Carbon Green Group

Energy Saving Solutions

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Carbon Green Group

- Provides energy saving solutions:
  - For commercial businesses
  - Using quality electrical contractors
  - Product suppliers
  - Project managers
  - Energy efficiency schemes

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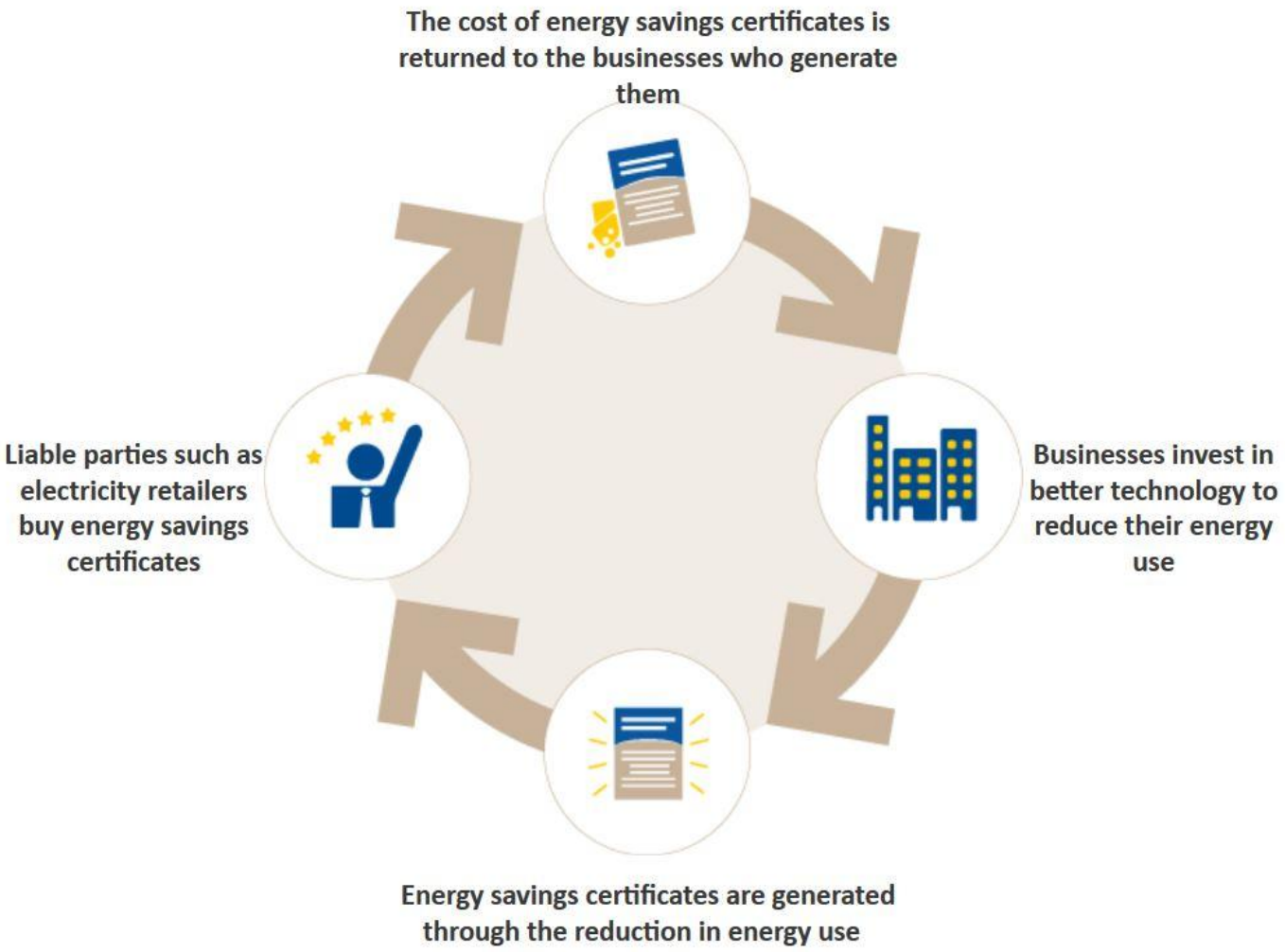
Energy Savers

- Independent advice
- Quality products and services
- Verified case studies
- Reliable warranties

Energy Savings Scheme



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http://www.ess.nsw.gov.au/How_the_scheme_works/Overview_of_the_scheme

