www.ensolsystems.com.au

CASE STUDY:

Mid North Coast Supermarket achieves over a 30% energy savings on their cool room evaporator fans with an average increase in air speed of 46%.

IGA WAUCHOPE - HASTINGS COOP - COOL ROOM RESULTS						
AREA	TEST POINT	ABB	PRE-TRIAL	POST TRIAL	% +/-	CHANGE
MEAT	Supply Air	M/S	0.89	1.2	26%	INCREASE IN AIR SPEED
	Return Air	M/S	0.75	1.1	32%	INCREASE IN AIR SPEED
	Amperage	A	1.8	1.4	-29%	ENERGY REDUCTION
FRUIT & VEGETABLE	Supply Air	M/S	0.7	2.9	76%	INCREASE IN AIR SPEED
	Return Air	M/S	1.3	1.7	24%	INCREASE IN AIR SPEED
	Amperage	A	4.1	3.2	-28%	ENERGY REDUCTION
DAIRY PRODUCE	Supply Air	M/S	0.8	2.4	67%	INCREASE IN AIR SPEED
	Return Air	M/S	1.2	1.8	33%	INCREASE IN AIR SPEED
	Amperage	A	3.4	2.5	-36%	ENERGY REDUCTION
DELICATESSEN	Supply Air	M/S	1.2	2.57	53%	INCREASE IN AIR SPEED
	Return Air	M/S	0.8	2.1	62%	INCREASE IN AIR SPEED
	Amperage	A	2.8	2.1	-33%	ENERGY REDUCTION
Metres Per Second = M/S Amperage = A						

The results at IGA Hastings Coop more than speak for themselves with an average energy saving of **31%** on the evaporator coil fans with an average increase in air speed of **46%** has these fans working as if new.
The improved indoor air quality means a potential longer life for produce with all the cool rooms working at the optimum levels.

Brendon Burke & Mark Clancy the principals of Energy Air Conditioning Services where more than happy with the result saying ***"AerisGuard leaves everything we've tried in the past in its wake, what a great product"***

Cleans Protects Optimises

ENSOL Systems
Level 3, 31 Market Street
Sydney NSW 2001
T: 1300 720 551
F:+61 (2) 9662 6040
www.ensolsystems.com.au

IN'FLECTOR
THE SEE THROUGH RADIANT BARRIER WINDOW INSULATOR

ensol

CASE STUDY:

The Lismore Workers Club's front façade has three stories of glass frontage. As the building was built in the 1970's the glass on the building created heat load issues for the front reception staff.

On particularly hot days this heat load created great discomfort for the staff but also created electronic heat issues with its electronic registration and automatic doors. Even after 30kW's of additional air conditioning was installed this virtually had no effect on the additional heat load.

ENSOL Systems on understanding this issue quoted and installed IN'FLECTOR Standard across the full front of the building.

The effect was immediate with significant heat load reduction, reduced UV and glare.

Since the IN'FLECTOR window insulation project has been completed though, the front door area of the Club has a much improved climate for both staff and patrons. The heat transfer barrier has markedly improved working conditions for staff and the ambience of the welcoming process for patrons. For the first time it feels that the air conditioners for this area are actually doing their job!

