JT Atkinson Case Study

Energy Oasis were referred to JT Atkinson by another client we had previously worked with. We were asked to look at all their sites and to come up with a plan to reduce their energy consumption and carbon footprint. If possible, to help them create energy on site.

Each site with the exception of one was consuming between £14,000 and £16,000 of electricity.
Approximately 90% of this was for lighting.
The remainder being plug load.

Solar PV

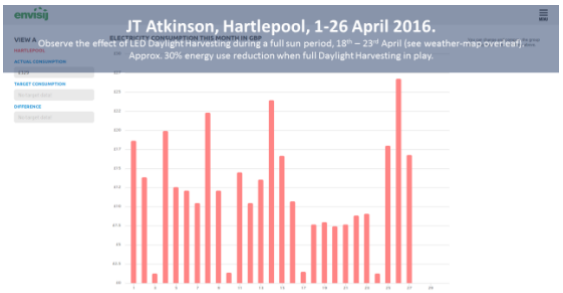
We started by surveying all their sites. We quickly ascertained that solar PV would be an obvious quick win, helping them to achieve their goals of creating energy and reducing the electricity consumed on site in addition to producing a revenue which would be index linked and paid for 20 years with a 7 year ROI. We installed (through a sub-contractor) on 25 of their sites 30kW of solar PV and 1 site with 50kW.

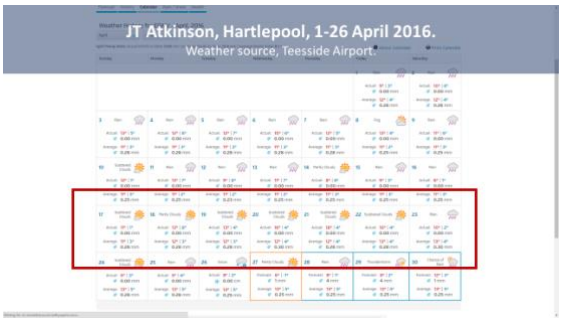
Energy Monitoring

In order to show the energy savings we installed energy monitoring at 2 of their sites, this very quickly established the current spend on lighting, plug load and electric charging consumption for fork lifts. We were able to use this data to spot anomalies within the sites for consumption.

The first very quick win was that we noticed a significant power spike between 1am and 4.30am, when we looked at the data at the same time in the afternoon we noticed a similar profile. We discussed this with our client who was at a loss to explain it.
He asked us to have a look at both sites and to see if we could find out where the power was being used.

We quickly identified the source when we visited the sites, the sales offices had a total of 6 X 15 kW fan heaters under the desks on 12 hour timers.
We suggested that they would be better off putting thermostatic radiator valves on the existing wet central heating system. This was done and the fan heaters removed.





This policy was then rolled out across their 27 sites.

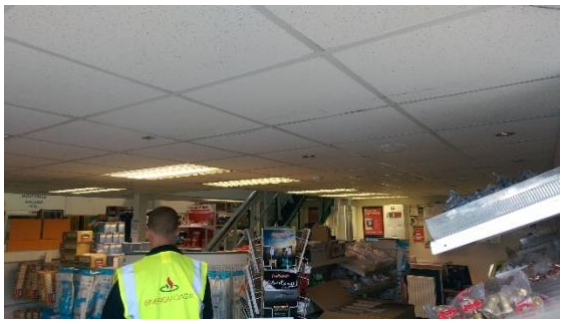
LED Lighting.

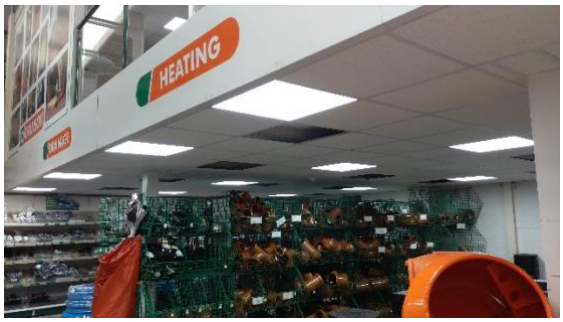
We then started a systematic program of re - lamping all 25 of their sites.

We contacted a number of LED manufacturers in the UK and America. We were looking for intelligent flexible LED lights with easy to use controls, energy efficiency, and a solution for replacing transformers and drivers easily. It was also vitally important that the kelvin range was 4800, day light.