NSW Energy Savings Scheme Overview

- Businesses reduce electricity use by upgrading to energy efficient equipment
- Energy Saving Certificates (ESCs) are created based on reductions achieved
- Electricity retailers are liable to purchase ESCs on an open market
- The cost of purchasing ESCs is passed onto businesses by the liable entities

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2013

Lighting Upgrade Case Study

Parker

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Parker Hannifin

- Stage 1 upgrade
- Warehouse hi bays
- Daylight sensors
- Metered results
- Under 12 month payback

Industrial Saver Case Study

Energy Efficient Lighting Case Study – Parker Hannifin

Overall Site Details

The table below highlights the key performance indicators of the energy efficient lighting upgrade and benefits of the capital investment. These figures are based on current average operational hours of each site location.

Detail	Value
Energy Costs Reduced (Av: $0.20 p/kWh)	**$40,057 p/a**
ESC Discount	**$19,152**
Upgrade ROI (Simple)	**6 Months**
Energy Consumption Reduced	188,539 kWh p/a (75%)
CO^2 Emissions Reduced	200 tonnes p/a
Total Project Delivery Cost	$20,262
Implementation Dates	10/12/2013
Location Size	5,210m^2
Warranty	5 Years

Site Location Analysis

The existing light levels are at an undetermined point of the maintenance lifecycle and do not reflect the light levels of new lighting equipment, or average maintained illuminance.

Warehouse		
	Existing Lighting	Upgrade Lighting
Photo		
Lamp Type	Metal Halide / Mercury Vapour	4x54W Fluorescent High Bay
Consumption	450W / 424W	4 x 59W
Quantity	152	122
Controls	None	Daylight Detection
Operational Hours	4,195 p/a	4,195 p/a
Maintenance Cycle	8,000 hrs (2 yrs)	48,000 hrs (5* yrs)
Energy Cost p/a	**$52,985.68**	**$12,928.50**

Additional Benefits

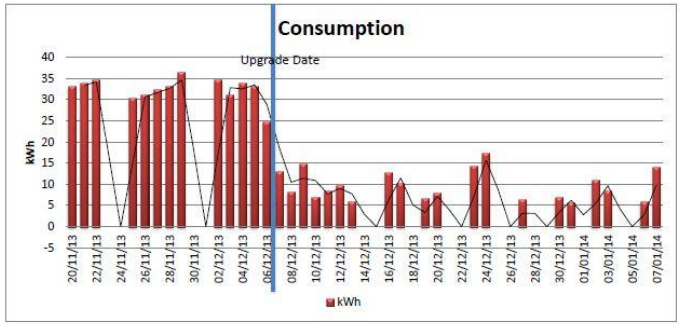
There are additional benefits not equated as part of the evaluation on the energy efficient upgrade of lighting at Parker Hannifin, Castle Hill.

Energy Efficiency Certificates

The Commercial Lighting Formula (CLF) was the methodology used to create Energy Savings Certificates (ESCs) through the NSW Energy Savings Scheme (ESS).

The factor for consumption reduction in this formula is 30%, meaning the calculations for energy savings take into account 70% of the power consumption of the upgrade lighting to consider the sensors in the circuit. This would equate to the lighting being on for 70% of its current usage.

A sample circuit of one row of 8 high Bays was measured before and after the upgrade, to determine the actual reductions in energy and costs, due to the conservative calculations of the energy reductions from the installed daylight detection sensors under the ESS rule. Whilst, the factor for these sensors is a 30% reduction in consumption on the upgraded circuit, the actual measured reduction on a one for one basis was measured at 70%. Including the lighting decommissioned, without being replaced, the total reduction in consumption is **75%.**



Maintenance

In addition to the costs reduced in electricity, there are savings in ongoing maintenance, service, and re-lamping from the significant increase in asset lifetime. These costs are significant as the mounting heights are over 6m, therefore requiring the use of elevated work platforms for safety.

Comfort

As the colour of the existing lighting was not consistent, this can result in health issues of occupying staff that regularly transition between various areas, due to subtle adjustments the eye will make between locations.

The consistent and continuous colour of the upgraded lighting will improve the ambient environment and comfort of the occupying staff. The improved lighting levels where existing lighting was below recommended lighting levels will also reduce eye strain and improve comfort. This may result in increases in productivity.

