



Sustainability Report 2010

Photographer Aatjan Renders took mobility as a tool for visualising a number of key aspects of the work of ARN, by association. These images refer to the ambition and dynamism of ARN, and the world in which ARN moves.

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Movement

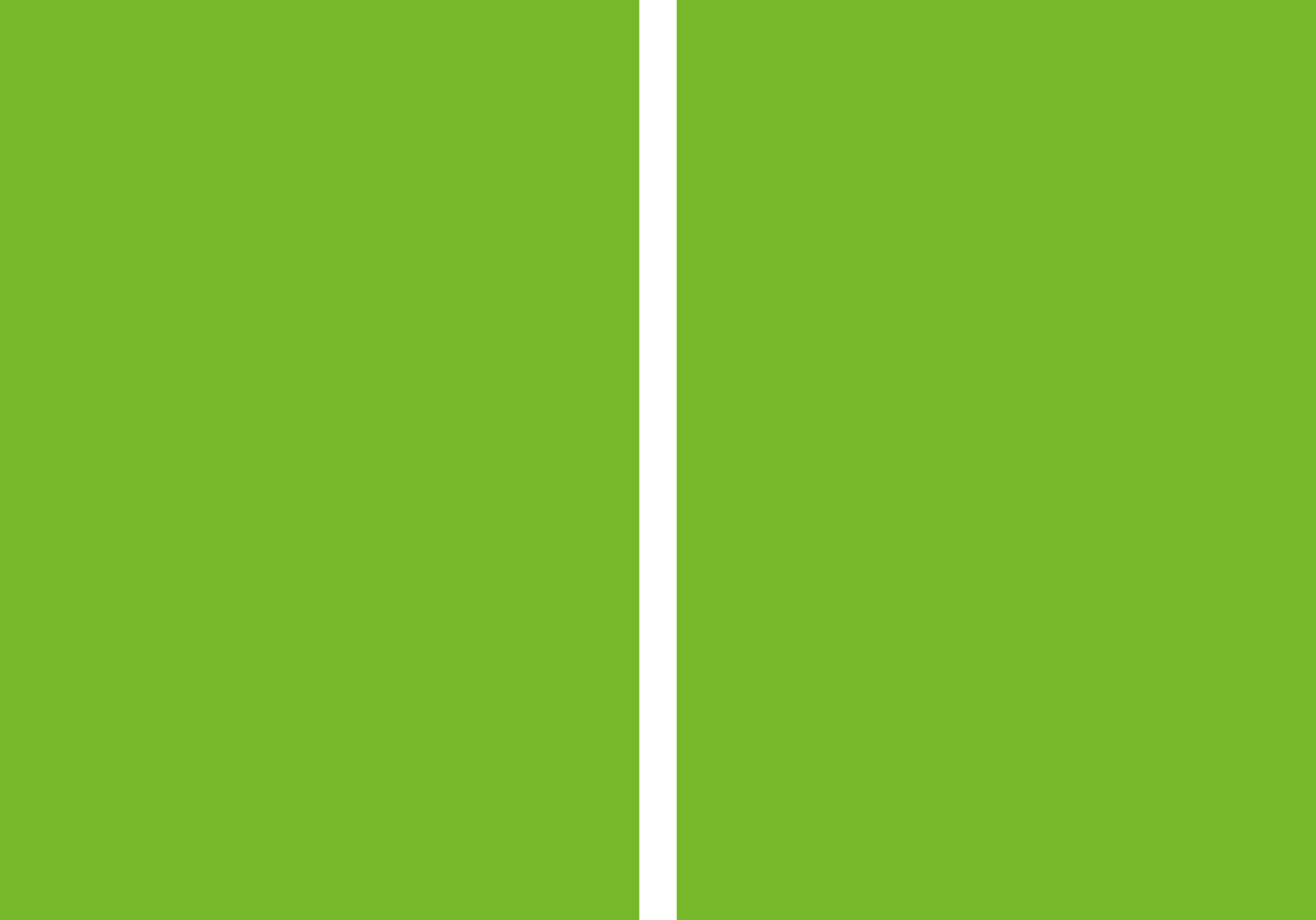
ARN is raising recycling to a higher plane by focusing on technology, research and knowledge development, and by pioneering with new materials and new recycling routes. A continuous, unabated movement.



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The 2010 sustainability report is available in Dutch and English.
Should different interpretations arise, the Dutch language version prevails.

Foreword

At the end of 2010, economic recovery seemed to be gaining ground, but the crisis is not yet over. This is for example reflected in the lower numbers of new vehicles purchased. The number of trucks sold dropped sharply in 2010, as compared to the previous year; the sales of other commercial vehicles were also lower than in 2009. The sales figures for new passenger cars and light commercial vehicles, on the other hand, showed a considerable increase. The number of new cars sold, at 534,000 was more than 20 percent higher than the 440,000 sold in 2009.