Ted Hoddinott
Marketing/Media Manager
Lismore Workers Club Group

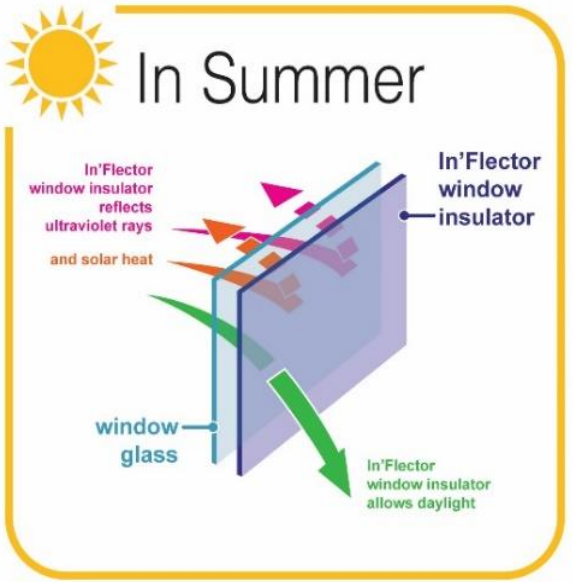
LISMORE WORKERS CLUB

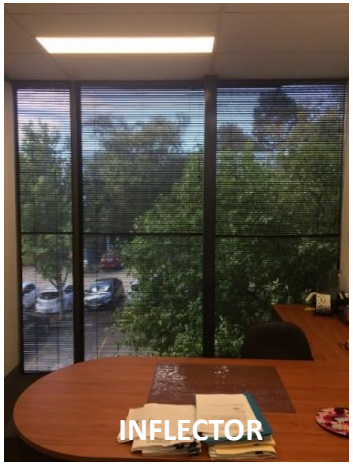
REGIONAL
HEALTH CARE GROUP

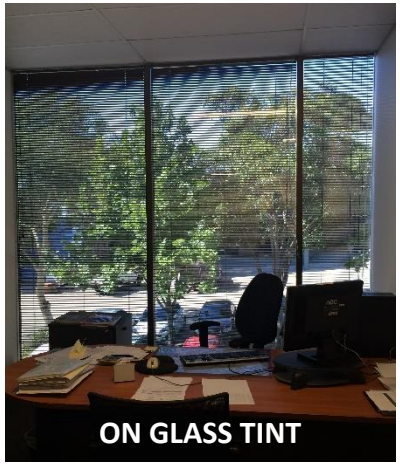
CASE STUDY:

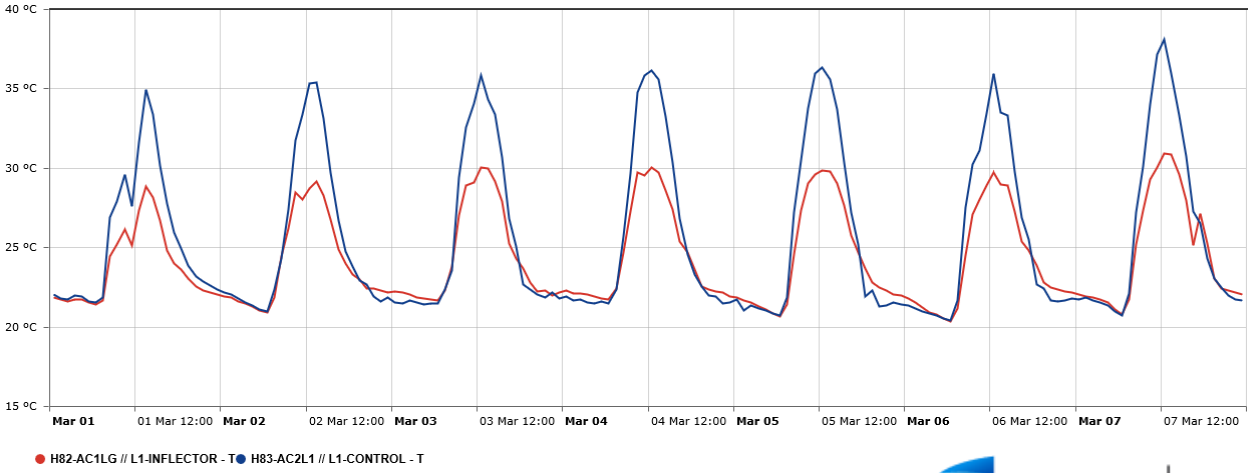
Regional Health Care has north facing windows that attract solar heat gain all year round. As part of ENSOL Systems proof of concept. Regional Health care allowed ENSOL to monitor two offices of their upstairs offices.