Lamps will still illuminate past their maintained lifetime and should be replaced according to the maintenance cycle determined by lamp life. This will prevent illuminance falling below desired/recommended levels.

*Photos were all taken with smart phone devices and unenhanced. The only modifications were resizing.

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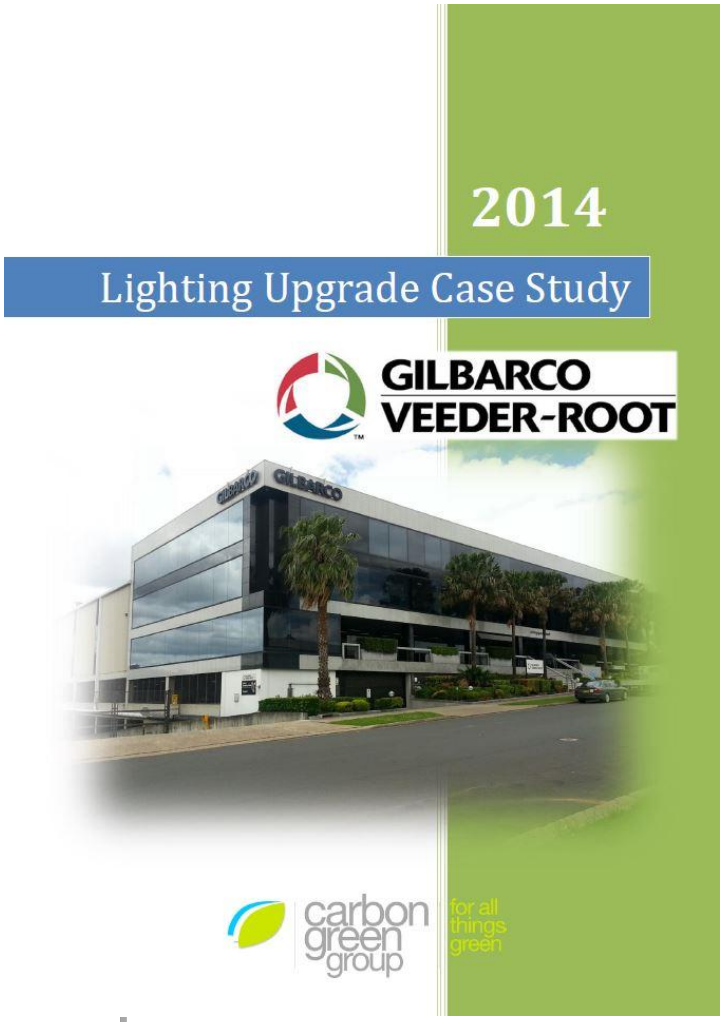

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Gilbarco

- Head office upgrade
- Office T-Bar troffers reduced by 66%
- Warehouse hi bays reduced by 78%
- Flood lighting
- Daylight sensors
- Metered results
- Under 3 year payback

Commercial Case Study

Energy Efficient Lighting Case Study – Gilbarco Auburn

Overall Site Location Details

The table below highlights the key performance indicators of the energy efficient lighting upgrade and benefits of the capital investment. These figures are based on current average operational hours.

Detail	Value
Energy Consumption Reduced	**227,286 kWh p/a**
CO^2 Emissions Reduced	**241 tonnes p/a**
Energy Costs Reduced	**$41,495 p/a**
Project Delivery Cost	**$121,804**
Upgrade ROI (Simple)	**2.9 Years**
Implementation Dates	**13/12/2013 to ongoing**
Location Size	**7,000m²**
Product Warranty	**3 Years**
Service Warranty	**3 Years**
ESC Discount	**$16,718**

Site Location Analysis

The existing light levels are at an undetermined point of the maintenance lifecycle and do not reflect the light levels of new lighting equipment, or average maintained illuminance.

Upgrades commenced on the 13th of December replacing the existing Twin T8 fluorescent office T-bar ceiling troffers with LED panel lighting. This is a reduction from 92W consumption to 32W per fitting.

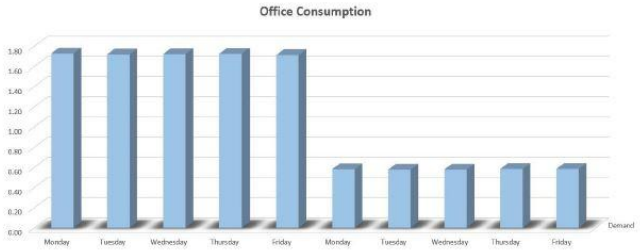
A sample circuit has been left to measure the consumption of electricity before and after upgrading.