JT Atkinson Case Study

We did not want to install lights that have to be thrown away when these items fail. The LED lights we choose to install are manufactured in the UK by Low Energy Designs. Low Energy Designs lights all come with individual controls, they ramp up and down in 5 watt increments and have day light harvesting. The fittings have been designed so that the drivers and transformers can be easily replaced. The lights can be controlled by a hand held controller which helps to set the lights at the correct lux level, the PIR can also be adjusted remotely. The kelvin range is 4800 kelvins.





Every site has a combination of retail shop lighting, offices, warehousing, storage and also a large amount of outside lighting for the yards and the perimeters of the building. In the offices and retail areas we typically replacing 600 x 600 140 watt florescent fitting with a 36 watt LED panel. We also put in PIR and microwave switching and daylight harvesting to take advantage of the natural light which came into the retail areas and offices as well as ensuring the units were only on when these areas are occupied.

Emergency Lighting.

As part of this we also had to install emergency lighting. This was either incorporated within the fitting or as a standalone solution. When we do a lighting design, this incorporates emergency lighting.

The important thing is to understand whether it is better to put the emergency lighting within the actual fitting or to do it independently. Independent emergency lighting means in most cases fewer fittings and an easier maintenance regime. This is definitely the best return on investment in warehouses, storage and retail areas.

Offices, whilst it is still cheaper to do it independently, most companies choose to use integrated emergency fittings as they blend in to the areas better.

We gave our client both options and the ROI on each different system including maintenance costs.
With the exception of the office areas we put independent emergency lighting in all their warehouses and retail areas. The offices had integrated emergency lighting.

Outside Lighting and Street Lighting.

The outside lighting once again was a combination of flood lighting and street lighting for walk ways.
Once again we used PIR, Microwave and daylight harvesting on the fittings. This ensures lights are not activated during daylight hours. They only light the areas required when there is a person there and turn off within a time period agreed with the client.

JT Atkinson Case Study

From an environmental point of view LED makes a big difference as there is significantly less light pollution.

Whilst this saves a great deal of money one of the other consequences is, when there is a break in on a site it's easy for the emergency services to understand where the problem is, as it is the only place lit.

On large sites this is very important for safe operating practices.

The lighting retro fit has taken over 12 months, we have reduced the consumption on the majority of sites by 80%.

The overall outcome of the project so far is that each site receives approximately £3,400 a year in feed-in tariff and deemed export.

The electricity consumption on each site is now approximately £3,150.

The next stage on these sites is to look at effective energy storage to reduce the energy bills even further.

Please find attached energy monitoring screen shots showing the real effect of day light harvesting and photos of the sites as well as an endorsement from one of the directors of the business.

Infra-red Heating.

We have installed inferred heating panels at one of the client sites, we are currently monitoring and evaluating the performance to ascertain how it works and if the technical data we have received from the manufacturers is correct in a real world situation. With all technologies data is the key, by having a good sample trial it allows us to make educated and informed recommendations to our clients.

To date we are still in the evaluation phase, this will be completed by March 2017.

Project Management;

We worked with the Directors of the company to define a project plan and establish the scope of the works to completed on all the group sites. This also included goals on energy reduction and targets. Energy creation and acceptable ROI and to enhance the working environment for the staff and customers. Improve the overall health and safety at all the sites.

The company then put one of the directors in charge of all projects, the Energy Oasis team along with the director surveyed every site. At each site we were introduced to the branch managers. We then discussed with them what they needed to achieve at their site, paying particular attention to issues they had around safe working practices in the warehouses, retail environment and also the outside lighting. It was very apparent that at the majority of sites there were areas of the yards which were not lit, or unsafe to work in because of a lack of light.

We then completed a survey of key members of staff on each site, to make sure that we had a good understanding of their needs.

This allowed us to provide a comprehensive report and design for each site which we presented to the director we were working with. Each report was then evaluated by the director, site manager and Energy Oasis. This then produced a schedule of works to be completed and a time scale for each site.

Each site took approximately two to three weeks to complete. At the start of each project we held a project meeting with the sub-contractors who had been engaged to carry out the work, the site manager and the director.

JT Atkinson Case Study

The schedule of work was agreed at this meeting and the order it would be completed in. This was then signed off and work commenced. At the end of each job a walk round was undertaken with the director, site manager, Energy Oasis and the sub-contractor to sign off each project.