The offices where both the same size and orientation with the same air conditioning control. Over a period of a week in March 2016 this trial showed a consistent temperature difference of between five (5) & seven (7) degrees centigrade in temperature reduction.









NFLECTOR

Temperature sensor results.

ensol

CASE STUDY:

NORTHERN AIR

12kW Enphase Solar installation, new LED lighting installed created **a 75%** total energy reduction per year.

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

Inflector - The Facts

ensol

INFLECTOR

Type	Brand	Specs / Model	U -Value	SHGC	UV Trans	TSER	VLT	Glare Reduction	ESTIMATED COST (Supply & Fit)*
Film	Solutia	Enerlogic 35	3.40	2.4	99%	76	33%	63%	$170-$230
Film	Solutia	EnerLogic 75	3.40	0.51	99%	49	68%	20%	$ 250.00
Film	3M	Prestige 70 PR 70	5.60	0.05	97%	50	69%	65%	$ 220.00
Film	Solar Guard	Ecolux 70	3.40	n/a	99%	52	68%	24%	$ 150.00
Glass	Viridian	Single Pane 4mm Clear	5.90	0.95%	69%	53	89%	n/a	TBA
Glass	Viridian	DoubleGlassed Unit 4/12/4	2.70	0.75%	51%	50	80%	n/a	TBA
Glass	Viridian	6.38 Comfort Plus - Low E	3.60	0.68%	70%	49	82%	n/a	TBA
Acrylic	Magnetite	4mm / 8mm / 4mm	2.70	0.66	99%	47	n/a	n/a	$ 450.00
Inflector	Flexon	Inflector Standard	1.48	0.25	92%	82	27%	84%	$ 210.00

- The lower the U-value, the greater a window's resistance to heat flow and the better its insulating value.
- SHGC measures how well a product blocks heat caused by sunlight. The lower a window's SHGC, the less solar heat it transmits.
- Visible transmittance measures how much light comes in through a product. The higher the number, the more light is transmitted.
- Total Solar Energy Rejection of both solar and infrared energy rejection The total amount of solar energy (heat gain) rejected by the window film when installed. The higher the number the more heat and infrared is being rejected

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

Measurement & Verification

As part of our measurement and verification protocols, we use leading scientific evidence based testing.

This then quantifies exactly what each site requires for an energy savings solution.

ENERGY EFFICIENT LIGHTING | POWER MANAGEMENT | SOLAR | HVAC AND MECHANICAL | SYSTEM EFFICIENCY

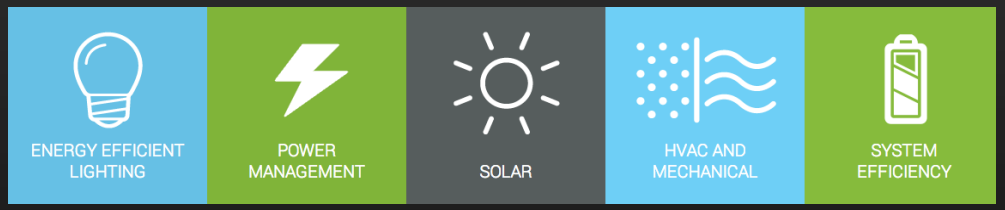
Our Business

Energy Savings → **OPEX Savings** → **Improved Environments**

At ENSOL Systems, we believe by creating an energy efficient and improved working environment we can deliver the right solutions with the right commercial outcomes.

Energy Efficiency & Environmental Solutions, today for tomorrow

Contact



ENSOL Systems
Chris Cavenagh
Senior Business Development
Unit 5, 26 – 34 Dunning Avenue
Rosebery, Sydney 2018
New South Wales
Australia
Phone: 1300 720 551
Mobile: 0498 006 227
chris@ensolsystems.com.au
www.ensolsystems.com.au

CAP GLOBAL LTD

Call: 3568 1719
Email: info@inflectior.com.hk
www.inflector.com.hk

Unit 1504, 15/F, Ricky Centre, 36 Chong Yip Street, Kwun Tong, Kowloon, Hong Kong