Metered Results:

Meters were installed on two sample circuits on site, in the office and warehouse.

Office:

One section metered was the office lighting, where twin T8 Fluorescent T-bar troffers were replaced with LED Panel Lighting. This is a typical scenario for Commercial office lighting and is a good indication of the typical results that can be achieved in energy reduction, and shows a 66% reduction in electricity consumption.



Warehouse:

Another section of lighting metered was in the main factory. Here 400W Metal Halide, and Mercury Vapour Hi Bays were replaced with 150W LED high bays suspended at around 8m high. This section also included the addition of Daylight detection sensors.

This is a typical upgrade for industrial factory and warehouse buildings, and reflects results that can be achieved in most situations, showing a 78% reduction after the first data reading. This result will improve on average over time due to weather conditions over the time of metering.

In addition to the metered area, is a storage warehouse with varying ceiling heights, and greater reductions were achieved. In order to achieve the required lighting levels in the warehouse a range of 150W, 120W, and 90W LED high bay lights were used to replace 400W Metal Halide and Mercury Vapour high bays.

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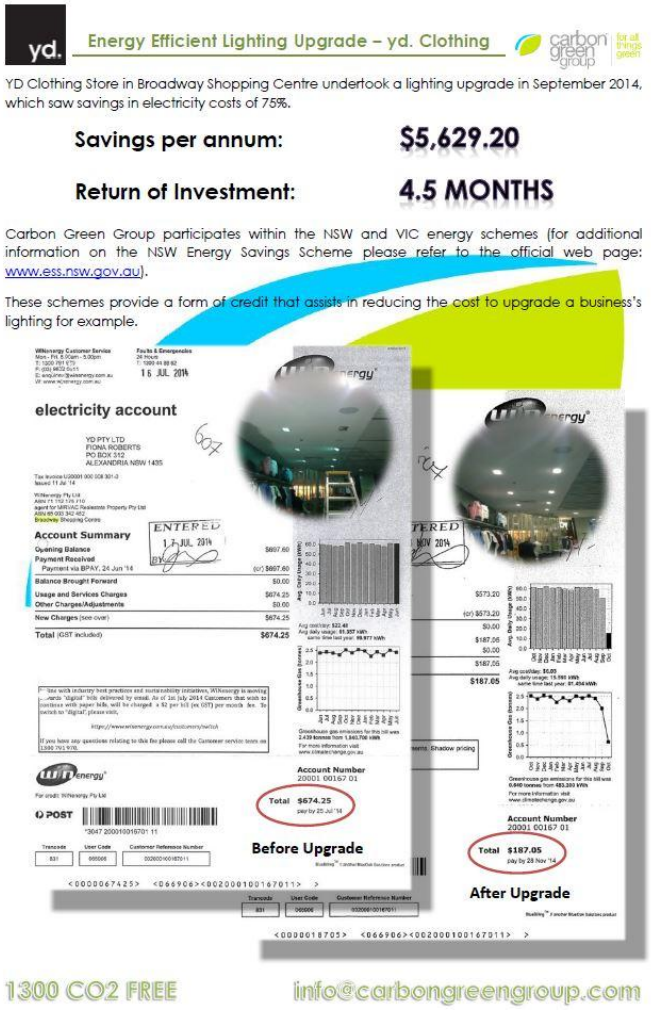
Retail Case Studies



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- yd Clothing
- Howards Storage World
- News Xpress
- 60%-75% savings on electricity costs
- Under 12 month paybacks

Retail Case Studies

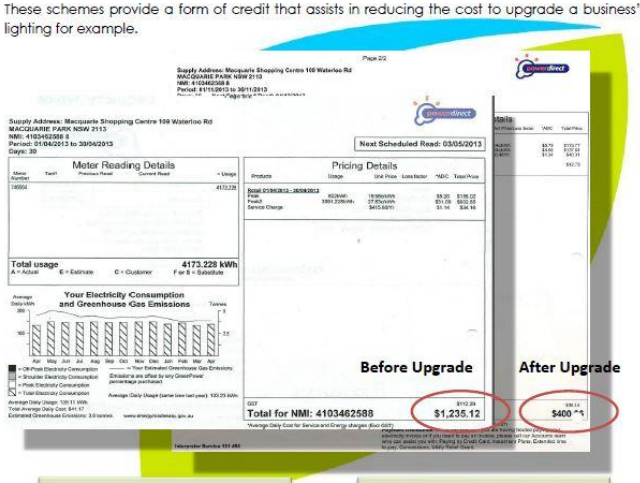
Energy Efficient Lighting Upgrade – Howards Storage World

Howard's Storage World Macquarie undertook a lighting upgrade in June 2013, which saw savings in electricity costs of 72%.

