By Manfred Beck

ELV recycling goal within reach for ARN

ARN is now marketing its expertise on a commercial basis, offering consultancy for third parties in the fields of recycling and closed-loop management.

Formed 14 years ago by a quartet of Dutch automotive industry bodies, ARN has played a pivotal role in boosting end-of-life vehicle (ELV) recycling rates in the Netherlands. By 2008, more than 85% of the total weight of a typical ELV was being recycled – and this figure is expected to climb beyond 95% once the organisation has unveiled its post-shredder technology plant at Tiel.

In 1995, the Netherlands became one of the first countries in the world to organise the recycling of end-of-life vehicles (ELVs). ARN was founded by four organisations from within the Dutch automotive industry, namely: STIBA - car dismantlers; RAI - car manufacturers and importers; BOVAG - car dealers/workshops (repair & maintenance); and FOCWA - damage repair companies. All of ARN's shares are owned by the Auto & Recycling Foundation (Stichting Auto & Recycling), with the founders all having a seat on the board.

The aim of ARN was to bring about drastic reductions in the volume of waste generated by ELVs. Over the years, ARN has developed a concept which enables large volumes of materials to be recycled; for instance, it ensures that many additional materials are removed from scrap cars for reuse as raw materials in the manufacture of new products. Currently, some 86% by weight of the average Dutch ELV is recycled and, according to ARN's CEO Dave Bebelaar, 'it's a matter of time before we reach the 95% laid down in the EU's ELV Directive'.

Disposal fee

The core of the organisation's recycling concept is that the private sector, in conformity with the market, will ensure that all scrap cars are collected and dismantled without cost to the final owner and without creating an environmental burden.

Financing has been achieved by imposing a waste disposal fee on new cars which is collected by ARN; this fee currently stands at Euro 15. When an ELV is handed in - at no cost - to a car dismantler, the final owner is issued with an indemnity certificate which exempts him or her from car tax and other legal obligations such as insurance and the periodic road-worthiness test (APK).

These waste disposal fees then enter a fund, out of which ARN awards premiums for ELV dismantling and recycling activities that are not yet economically viable.

Increasingly strict regulations

When ARN started out in 1995, there were around 600 car dismantlers in the Netherlands. It is estimated that only some 300 remain - mainly as a result of ever stricter environmental regulations - and the number is expected to fall even further owing to growth in scale and increasing profes-

Dismantling companies within the ARN set-up are contractually obliged to dismantle 19 different types of material and have them disposed of.

sionalism within the industry. To date, 253 dismantlers have become member companies of ARN, together processing some 85% of all scrap cars in the Netherlands. Approximately 100 kg of additional materials are dismantled per vehicle.

A company qualifies for inclusion in the ARN network only if it is certified and meets a number of objective standards. Only then can they receive the waste removal premiums paid out by ARN. Dismantling companies within the ARN set-up are contractually obliged to dismantle 19 different types of material and have them disposed of. They receive a payment per unit (kilogram, litre or piece) of material actually submitted. In general, these premiums constitute supplementary income for the car dismantling companies as their main income is from the sale of dismantled parts and from trading in the metals recovered from scrap cars.

ARN also markets the materials and parts dismantlers are removing from ELVs. Dismantlers store the materials in containers; when these are full, a collection company transports them to ARN-contracted companies for recycling in an environmentally friendly way. ARN oversees the entire process, thus promoting an approach that is environmentally responsible, efficient and cost-effective.

> *'ARN combines experience with how to apply it.'*

ASR processing

In line with the goals of the EU's ELV Directive, ARN's initial objective was to achieve 95% recycling of ELVs by the year 2015. In addition, the Dutch automotive industry set itself the target of preventing at least 85% of a vehicle's materials from entering the waste stream through reuse and recovery.

A distinction is drawn between reusing complete components (product recycling) and recycling of individual materials such as steel, glass and plastics (materials recycling). 'We also talk about energy recovery,' says Mr Bebelaar. 'Energy recovery is using material by burning it as a secondary fuel. All this combined more than halves the annual amount of ELV waste.'

Thanks to ARN's efforts, more than 85% of an ELV by weight is currently reused, recovered or recycled in the Netherlands. In order to boost this percentage and to reach the objective of 95% recycling, ARN has turned its attention to the processing of automotive shredder residue (ASR) which consists of a mixture of materials such as plastics, road dirt, paint, adhesives, laminates, stone, polyurethane foam and fabrics.

Since 2003, the organisation has conducted a series of tests aimed at achieving post-shredder mechanical separation of these materials. The organisation is currently installing an ASR processing plant at Tiel in the Netherlands which is scheduled to be operational in the first half of 2010. 'Once this plant has come on stream, I'm confident we will easily reach 95% recycling of ELVs,' says Mr Bebelaar.