A rise in demand for products in the ARN portfolio demonstrated that, despite the economic crisis, sustainability and consideration for the environment are becoming increasingly important in the activities of modern businesses. ARN was for example highly successful with its ARN Environmental Scan. There was also considerable interest in the new recycling activities at ARN's Post Shredder Technology (PST) facility in Tiel that was opened in the spring of 2011.

National scrappage scheme

The national scrappage scheme that remained in place until 21 April 2010 gave the automotive industry a considerable boost. A new replacement was purchased for one third of the more than 81,000 discarded cars. The scrappage scheme was both effective and efficient in its structure, and unlike in the neighbouring countries, did not lead to any disruption in car sales, in the Netherlands. ARN made an important contribution to the effective implementation of the scrappage scheme. Its role in preventing fraud was also successful. The effect of the scrappage scheme on the environment has been moderately positive. Less diesel vehicles were registered than anticipated. Among the old cars handed in, a large proportion were fitted either with a none or with a less effective catalyst than the newer models.

Waste disposal fee

To ensure its continued ability to implement its statutory task in the environmentally-sound recycling of end-of-life vehicles, ARN was forced to raise the waste disposal fee from 15 to 45 euros per car (19% VAT included) on July 1, 2010. The main reason for this increase was the delayed completion of the PST facility. As a result, recycling costs remained at a higher level than predicted for a longer period. ARN also made an additional financial contribution to the national scrappage

scheme. Furthermore, over the coming years, funding will be needed for research into the consequences for recycling of new technologies that are being introduced in cars. This for example includes the processing of high-voltage batteries from electrical vehicles and the composite materials that increasingly are used in cars.

The waste disposal fee of 45 euros per car also applies for 2011. As soon as the consequences of the opening of the PST facility are fully clear, ARN will issue new forecasts for a sustainable level of the waste disposal fee. It should be noted that ARN still considers the waste disposal fee the best instrument for covering the recycling costs for cars. The scheme is transparent and consumers are not required to pay any unnecessary chain margin or purchase tax on passenger cars and motorcycles, which would be the case if the costs for recycling were included in the cost price of a vehicle.

Stakeholder survey

During the first quarter of 2010, a survey in the form of a series of interviews was held among ARN's external stakeholders. The objective was to chart out the stakeholders' views of ARN, and to determine how they assess the organization's plans and ambitions. One of the conclusions is that ARN is well-known among its stakeholders, and is viewed as a well-appreciated and respected institute. The contribution to the environment, the PST facility and ARN as a centre of knowledge scored high with the stakeholders.

The interviewees did sound a critical note in respect of the different roles of ARN now the organization is no longer focused solely on car recycling, but is also undertaking new activities. The stakeholders still primarily view ARN as responsible for carrying out statutory tasks financed by the waste disposal fee fund. They perceive the new market activities of ARN as unfair competition. In 2011, ARN will make every effort to clarify the added value for the stakeholders of making the knowledge and experience accrued in the field of recycling more widely available to the entire mobility sector. There is clear demand from the market for the expertise established by ARN, and any revenue from the new activities will be finally fed back into the fund.

By establishing four independent operating companies, ARN has now introduced a clear separation between activities supported by the waste disposal fee fund and

activities for which additional charges are made to third parties (possibly including ARN operating companies). ARN believes that this structure puts an end to the role confusion.

PST facility

ARN has been given the statutory task of ensuring 95% recycling of cars by 2015. The PST facility has an essential role to play in achieving this recycling percentage. In 2010, ARN entered negotiations with the shredder companies on the processing of shredder waste in Tiel, in order to arrive at an acceptable price. It is in the interests of all parties to supply the highest possible volume of shredder waste to the PST facility, to allow the facility to operate at the lowest achievable cost.

The PST facility will unavoidably result in lower income for the dismantling companies, quite simply because less dismantling is necessary. At a very early stage, ARN informed the operators in the dismantling sector of the consequences of establishing the facility, to allow these businesses to take the necessary measures in good time. Cooperation with the dismantling companies remains essential to ARN. ARN will use its expertise to support the sector in other ways.

Outlook for 2011

ARN is optimistic about 2011. Economic recovery is expected to continue. The opening of the PST facility will lead to lower dismantling costs. This in turn will reduce costs for ARN, which in the future will contribute to a lower waste disposal fee. Due to the delayed commissioning of the PST facility, as a result of which the pro-

cessing of materials eligible for the scrappage premium will continue for longer than predicted, 2011 is expected to show a reduction rather than an increase in the waste disposal fee fund. Other factors are the fact that no significant rise in interest rates is expected, combined with the policy aimed at avoiding investment risks.