Savings per annum: $10,074

Carbon Green Group participates within the NSW and VIC energy schemes (for additional information on the NSW Energy Savings Scheme please refer to the official web page: www.ess.nsw.gov.au).

These schemes provide a form of credit that assists in reducing the cost to upgrade a business's lighting for example.



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Energy Efficient Lighting Upgrade – News Xpress Goulburn

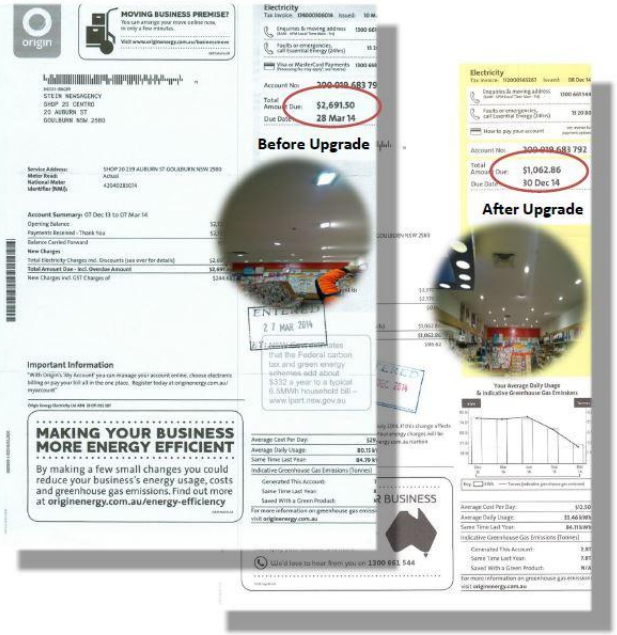
News Xpress Goulburn undertook a lighting upgrade in August 2014, which saw savings in electricity costs of 61%.

Savings per annum: $6,514

Return of Investment: 8.1 MONTHS

Carbon Green Group participates within the NSW and VIC energy schemes (for additional information on the NSW Energy Savings Scheme please refer to the official web page: www.ess.nsw.gov.au).

These schemes provide a form of credit that assists in reducing the cost to upgrade a business's lighting for example.



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Electrical Contractor Benefits

- Create opportunities
- Maintain existing relationships
- Professional energy saving solutions
- Access to larger buying group
- Customer security

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Energy Saving Proposal

Saturday, 26 April 2014

To Paul McKeown

It is with great pleasure that Electrotel presents the following Energy Saving Solution to Australand at 197-201 Coward Street Mascot, NSW. 2020

Supply and install commercial lighting upgrade utilising LED T-Bar Fittings with the following projected energy reductions:

$7,047.37 in anual savings
Payback period of 72.86 months
Energy consumption reduced by 31,559 kWh p/a
33 tonnes of carbon emissions reduced p/a
payback based on an average kWh from energy account supplied, at $0.223

Please refer to the terms and conditions within the attached proposal. For further information please do not hesitate to contact myself on 0401 511 369 regarding any aspect of the proposal, or for any future energy saving inquiries.

Kind Regards,

Bogdan Gackowski
Electrotel Pty Ltd

Carbon Blue
Suite 11B 10 Carrington Road, Marrickville 2203 | +61 478 628 886 | admin@carbonblue.com.au

ABN: 74 124 191 706
57 Harold Street, Matraville NSW. 2036
info@electrotel.com.au

To: Paul Mckeown
Australand
197-201 Coward Street
Mascot, NSW. 2020
P (04) 0151 1369

Annual Savings $7,047.37

Upgrade ROI 72.9 Months

Quotation

Date: April 26, 2014
Order Number: 41755
Customer ID: A
Expiration Date: 05/05/14

Energy Savings Assessor	Contact	Company	Email	Association/Accreditation
Kevin Massey	0478 628 886	Carbon Green Group	kevin@carbongreengroup.com	

