Press Information

Feature: Truck life cycle turns climate-smart

"Product life cycle" has gone from smart PR to smart business. Nowadays companies can't ignore the importance of managing their products' environmental footprints. Volvo Trucks was one of the first major industrial companies to turn its attention to reducing the environmental impact of its trucks. From using ice-cold rivers to cool its plants to innovative alternative fuels – this is how Volvo stays on top of the life cycle game.

It was about three years ago that the world reached a tipping point on climate concern. Green became the new black, and everyone from politicians to pop stars started flaunting their environmental credentials. The business world was quick to seize upon this paradigm shift, and businesses from chocolate makers to shipping companies started assessing the impact of their products on the environment, taking action to address that impact.

Of course companies in many sectors have shown varying levels of environmental engagement for decades, but it was not until climate change began to top the international agenda that environmental impact became an everyday part of business life. "This is a very big issue in business today," says Raul Carlson, an international consultant to industry and a lecturer on product life cycle issues. "I cannot see how any serious company today could work with product development without considering environmental issues."

Companies measure the impact of their activities on the environment through tools such as life cycle assessment (LCA). This involves following raw materials from the mine or the well from which they originated, through each processing and manufacturing stage. The environmental impact of the use of the product is measured, as is the way it ends its life, be it through recycling or disposal. "At each stage you identify the emissions, the waste generation and resource use," says Carlson.

Once a company knows the extent of its impact on the environment, there are a number of ways it can go about reducing it. "One way is to set up long-term goals where each generation of a product series should always have a lower overall impact than the previous one," says Carlson. "This means that you set goals such as halving emissions in the next product generation, and you then aim your strategy in that direction." Some

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companies build up an in-house database of materials they use and their life cycle assessment values so product designers can see how different choices will affect the environmental impact of a product.

What is driving development towards more environmentally-enhanced products is a mixture of consumer demand and business initiative. “I think that industry is both following market demands and also driving the demand for better environmental performance,” says Carlson. “Information is lacking so consumers can only make quite general demands: we don’t want a large carbon footprint; we don’t want any toxic substances. But the companies have to interpret this into something that they can deliver.”

While moves in this direction certainly make for good PR, for most companies they also have a positive effect on the bottom line. “Most actually save money because they find some wastage, some meaningless extra energy use in their operations,” says Carlson. It is also beneficial for internal reasons; environmentally-aware companies also have advantages when it comes to attracting and keeping increasingly environmentally-aware employees.

One of the first major industrial companies to turn its attention to reducing the environmental impact of its product life cycle was Volvo Trucks. “We trace the start of our environmental work back to the first UN conference on the environment back in 1972,” says Lars Mårtensson, the company’s environmental director. “Our CEO at the time, PG Gyllenhammar, said that we are part of the problem but can also be part of the solution. That was a very bold statement for an automotive producer to make back then.”

The Gothenburg-based truck-maker has systematically examined the life cycle of its vehicles, finding ways to save energy and materials during production, reduce fuel use and emissions during the years the vehicle is on the road, and then minimise its environmental impact at the end of its life. “Our focus today is on reducing our dependence on fossil fuels and cutting our climate impact,” says Mårtensson. “We are doing so in two areas: by making our products and operations more energy-efficient, and by introducing renewable fuels.”

In 2007 Volvo became the first company to operate a climate-neutral factory. All energy at its plant in Ghent, Belgium, now comes from renewable sources: wind power, biomass, and solar panels, all installed on site. A passive office and warehouse building have also been built. “We have succeeded in reducing energy usage by at least 30 per cent over the past five years,” says Mårtensson. “All our major production plants will be CO2-neutral by the end of 2010.” At the company’s cab factory in Umeå, Sweden, water from an ice-cold river is used for cooling, while its dealership in Verona, Italy, generates all its electricity from solar cells, with the surplus being fed into the local power grid.

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According to the life cycle assessment carried out by Volvo, about 90 per cent of the environmental impact of a truck comes from its use, so that is where the company is focusing its efforts. While CO2 emissions are not yet regulated, this is an area where Volvo has taken huge strides on its own initiative. “Over the past 30 years, we have managed to improve fuel consumption by 40 per cent, which is a tremendous achievement,” says Mårtensson. The company has set itself the target of continuing to improve fuel consumption at the rate of one per cent per year.

