

Reducing the Environmental Impact of Distribution

Case Study



Company:

Transco National Logistics

Location:

Birmingham

- ↔ Cost savings of £113,000 a year
- ↔ Fleet mileage reduced by 66,000 miles a year
- ↔ 123 tonnes of CO₂ saved a year

1 Introduction

Transco's National Logistics team stores and delivers engineering materials and meters for National Grid Transco's gas supply business. Their National Distribution Centre in Birmingham operates 35 articulated vehicles. Every year the fleet delivers £120 million worth of goods to 14 smaller warehouses and over 200 customer locations across the UK. In order to achieve this, the vehicle fleet travels approximately 2.5 million miles, consuming around 1.4 million litres of diesel. This distribution costs approximately £3.5 million a year, a significant element of which is the cost of fuel.

1.1 Environmental Improvement

This element of Transco's operation clearly represents a significant impact on the environment. Fortunately, Transco are committed to reducing this impact, not only of their distribution operation, but also due to the energy they consume, the waste they dispose of or any accidental spills they create.

This commitment to environmental improvement is not a vague statement of intent. Transco have taken positive and identifiable steps towards reducing the adverse effects of their operation on the environment. In 1999, Transco were proud to become the first utility company in Western Europe to have all its operating locations certified to the Environmental Management System (EMS) Standard ISO 14001. Since then they have developed systems to help them make big, measurable improvements in all areas of their environmental performance.

Transco have raised the environmental awareness and understanding of their staff and contractors. This commitment to developing a culture of environmental awareness is supported by all members of the organisation. A good example of this is staff in Transco's National Logistics team who have safety and environmental improvement at the top of their agenda. All staff attend an environmental training course and key messages are constantly reinforced through regular communication, including by placing effective posters in prominent locations (see opposite).

"We're all responsible for the environment"

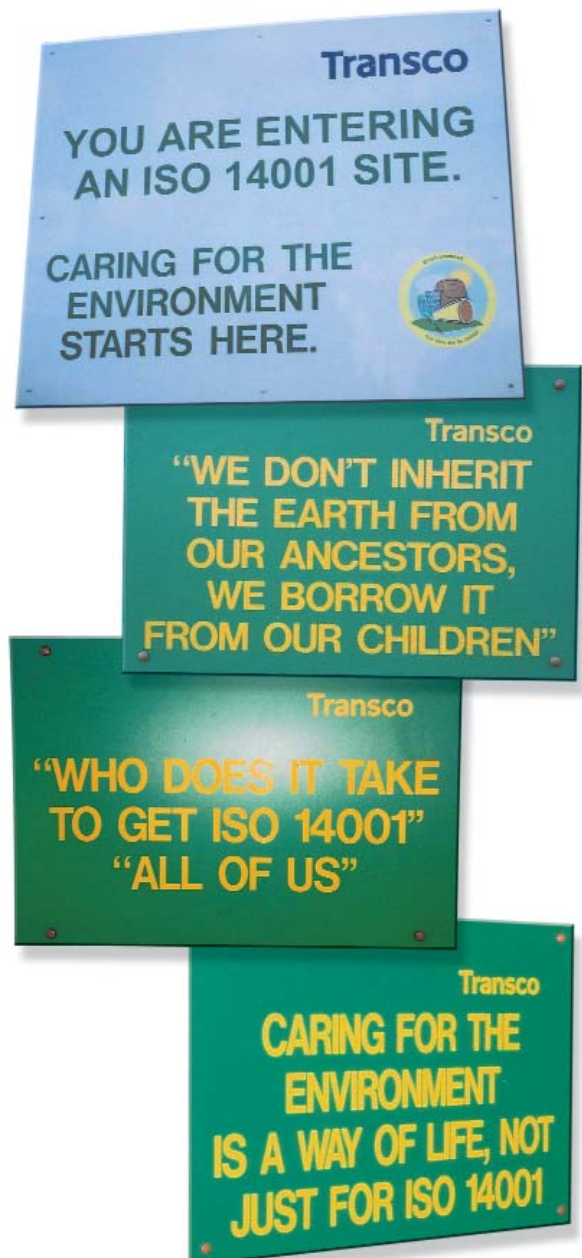
Mike Palmer, Transco National Logistics' Supply Chain Controller

This culture of environmental responsibility is typified by Mike Palmer, Transco National Logistics' Supply Chain Controller, who when asked who has responsibility for environmental projects in National Logistics replied "We're all responsible for the environment".

But it's not only responsibility that motivates Transco's National Logistics team. Good environmental practice also makes good business sense. Following a review, Mike and his team identified that the environmental performance of their transport operation could be improved and also give related cost savings. The team had a number of ideas on how to make these changes. With the full support of management, they decided to embark upon three projects:

- ➡ Introduction of alternative fuel vehicles
- ➡ Introduction of step frame trailers
- ➡ Optimising vehicle routing

These projects are discussed in the sections overleaf.



2 Alternative Fuel Vehicles

During 2001, Transco National Logistics needed to buy more tractor units. They decided to explore the option of vehicles that use alternative fuels, in particular Compressed Natural Gas (CNG). CNG vehicles are cleaner, produce lower exhaust emissions and cost less to run than their diesel counterparts.

Recognising the environmental and economic benefits of these vehicles, Transco's National Logistics team decided to trial CNG powered vehicles supplied by two leading manufacturers. The trial demonstrated that both models would bring significant cost savings, without any serious impact on operations.

A key factor in the final choice of supplier was that one used existing models that had been 're-engineered' to run on gas. This type of vehicle is even more environmentally friendly than a completely new CNG vehicle since it is 'recycled'!

