

## O' Donovan Engineering, Coachford, Co. Cork



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### O Donovan Engineering

O'Donovan Engineering Ltd was founded in 1978 by Damien O'Donovan and his wife Marion and initially filled a need for a local engineering service.

The company began servicing the agricultural sector and over the years has built up an excellent reputation for high quality manufactured product in the livestock handling and feeding sector.

The past 15 years have seen an expansion again, this time into the manufacturing and construction industries. They continue to build their technology and customer base to new levels, offering a diversity of goods, components and service to all

leading industries in agriculture, construction and manufacturing.

The company has a modern well-equipped factory, a dynamic Innovative Management Team, fully trained staff, including in-house design, and an R&D facility. The company operates an approved ISO Quality System.

The factory has evolved over the years and has four main buildings. The family home and farm is located next to the business. The company has 50 employees.

### Inclusion in the EcoBusiness Programme

Prior to participation in the EcoBusiness programme, O'Donovan Engineering did not monitor any of their major utility costs on a usage basis. Utility bills, such as electricity, diesel, water and waste, were examined but only in terms of costs rather than on consumption or production. They joined the EcoBusiness Programme in the first year and attended the two 1/2 day workshops in the Macroom E centre. A quality system, which considered product quality, was

being introduced to the O' Donovan Engineering site at this time. However the management of environmental "costs" was not included.

### Environmental Management prior to joining the programme

#### Waste Management

Environmental management was not a high priority before joining the programme. Waste management was provided for the site by an open skip for landfill waste.

Separate skips for the collection of metal and wood waste for recycling were provided. Limited internal segregation of canteen wastes was in place and cardboard packaging segregated and baled but stored outside in the yard. All skips were exposed to the elements, with no monitoring of weights.

#### Energy

Energy usage was estimated by the supplier and the bills were not checked for usage spikes or anomalies. Diesel costs were quite high for their distribution fleet, and while sensible delivery logistics were employed, no monitoring of the volume of diesel used was in place.



## AREAS IDENTIFIED FOR IMPROVEMENT DURING ON SITE VISIT



**One of the first areas tackled at O' Donovan Engineering was the issue of mixed wastes**

### *Waste*

Large open skip should be removed and replaced with 1100l bin. Improve waste segregation on site. Store cardboard bales in a suitable location out of the weather.

### *Logistics*

From the monitoring of energy costs diesel was identified as a major factor. Procedures for delivery should be examined to establish if there are organisational options to reduce consumption in this area.

### *Electricity*

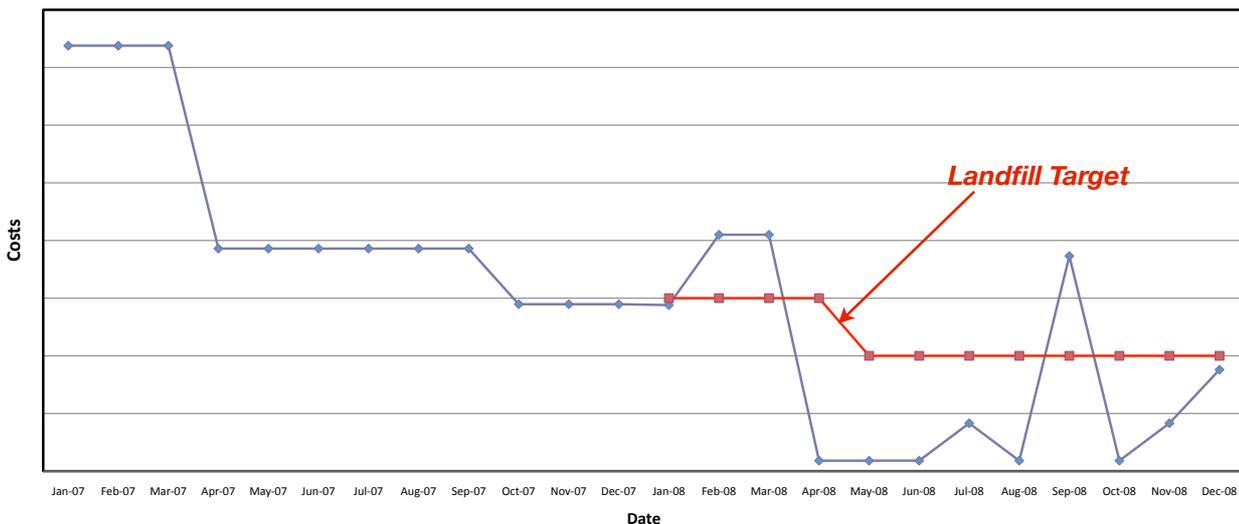
Review compressed air use from the 3 on-site compressors. Ensure that meters are read on the first of every month - previously most bills were estimated. Examine bills for issues such as wattless charges. Review lighting type and use on site.