Considerable improvements in fuel efficiency are possible with the new hybrid trucks Volvo is currently field-testing in Sweden. These tests show that for trucks in city traffic, fuel consumption can be improved by 15 to 20 per cent, with similar reductions in emissions. Another Volvo initiative, its Fuelwatch package of services, helps customers reduce fuel consumption and CO2 emissions through measures such as driver training, software upgrades and the use of fuel management consultants.

However, cutting CO2 emissions to zero will require new fuels, and here Volvo is again setting the pace in the industry. In 2007 the company unveiled seven trucks able to run on seven different renewable fuels. Volvo’s message to the energy industry and governments was: we have the technology, now provide us with the fuel. Two of the fuels that Volvo believes offer the best potential are bio-DME, which can be produced from biomass, and in the shorter term a mixture of liquefied biogas and diesel. “We think this is something that will be extremely interesting in the near future,” says Mårtensson.

Volvo has taken a number of initiatives to ensure that when a truck reaches the end of its usable life, whatever parts can be recycled are actually recycled. Parts are marked to clarify how they can best be recycled, and manuals for dismantling are published. Some components are renovated and sold on. “About 90 to 95 per cent of the truck is recyclable, either as material or energy,” says Mårtensson. “About one third of each truck we make comes from recycled materials.”

A cynic might accuse companies of jumping on the environmental bandwagon for the PR factor. Mårtensson counters that for Volvo this is a long-term project that reaches into all parts of the Volvo organisation. “We have been working with environmental improvement for a very long time and we really believe it is critical for us as a company. Our business will benefit and it is crucial to our long-term survival that we work proactively to stay in the pro-environmental lead. Being reactive means seeing the environment as a cost, when it should in fact be regarded as an income opportunity.”

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Pictures

lifecycle_truck1.eps

Caption: A Volvo truck's life cycle

1. Materials
From steel and rubber to textiles and paint, a Volvo truck is made up of about 7000 kg of materials. Today, about 30 percent of a Volvo truck consists of recycled materials, mainly iron and aluminium, but also copper and lead.

2. Production
In the space of just five years, CO2-neutral production, recycling and energy efficiency have meant that Volvo Trucks now produces around 70 percent less refuse, uses 40 percent less water and consumes 30 percent less energy per manufactured truck.

3. Usage
Fuel consumption, emission levels and vehicle maintenance account for 90 percent of a Volvo truck's total environmental effect throughout its lifetime, so these are high-priority areas. Emissions from Volvo trucks today are up to 100 times lower than they were just 20 years ago.

4. End-of-life treatment
About 85 percent of the typical Volvo truck consists of metal. Together with various plastic components and rubber, 85-95 percent of the vehicle can be recycled. All plastic components weighing more than 50 grams are stamped with a label so they are easy to identify during the recycling process.

For reference see picture: lifecycle_truck1_example_eng.pdf

lifecycle_truck2.jpg
Caption: All energy at its plant in Ghent, Belgium, comes from renewable sources.
Picture: Volvo Trucks

lifecycle_truck3.jpg
Caption: New hybrid trucks from Volvo are currently field-tested in Sweden.
Picture: Volvo Trucks

lifecycle_truck4.jpg

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Caption: New hybrid trucks from Volvo are currently field-tested in Sweden.
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lifecycle_truck5.jpg
Caption: In 2007 Volvo unveiled seven trucks able to run on seven different renewable fuels.

Picture: Volvo Trucks

lifecycle_truck6.jpg
Caption: Lars Mårtensson, environmental affairs director, Volvo Trucks.
Picture: Volvo Trucks

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Volvo Trucks provides complete transport solutions for professional and business-driven customers. The company offers a full range of medium to heavy duty trucks, with a strong global network of 3,000 service points in more than 140 countries. In 2008 Volvo Trucks sold more than 106,000 trucks worldwide. Volvo Trucks is a part of the Volvo Group, one of the world's leading manufacturers of trucks, buses and construction equipment, drive systems for marine and industrial applications, aerospace components and services. The Group also provides solutions for financing and service.