



# Case Study

Moore & Son Ltd,  
Costcutter  
19 Market Square,  
Long Buckby,  
Northampton

# Solar Thermal & Refrigeration Upgrades

Solar thermal assisted refrigeration technology providing effective and efficient cooling, along with retail refrigeration cabinet energy reducing upgrades & Voltage Optimisation.

SolX Energy's ThermX system has considerably increased the overall energy efficiency of this Costcutter convenience store in Long Buckby, Northamptonshire, UK. This was achieved through the installation of the innovative, combined technology designed to harvest the free energy from the sun, thus creating thermal energy to better assist the refrigerant compression process.

## Customer Situation

Over recent years energy prices have continued to rise at a rate in excess of 8% per annum.

This is having a detrimental impact on overall site profitability, with electricity now responsible for the second largest overhead in this retail business.

The major consumer of power within the site is refrigeration, accounting for approximately 40% of the total bill.

## Solution

To provide a site specific energy reduction programme using various technologies to target the consumption of the refrigeration cabinets.

Challenge: Any capital expenditure involved in the whole installation, must have a Return on Investment for the retailer of no more than 3-years

## Benefits

- \*Reduced electricity costs
- \*Extended lifespan of equipment
- \*Reduced ongoing equipment maintenance costs
- \*Reduced CO2 production levels



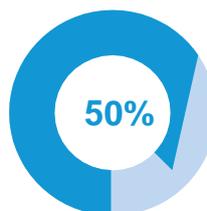
Long Standing Costcutter retailers Trevor & Jane Moore own & run a successful convenience store in the beautiful Northamptonshire village of Long Buckby.

Due to increasing overheads, they decided to look at ways to increase their bottom line by bringing down the backend business costs, specifically the electricity bill.

Refrigeration & air conditioning costs constitute two of the largest overheads facing a vast variety of businesses today, regardless of location and industry.

Reducing CO2 production is also high on the agenda with the recent emission reductions outlined in European Parliament. SolX Energy Ltd. has effectively reduced the production of CO2 in many businesses with Costcutter being no exception.

With every other refrigeration system on the planet, the sun is the enemy...with ThermX however, the hotter it gets, the more efficient it becomes; reducing overall energy consumption potentially in the UK by in excess of 50% when the sun is in the sky.



50% CO2 savings achievable when used with smart controls.



*"The UK benefits from between 1,700 and 1,900hrs of unbroken sunshine every year. At such a small comparative additional cost there are no reasons why any business would not take advantage of this free energy on their cooling & heating systems". - Chris Micallef, Technical Director, SolX Energy Ltd..*

The owners of Costcutter, Long Buckby were introduced to the services of SolX Energy by Costcutter's development department. Retailers Trevor & Jane Moore were just looking to retrofit doors onto the existing refrigeration cabinets within the site.

After speaking to SolX Energy, they soon realised they could dramatically reduce their overheads and increase the well-being of staff and customers in their shop, on Market Square in Long Bucky.

Once SolX Energy had been provided with annual billing information, they carried out a full site survey to assess the number, positioning and types equipment currently installed.

With the information gained from the initial site survey, SolX Energy returned to Trevor & Jane with a business proposal which would significantly reduce the shops operational costs and maintenance requirements.

This included various technologies including ThermX, Chillscoops, Aerofoils, GCube, Bluewind fans & Ephase Voltage Optimisation.



The first job was to address the old external fridge units. The refrigeration was served by numerous external units, each with it's own compressor.

These were replaced with a new 3 stage digital pack unit supplying all 33m of refrigeration cabinets within the site.



Unlike any other system in the world, when the sun is in the sky, the system idles, reducing emergency call outs.

Energy earns, or simply burns  
...the choice is yours



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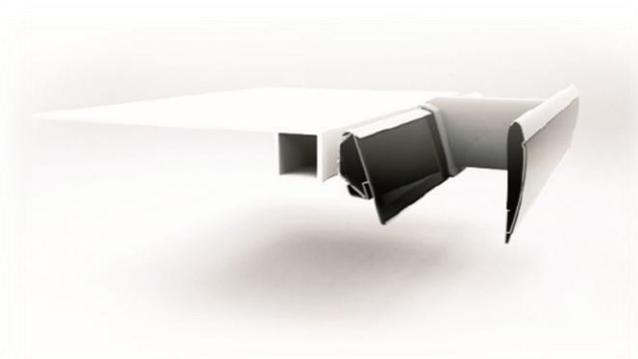
*I am really impressed with the difference the new outdoor unit has made, in particular with regards to the noise level out in the yard, it's so quiet...*

Jane Moore

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One of the recommendations SolX Energy proposed for Costcutter Long Buckby was having their fridges fitted with the revolutionary device - Aerofoils.

The technology which takes its inspiration from Formula 1 motor racing & has been developed by Williams, directs the refrigerated air back in towards the products at each shelf thus increasing refrigeration efficiency by over 10%.



Chillscoops were another technology, unique to SolX Energy that were installed in the site. Fitted along the base of each cabinet, these are designed to prevent chilled air spillage, giving the fans a better chance of capturing it.



This was in addition to installing new motors and stop-start energy management devices are expected to increase savings on Trevor & Jane's fridges by a further 25%.



Retro-fit refrigeration scoops reduce consumption by ^10%

“ I am overwhelmed with the savings we're achieving. In cash terms, we're looking in the region of £800 per month saving. Fantastic. Not only that, but with the amount of energy I'm saving, I can safely say that I've reduced my carbon footprint and that my business is more environmentally sustainable... ”

Trevor Moore

## RESULTS

The existing electrical consumption in this site prior to installation was on average 658kWh per day. During the 8 months post installation of the various technologies by SolX Energy, electricity readings were taken and recorded at an average daily usage of 420kWh. Therefore the overall site has achieved savings of **36.2%**.

**However**, This period of time excludes the hottest, sunniest months of the year so this saving is expected to increase over the remaining 4 summer months, with the store gaining the full benefit of the ThermX technology.

So since the energy saving installation work took place Costcutter Long Buckby have recorded a consumption decrease of 238kWh per day. On a 11.3 pence per kilowatt hour rate, this equates to a mean annual saving of over

**£9,800.00** and **86,870kWh**

Project ROI Moore & Son, Costcutter Long Buckby is just 3.2 years.



### Project Partners

- SolX Energy Ltd
- Moore & Son Ltd
- Daventry Refrigeration
- Costcutter

*I would certainly recommend the services of SolX Energy. I have to admit I took some convincing, but they've delivered an all-encompassing energy reduction package that has done exactly what they said it would. My refrigeration now has a new lease of life, my overheads have plummeted & my fridges are still open to my customers. Moreover, all of this was achieved on time and with the minimum disruption.*

*Trevor & Jane Moore*



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