### *Data Review*

Bills are recorded and paid but any trends or anomalies in absolute values are not examined. Establish measures for recording, monitoring and targeting. Compare these internally to a production factor for normalised results.

## Environmental Improvements Made

**Landfill Waste Costs**



The initial work of the Ecobusiness Programme focuses on careful monitoring and measuring of business activity. O' Donovans introduced a monitoring system that measured their on-going performance in the areas of waste production and energy consumption. This in itself was a time consuming task but ultimately showed great dividends.

### **Waste**

The waste profile shown above reflects massive monthly savings achieved in the cost of mixed waste disposal. Initially waste charges for the skip were the same each month, irrespective of volumes. The waste skip was collected on a monthly basis, regardless of whether it was full. The system was changed so that the skip was only collected upon request from the company, resulting

in significant savings. In general, most skips are not completely sealed so rainwater is an issue and this was the case here.

The skip was removed and replaced with a 1100 L bin. On removing the skip completely the charges dropped significantly. This was attributed to:

- less fly tipping
- improved segregation

- improved internal communication regarding waste levels and the improvements that had been made.

There are now colour coded drums around the site for the segregation of different process materials. In addition the maintenance manager has ensured a very high level of waste segregation. More recently charges have gone up but this is due to a reclassification of a previously recycled stream. **Annual savings of almost €4000 were made in the first year.**

Cardboard bales, which were previously stored in an open area, are now kept in an enclosed area which ensures they do not get wet. This is an important issue for removal by recycling companies.

### Electricity

Electricity is used extensively on site, with the majority used in essential works like cutting. The ancillary electricity users were examined initially. There are 3 local compressors on site, each of which has a significant distribution system. Prior to the programme the compressors were left on constantly and while the distribution system was leak tested, it was not on a regular basis and usually only considered significant leaks. As the owners' house was on the same electricity line it was often noted during the

evenings that the lights would dim - this was due to the compressors kicking in to maintain pressures. Compressed air is one of the most expensive forms of energy so now all compressors have isolation valves and are turned off overnight.

Quantifying the savings made by this action was not possible as most bills prior to the programme were estimated. This also resulted in undue wattless charges being incurred. Now the electricity meter is read at the start of each month which gives much more control to the business in monitoring electricity use.

### Logistics and Planning

When the overall energy costs were examined it was found that the largest individual cost was diesel. This was used for the fleet which were delivering products as well as bringing products to the local galvanisers in Cork city. A review of the delivery and communication procedures with customers identified a number of issues that resulted in repeat trips to the same location. Consequently, materials were returned to the factory due to customers not being ready for delivery on assigned dates, often due to delayed construction or other factors. The delivery procedures were improved to ensure that:

- all delivery parts were present and accounted for prior to leaving the site;

- the customer was actually ready to accept all materials
- geographic based delivery;
- co-ordinating production more closely with delivery personnel.

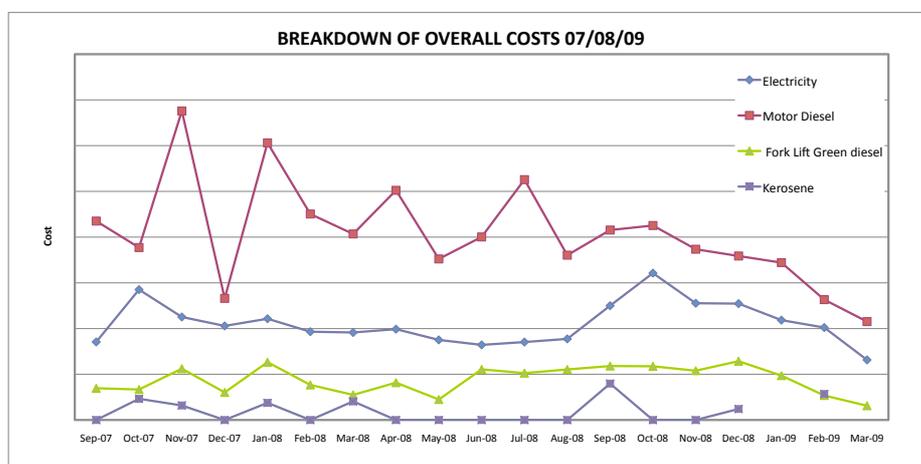
Internally kerosene is used in the forklifts. In many cases there was duplication of lifting due to waiting periods and blockages in the production line. Improved planning has reduced some of this with an associated decrease in kerosene use.