ARN organization

2010 saw no changes to the composition of the executive board of the Auto & Recycling Foundation or the Supervisory Board. ARN did mark the departure on 31 December 2010 of its CEO Dave Bebelaar, who retired on that date. With the departure of Bebelaar, a key figure has left the organization, who was responsible for a positive development of ARN's relationships with manufacturers and other stakeholders. In the almost eight years during which he headed the organization, Bebelaar introduced many new developments at ARN. The PST facility can certainly be considered the jewel in the crown of his work. Within ARN, Dave Bebelaar enjoys a great deal of appreciation and respect, as CEO and above all as a remarkable man. We would like to take this opportunity to wish him many more enjoyable years in good health!

Finally, I would like to thank all the employees of ARN for their dedication and all the external parties for their successful cooperation in 2010!

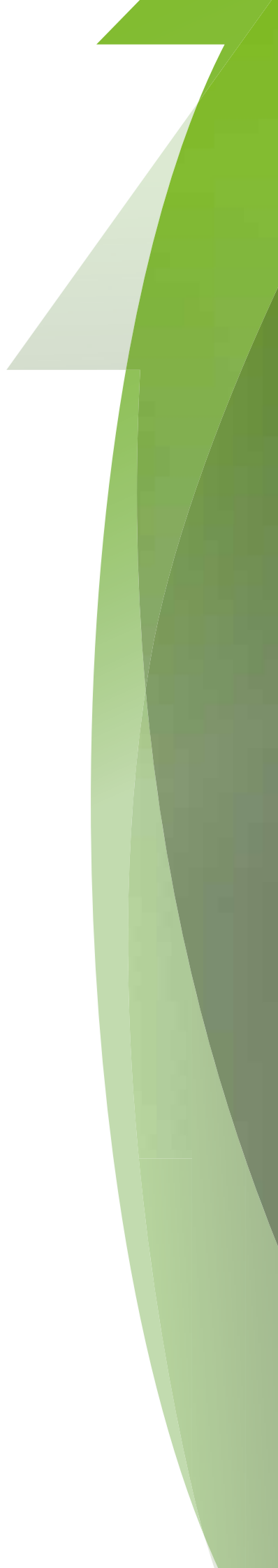
Arie de Jong

CEO ARN

Amsterdam, 16 May 2011

Chapter 1

Vision and policy



Vision and policy

Capitalising on the investment in knowledge and expertise

The highest principle for which ARN stands is that of contributing to a better environment and thus to a sustainable society. All the organization's activities must be able to withstand an environmental test. After all, ARN was set up for an environmental purpose: to process end-of-life vehicles in the Netherlands in an environmentally sound and efficient way.

Following the lead of the United Nations, ARN understands sustainable development to be development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. For the present generation, this means that they must be economical in their use of fossil fuels, raw materials and the environment. And this can be directly translated into ARN's core activity: recycling. This comprises recovering raw materials and avoiding the need for using primary raw materials in a production process.

Mission

Fed by the idea of a better living environment and the efficient, frugal use of raw materials, in a few years' time sustainability will become an integrated part of policy in all sections of the mobility sector. ARN's mission as a centre of expertise can be summed up as using innovation to promote recycling and care for the environment in the mobility sector.

Broad responsibilities

Proceeding from its social responsibility, ARN interprets its legal responsibility in a broader way than is strictly necessary according to the letter of the law. ARN's approach is based on the overall objective of the legislation – that of making an actual contribution to recycling and the environment. In line with this idea, ARN includes three aspects in its objective of achieving the legally required 95% recycling in 2015. In addition to achieve the highest possible recycling percentage, attention also focuses on the recycling costs and environmental impact, such as CO₂ emissions.

Ecotest

The Ecotest is a model that calculates the environmental pressure in the waste chain and was developed by ARN and the FFact consultancy in 2010. It allows an even more precise assessment of the possible recycling steps for each individual material. This calculation model has been used in building the Post Shredder Technology (PST) facility in which shredder waste is processed into useable materials. The PST facility was set up to contribute towards achieving the recycling target for 2015. Continuous development of the technology is needed in order to be able to produce the purest materials possible that will generate higher returns because they are suitable for high-quality applications.

The Ecotest is a tool that supports policy choices in ecology (CO₂ footprint, toxicity, etc.), recycling and economics. For example, the advent of electric vehicles is posing new challenges in the reuse and processing of materials. Using the model to calculate the various processes provides a good basis for choosing the most efficient and sustainable solutions.