However, before Transco made a decision to proceed, they had to examine how the vehicles would be re-fuelled. The lack of CNG filling stations in 2001 meant that they would need to invest in a refuelling point at the Transco National Logistics site. Fortunately, Lattice Energy Services (LES), Transco's former parent company, announced the completion of a CNG fast fill fuel installation located just off the M6 motorway at Crewe. The fuel station was provided for a local haulier who had opted for the use of gas-powered vehicles. This announcement was made at just the right time for Transco National Logistics. The availability of a gas supply close to one of their core routes allows their vehicles to be refuelled conveniently during their day-to-day operations.

Figure 1 The Re-engineered CNG Vehicle



With the clear-cut environmental and economic benefits of CNG, once Transco knew they could easily re-fuel the vehicles, the decision to proceed was easy. So in early 2002, Transco National Logistics introduced six "re-engineered" tractor units, powered by CNG. Arrangements were made through LES to refuel the vehicles at their fuel installation in Crewe and the facility is now incorporated into the dedicated routes for all the gas vehicles.

Benefits highlighted:

Monitoring the performance of the CNG vehicles revealed that they are about 10p per mile cheaper in terms of fuel costs than their diesel counterparts. Since these six vehicles travel approximately 250,000 miles per year, this results in a fuel cost saving of £25,000.

The annual environmental benefits are also impressive:

- ➡ 42 tonnes of carbon dioxide emissions avoided
- ➡ 98% reduction in particulate emissions
- ➡ 86% reduction in nitrogen oxide emissions
- ➡ Quieter vehicles

3 Step Frame Trailers

Transco's National Logistics team constantly review their operation to try and find opportunities for efficiency and environmental improvements. Maximising the utilisation of vehicles is one of the areas they pay a lot of attention to. The reason for this is simple: the more you can load on a vehicle, the less journeys you need to make, resulting in lower costs and less pollution.

Transco National Logistics collects materials from 17 key suppliers and delivers to over 200 customer locations. Collections from suppliers involve a significant number of vehicle movements between the supplier locations and Transco's National Distribution Centre in Birmingham. This aspect of their operation was carefully examined to identify how many of these journeys could be replaced by improving vehicle utilisation.

Figure 2 The standard trailer (top) can carry up to 52 'magnum' pallets but the step frame trailer (bottom) can carry up to 70



Their deliberations involved not only the trailer type/specification, but also an analysis of the nature of the products that they transport. For example, they found that an extra 15" of depth or height in the trailer body would allow double, or treble, stacking of some of their high volume product lines. Following detailed discussion with manufacturers, a "step frame" trailer, which lowered the deck floor by the required 15" was selected.

The key advantage of this step frame type of trailer over the existing trailer is the extra capacity provided (see Table 1 and Figures 2 and 3).

The introduction of eight new step frame trailers since January 2002 has saved Transco's National Logistics team some 394 journeys a year, equivalent to 42,000 miles.

Benefits highlighted:

The annual environmental benefits of these eight new specification trailers, based on current trends are:

- ➔ 394 fewer journeys performed
- ➔ 42,000 miles saved
- ➔ 22,374 litres of fuel not consumed
- ➔ 60 tonnes of carbon dioxide saved
- ➔ Reduction of other polluting emissions

In financial terms, the introduction of the step frame trailers has saved Transco over £56,000 per annum.

Table 1 Transco's step frame trailers increase carrying capacity by up to 50%

	Standard Trailer	Step Frame Trailer	Capacity Increase
Magnum Pallets	52	70	34%
Pallets of Gas Meters	32	48	50%

Figure 3 The standard trailer (on the left) can carry up to 32 pallets of gas meters but the step frame trailer (on the right) can carry up to 48



4 Optimising Vehicle Routing

Transco National Logistics has country-wide responsibility for the warehousing, inventory management and distribution of engineering materials and meters for Transco's businesses. Distribution is optimised using pre-determined delivery schedules. However, there are always occasions when materials are needed outside these pre-determined schedules. For example, Transco National Logistics frequently receives calls from engineers requesting urgent or emergency materials. In the past these requests were completed without question, whatever the impact on the number of journeys and costs.

Recognising the inefficiency of this practice the team decided to do something about it. The solution was simply to improve communication. When an internal customer requests an immediate delivery, Transco inform them of the associated additional costs. They also tell them when the next scheduled delivery is due and ask if they can wait until then. In many cases, the customer is happy to wait for their request to arrive on the scheduled vehicle, saving them the additional costs.

Since January 2002, staff at Transco's National Distribution Centre in Birmingham have recorded all instances where additional vehicles have not been required. In the first six months of this scheme there were 180 occasions when existing scheduled vehicles were used.

Benefits highlighted:

The annual environmental benefits, based on current trends, are:

- ➔ 360 journeys avoided
- ➔ 24,000 miles saved
- ➔ 8,000 litres of fuel not consumed
- ➔ 21 tonnes of carbon dioxide saved
- ➔ Reduction of other polluting emissions

The financial savings to Transco amount to £32,000 per annum.

5 Conclusion

Transco's National Logistics team is an excellent example of how improving the efficiency of a transport operation can realise significant environmental benefits that contribute to a company's overall EMS. Their experience highlights that these benefits can be achieved with relatively straightforward solutions. A collection of ideas from the workforce as a whole has delivered impressive environmental and cost benefits.

Transco has demonstrated that good environmental practices will both enhance your reputation and save you money. The implementation of three initiatives has had the combined, annual environmental benefit of:

- ➡ Reducing distance travelled by 66,000 miles
- ➡ Reducing carbon dioxide emissions by 123 tonnes
- ➡ Reducing emissions of other harmful pollutants
- ➡ Reducing noise pollution

And the work hasn't stopped. Within the framework of ISO 14001, Transco's National Logistics team continues to look for new ideas for saving money and improving the environment.

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