Customer Engagement.

Energy Oasis work in a collaborative way with all our clients. It is essential that we are able to provide all our clients with the education they require to make informed and educated decisions on the scope of works that is to be undertaken.

The majority of our clients' requirements are to reduce energy consumption, however in the main their knowledge in terms of lighting, monitoring, heating and renewable technologies and what is required by legislation and also what is possible is not comprehensive. We work with them to make this transparent and also to ensure they understand what can be achieved and how this will impact on their site. We help them to understand the technology's that are in the market place, how this will improve their working environment, increase and enhance health and safety and wellbeing within the site.

Reduce energy consumption and maintenance costs. Help them to put a structured policy and plan together to achieve the goals they have set with the correct ROI. Knowledge is the key to energy reduction and this has to start with energy monitoring. It is in no one's interest to guess at what the outcomes will be. First you need a clear understanding of what is currently happening. Existing half hourly data goes a long way to help this understanding, real time data from monitoring highlights waste and also the unknown aspects of their energy profile.

From this knowledge we can then work with our clients to produce a structured and complete plan together to take an educated, proactive and comprehensive document to reduce their energy consumption.

This document will facilitate funding if required, weather this is interest free, such as, Salix, various governing bodies in sport, or funding through traditional means.

We will then agree with our clients an implementation plan and provide a full turn key solution.

We put mile stones in every project plan with agreed deadlines and outcomes. At each mile stone this is then signed off by the client and Energy Oasis.

Once a project is completed we then work with the client to ensure that all snagging, adjustment is completed on time and to their satisfaction. We also advise and will provide ongoing maintenance contracts.

In the main most projects are completed without any issues, the most common issues arise around access, physically being able to get access equipment in to buildings or working round shift patterns and operating constraints. We work with our clients and sub-contractors to ensure there is a safe, clear and common sense plan in place to deal with these issues.

With outside lighting and work the prevailing weather conditions is the biggest factor, heavy rain and high winds are not conducive to working with electricity.
We take all appropriate steps to make sure the work is undertaken safely and try to plan this when we hope the weather will be better for this work to be undertaken.

JT Atkinson Case Study

If technology's fail, we make sure a replacement is on site to prevent projects being disrupted.

This is further backed up by our supplier's rigorous and documented quality assurance before we take delivery of any products. Also the warranty's we get from our manufacturing partners and suppliers and sub – contractors.

Risk management and Risk Mitigation.

With all projects we place a high priority on health and safety for our clients, staff and sub- contractors. This is covered off in the detailed project plan and RAMs document that is produced before work starts. All our staff and sub – contractors comply with any on site inductions and particular health and safety requirements of each site we work on.

These vary dramatically from a school or sports hall to a heavy engineering or chemical plant. In terms of the performance of our solution's we offer some clients depending on their profile funded solutions, effectively this is an ESSCO, we are liable and accountable for our performance. In order for us to offer this model we have to be totally confident in what we do, propose and install. The clients get the same advice, service and turnkey solution irrespective if they are paying for it or if it is funded.

Management of Partners and Sub Contractors.

We have a clearly documented procedure and process which is signed and agreed with all our partners, manufacturers, suppliers and sub – contractors. It is reviewed every 12 months to ensure it is current and compliant with new legislation or changes with legislation.

JT Atkinson Sites - examples

Hartlepool – Energy Monitoring, LED lighting (internal and external), emergency lighting, radiant heating panels

Bishop Auckland - Energy Monitoring, LED lighting (internal and external), emergency lighting, radiant heating panels

Sunderland Energy Monitoring, LED lighting (internal and external), emergency lighting, radiant heating panels

Middlesbrough - Energy Monitoring, LED lighting (internal and external), emergency lighting, radiant heating panels

Stockton Hathaway - LED lighting (internal and external), emergency lighting

Aspatria - LED lighting (internal and external), emergency lighting,

Cockermouth - LED lighting (internal and external), emergency lighting,

Kirkby Stephen - Energy Monitoring, LED lighting (internal and external), emergency lighting

Pickering - LED lighting (internal and external), emergency lighting

Richmond - LED lighting (internal and external), emergency lighting

Thirsk - Energy Monitoring, LED lighting (internal and external), emergency lighting,

Northallerton - Energy Monitoring, LED lighting (internal and external), emergency lighting, radiant heating panels.