Energy Saving Equipment Including Installation

Item	Location	Unit Price	Qty	Total
40W LED Difussed Troffer	Moet + Hennesy	$ 183.00	156	$ 28,548.00
40W LED Difussed Troffer	Metrolink	$ 183.00	82	$ 15,006.00
			Freight	
			Energy Saving Equipment Total	$ 43,554.00

Additional Items

Item	Description	Total
Discount		$ (4,558.70)
T-Bar Grid	Installation and rectification	$ 820.00
Recycling	disposal of lighting under ESS requirements	$ 866.32
	Additional Items Total	$ (2,872.38)

Energy Savings Certificates

Item	ACP	Spot Price*	Qty	ESC Credit
Energy Savings Certificate (ESC)	DM	$ 9.00	334	$ (3,006.00)
			ESC Total 334	$ (3,006.00)

*Market price subject to change

Agreement

I, _____

- ☐ agree to the following terms & conditions:
- ☐ I am authorised to sign on behalf of the business.
- ☐ I confirm I wish to proceed with the above lighting upgrade.
- ☐ I have read and agree to the Terms & Conditions.
- ☐ I verify the information submitted is true and correct.
- ☐ 50% Progress Payment due on receipt of equipment & remainder on completion.

Sign: _____ Date: _____

Energy Saving Equipment	$ 43,554.00
Additional Items	$ (2,872.38)
Project Management	$ 1,224.38
Subtotal	$ 41,906.00
ESC Credit	$ (3,006.00)
Subtotal	$ 38,900.00
GST	$ 3,890.00
Net Total Including GST	**$ 42,790.00**

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Suppliers

- Third party support
- Access to energy saving supply channel
- Independent business development

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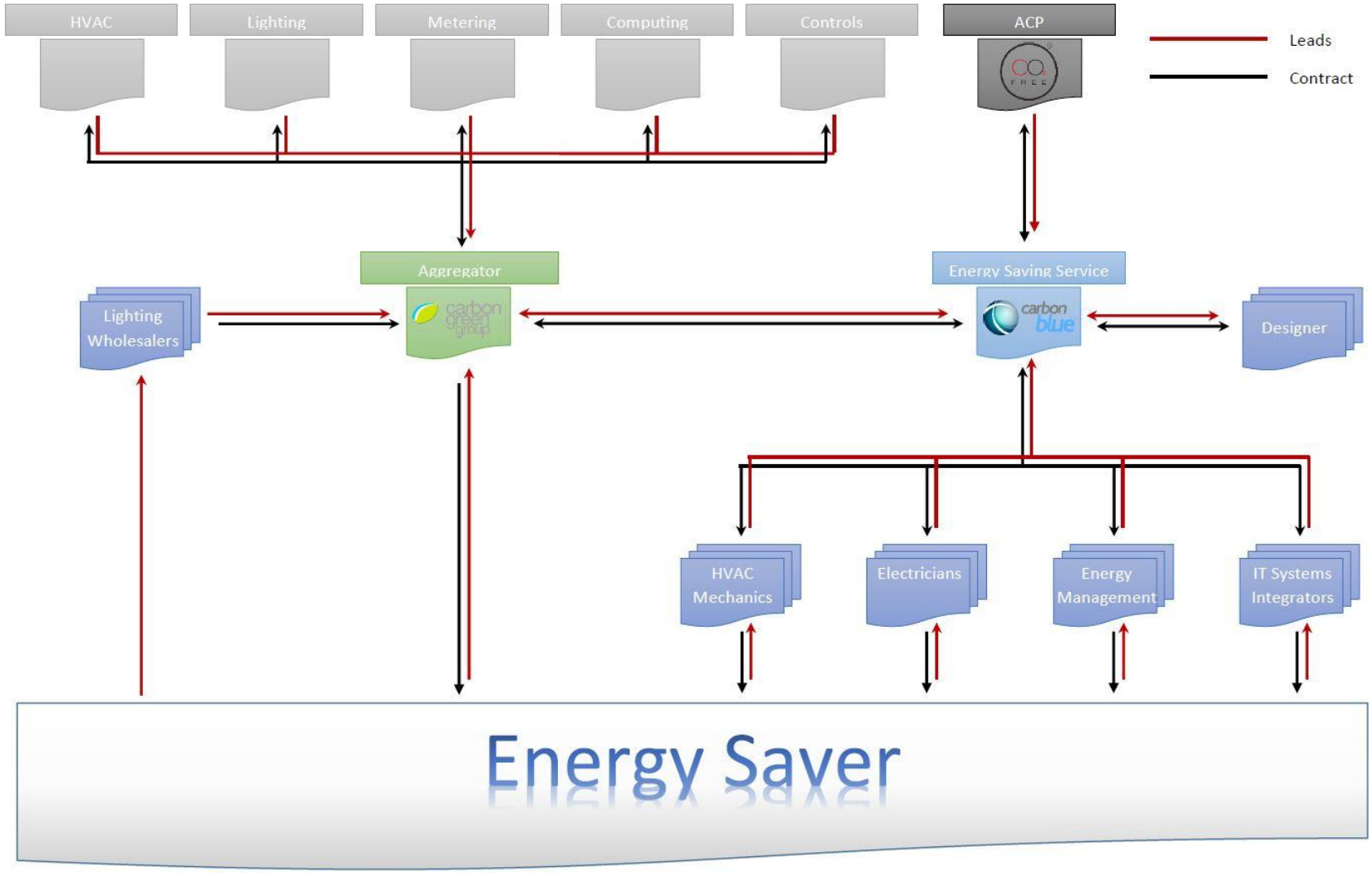
Supply Chain Model