### Metrics

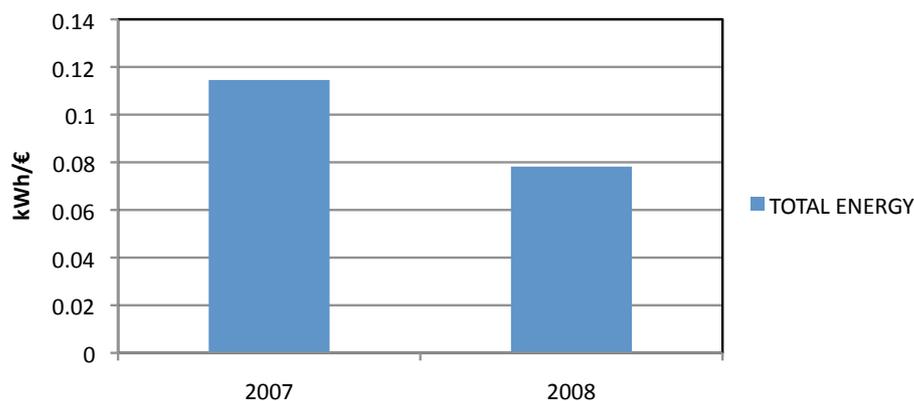
This is the process of gathering resource use values in a spreadsheet and comparing them to a production activity. This allows a tracking of relative consumption levels rather than only costs. The initial information gathering process of this programme has led to extensive use of environmental metrics in O' Donovans. The findings are posted monthly as a communication tool for staff and management. The use of this tracking helped identify the unexpected weakness in logistics and production management. Hence, using environment as a focal point led to process improvements.

Initially the company started plotting monetary related graphs only but that has now evolved into a more detailed use of benchmarking. Comparing resource use with a production related factor has enabled comparison of internal efficiencies as business volumes have gone up and down.

The following figure shows the comparison of energy use with turnover. This profile shows that the energy efficiency of the business relative to unit turnover improved by ~ 33% between 2007 and 2008. During this time some of the process work was subcontracted out. This value was subtracted from the turnover so that like was compared with like. Also, between '07 and '08



## Total Energy Use per Unit Turnover



business activity and energy consumption increased. While total energy costs increased by 19%, the overall ratio of energy cost to turnover reduced by 33%.

This monitoring is now being used to identify base loads and any peaks in resource related activities and has been

extended to individual areas within the business.

O'Donovans are now seeking continuous improvement by constantly monitoring their performance to immediately spot any process issues and to identify the root-causes of losses.

### Other work

One of the major solid waste issues was the use of a large volumes of gloves. Due to the nature of the business, gloves of a certain standard must be used for safety reasons. When the issue of waste gloves was identified new procedures for acquiring them was put in place. This was then used to find the most glove intensive areas and new gloves are being tested in these areas. Preliminary results show that a marginally more expensive glove lasts, on average, 3 days longer. They have associated improvements in worker productivity and reduced overall purchasing and waste disposal costs.

There are a number of large energy users on site and the plasma cutter is one of the largest. Traditionally this was used as needed but now all cutting is done on specific days which has improved the efficiency of energy use and improved production and delivery planning.

## Future Plans and Targets

### Site Planning

This site has evolved over time as business has become more established. The four buildings house different activities but there is a lot of wasted product movement due to this site evolution. A review of the material and product flows is planned to establish the most efficient site layout.

### Metal Recycling Examination

While the internal reuse of metal offcuts is very good, this activity has not been quantified. In addition, while the metal recycling levels are very good, quantification of sources of metal wastes has not been done. Metal from different process steps will be quantified to identify the largest generators of scrap. The root cause will be investigated and improved performance is expected.

### Improved internal resource knowledge

The level of internal knowledge about consumption patterns, resource use, areas of efficiency and inefficiency and the general level of environmental awareness has increased during this programme. This awareness has become ingrained in the business and continual promotion of the levels of performance as well as options to improve will be a cornerstone of future work.

### Supply Chain Examination

A number of the main mixed wastes that are difficult to recycle are related to packaging on raw materials - plastic film and hessian cloth. O' Donovans plan to examine ways of preventing (or reducing) these materials with their suppliers.

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