Change of course

Although formed initially to organise the recycling of ELVs in the Netherlands and to reach a 95% recycling rate by the year 2015, ARN has evolved considerably during recent years and has devised a number of services aimed at facilitating numerous recycling activities. It acts as an intermediary between market players such as dismantlers, shredder operators and recycling companies; provides information on current dismantling and recycling methods, as well as on the premium scheme; and conducts research into new recycling opportunities.

'When our post-shredder technology plant becomes operational next year, we will be able to reach our goal of 95% recycling of ELVs in time to meet the 2015 target date,' notes Mr Bebelaar. 'Within ARN, we started thinking 'Is that our only task or is there more we can do?' Over the years, we have gained a lot of knowledge and expertise relating to recycling and we think that we can use this for the whole chain of a car's life - from design for recycling in the automotive industry to service stations and damage repair companies and dismantlers. We can close the whole loop of a car's life.'

But ARN is not looking solely at closing the automotive loop. 'Recycling chains and recycling technologies are not limited to cars,' says Mr Bebelaar, 'but can also be used for other means of transportation such as boats, ships and airplanes - basically, for all the mobility chains.' Thus, ARN is aiming to market the knowledge and expertise it has acquired over the years.

'We field many questions from all over Europe about how ARN closes loops, about our system and our technology,' notes Mr Bebelaar. 'And although we are more than willing to help, we sometimes feel that we have become a sort of a public library for ELV issues where a person can shop for free until his or her heart's content. That's something we have changed.'

It is expected that 200 000 ELVs will be recycled this year in the Netherlands.

Marketing expertise

And so ARN is now marketing its expertise on a commercial basis. 'With our experienced staff, we will offer consultancy for third parties in the

Dutch ELV recycling success

According to ARN's Sustainability Report of 2008, 85.6% of the total weight of discarded end-of-life vehicles (ELVs) was recycled in the Netherlands last year, thus comfortably meeting EU targets.

During 2008, some 178 450 ELVs were recycled in an environmentally friendly manner through the ARN system. The organisation expects to process an even larger number of cars this year, mainly as a result of the recent introduction of the Dutch National Scrapping Scheme which has led to a doubling of the number of cars offered for dismantling. The expectation is that 200 000 ELVs will be recycled this year in the Netherlands.

Starting from 2010, ARN expects to achieve a significant increase in the recycling percentage thanks to the start-up of its post-shredder technology (PST) plant at Tiel.

fields of recycling and closed-loop management,' explains Mr Bebelaar. 'Our goal is to become *the* expertise centre in these fields within Europe.'
To this end, ARN has already formed a company called ARN Recycling Services. 'We want to help other sectors such as service stations and car damage repair organisations to set up similar recycling and management chains to those we have established for the dismantling industry,' explains Mr Bebelaar. 'That includes the whole life-cycle of products.'

Currently, some 86% by weight of the average Dutch ELV is recycled.

ARN is are already talking with interested parties such as service stations and car damage repair organisations.

He continues: 'We are already talking with interested parties such as service stations and car damage repair organisations, but also with the automotive industry to see how we can co-operate with each other. These discussions are very interesting and will no doubt lead to assignments for ARN Recycling Services to manage their waste streams. We have noticed that our expertise opens doors and that our approach has been granted a positive reception.'
In addition to stakeholders in the automotive industry, ARN is also approaching other sectors such as the bicycle industry and local authorities. And it is also planning to carry out so-called sustainability scans for individual companies.

New structure

So as better to service this 'mobility' market, ARN has recently changed its internal structure. The organisation has become a holding company for four entities: ARN Recycling Services; ARN Consultancy; the post-shredder technology plant at Tiel (ARN Recycling); and the 'old' ARN (ARN Auto Recycling) which will continue to take care of the ELV recycling sector.

ARN's CEO Dave Bebelaar: 'We look at recycling and waste management problems from our hands-on experience.'

'ARN is unique in the sense that it combines experience with how to apply it, and in addition we can carry out work for third parties,' says Mr Bebelaar. 'We don't look at recycling and waste management problems from a theoretical point of view, but we start from our hands-on experience.' It has already embarked upon a car battery collection, waste management and monitoring project in co-operation with the Dutch battery foundation Stibat.
According to its CEO, ARN will actively promote its new services within Europe. The organisation will also co-operate closely with technical universities and research institutions, such as the Fraunhofer Institute in Germany and the Delft University of Technology in the Netherlands. □

advertisement