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Project Management

- Proven processes
- Reduced project risks
- Quality control
- Contractor induction & training
- Product warranties

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Energy Upgrade Process

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Energy Efficiency Schemes

- Access to qualified energy savers
- Networks of inducted contractors
- Networks of quality product providers
- Project management
- Energy saving verification

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Energy Efficiency Services

Carbon Blue

Assessment

Carbon Blue can conduct lighting assessments in line with the state based carbon trading schemes in NSW and VIC to determine a business's energy needs.

Proposal

From assessment, Carbon Blue can propose a complete lighting solution, using quality products and services.

Compliance

Throughout an energy efficient upgrade Carbon Blue will conduct thorough auditing to ensure compliance on lighting levels, safety, and scheme requirements.

Energy Saving Services

Carbon Blue provides services for commercial energy savings activities, such as assessment, recommendations, compliance, and auditing of lighting upgrades within government regulated carbon reduction incentives. Currently, state based schemes reduce the cost to implement upgrades to inefficient equipment, which further improves the return on investment.

This is an independent Project Management service available to provide quality control for product suppliers, electrical service providers, or energy savers themselves that wish to capitalise on opportunities for reducing costs to upgrade, as well as reducing ongoing electricity costs.

Our expertise provides fast and effective methods of reducing energy costs by utilising the New South Wales government's Energy Saving Scheme (ESS), and the Victoria government's Victorian Energy Efficiency Target (VEET).

Upgrading lighting can be the first step to reducing total energy costs. We provide feasible solutions through our experienced network of assessors, suppliers, installers, auditors, and accredited providers of certificates to deliver the most cost effective solution.

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10 Carrington Road
Marrickville, NSW. 2204

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MMV

There are many ways to approach Metering, Monitoring, and Verification of energy consumption, from simple independent systems, to fully integrated cloud based platforms.

Awareness

When we are aware of how energy is used, and the consequences of our actions, it is natural that we begin to focus on removing inefficiencies to achieve goals.

ESCs

Energy Saving Certificates can be created in NSW when reducing the consumption of electricity through upgrading equipment and processes.

Energy Saving Verification

In a market where energy costs have risen faster than our awareness of how to create efficiencies, metering, monitoring, and verification of energy consumption is the final barrier to becoming energy efficient.

By raising awareness of energy consumption, we are able to determine best where to conscientiously adjust our behaviour to reduce unnecessary costs.

Accessibility to simple, cost effective monitoring is important.

Accredited Certificate Provider (ACP)

An ACP is a voluntary participant in the NSW Energy Savings Scheme (ESS) that is accredited to create Energy Savings Certificates (ESCs) when upgrading equipment and/or processes to reduce electricity costs for households and commercial businesses.

ESCs provide a further incentive to reduce electricity consumption by reducing the cost of activities that create efficiencies.

The industry is heavily regulated to ensure a quality service is provided, and reductions are genuine, and of benefit to energy consumers undertaking facility upgrades.

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Summary

From the experience of delivering, and verifying savings for commercial clients, Carbon Green Group is the key to providing savings on electricity costs.

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