Life-cycle of cars

ARN is trying to broaden and deepen its activities, enabling it to capitalize on the investment that it has made over the last fifteen years in accumulating knowledge and experience regarding the recycling of end-of-life vehicles. In addition to collecting and processing discarded cars, ARN is now offering its services for the environmentally sound collection and processing of waste produced during the life-cycle of the cars. It has developed the ARN Environmental Scan to help garages and damage repair companies do business in an sustainable way. The ARN Environmental Scan shows companies

where they can save costs, such as by preventing waste or sorting it more effectively, for example.

The entire mobility chain

ARN is also expanding its services further to cover the entire mobility chain. As can be read elsewhere in this report, knowledge of recycling in the car sector is already being applied in the two-wheeled vehicle sector and in the building of super yachts. There is also interest in ARN's expertise from abroad. ARN cannot finance its new activities from the waste disposal fee fund, which is exclusively intended for the environmentally sound, efficient processing of end-of-life vehicles. For that reason, the decision was made to set up four independent operating companies that operate in the market as businesses. The revenues from the operating companies flow back to the waste disposal fee fund. The long-term objective is to arrive at the lowest waste disposal fee possible. The new organization structure also ensures that the various forms of ARN activities are compartmentalized to avoid any form of forced sourcing.

Legislation and regulations

For ARN there remains a lot to be desired in the area of legislation and regulations. Differences in the interpretation of legislation by the European Union (EU) and local authorities result in differences between the member states regarding the processing of waste flows. Among other things, this leads to unnecessary flows of materials between member states because, for example, the cost of dumping waste is lower over the border. ARN is contributing to European and national consultancy bodies in order to arrive at harmonization and an unequivocal interpretation of legislation.

ARN expects that a level playing field in the EU for the dumping or incineration of shredder waste will strongly promote investment in recycling technology. It can finally lead to a self-supporting recycling chain for end-of-life vehicles. In anticipation of this necessary development, ARN is committing itself fully to implementing sorting and processing technology for shredder waste. The use of Post Shredder Technology is playing a catalysing role in this. The PST facility is evidence of this choice.

Ecotest

How often do you ask yourself questions about recycling?

Where in the chain can we improve environmental performance?

What is the contribution of our product or the management of our product chain expressed in CO₂ equivalents?

What is the difference between product reuse and material reuse?

Does my product undergo high-end processing by means of recycling?

Does more recycling justify the transport distance?

What is the environmental performance, taking account of the end-of-life situation of a secondary product?



The Ecotest establishes a clear picture of the impact of a policy choice on the basis of three indicators:

- Ecology, measured in kg CO₂
- Recycling, measured in % recycling
- Economy, measured in euro per unit

**Inspiration**

You can feel and see the art of recycling at the PST facility in Tiel. The objective is to continuously improve the processing of shredder waste and to make the materials that emerge from the process suitable for more high-end applications. The eventual goal is that the materials produced by ARN can be used to replace primary raw materials.

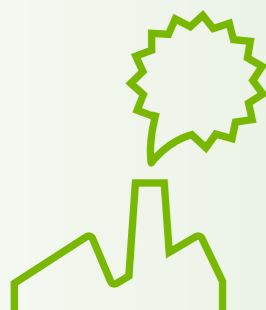
Cooperation with other recycling chains

Vehicles are not the only products for which problems have to be solved in the face of intensifying recycling. Once reuse and shredding of remains have taken place, it's the individual properties of the materials involved that determine the search for solutions. This results in shared problems, such as what to do with plastic products and electronic components. The individual recycling chains for many products, and the technology applied in them, show many similarities. What sets them apart is largely the collection structure. It is therefore very likely that over the next ten years cooperation on the materials aspects of recycling will be achieved.

There is an apparent trend in industry that the waste phase of a product will rapidly become an integrated part of product development. Another trend, recycling will no longer be regarded as an expense but as part of a sustainable policy. For ARN, these developments mean more emphasis on regulating what happens

in the waste chain and advising companies on the environmentally sound processing and reuse of waste. This obliges ARN to monitor technological developments closely in order to continue to accumulate knowledge and expertise in recycling. Being idle in this respect would undermine ARN's raison d'être in the long term.

Longer payback period for investment in PST facility owing to R1 status of incineration plants



At the beginning of 2010, a large number of incineration plants acquired the status of a recovery operation – the so-called R(eco)ycling1 status. The government can grant this status to incineration plants that are intended for processing urban waste on the basis of the European Waste Framework Directive of 2008, provided that the incinerator achieves an energy efficiency of 60 per cent.

Granting R1 status to incineration plants changes the market situation. From now on, it will be economically attractive to incinerate substances that used to be reused. One of the consequences of this for ARN is that the recycling percentage is rising now that incineration of shredder waste is also taken into account. On the other hand, the incinerators with R1 status represent competition for the high-grade mechanical

recycling process at the PST facility.

In practice this means that ARN's investment in innovation for the reuse of waste, based on its vision and social responsibility, will have a considerably longer payback period than anticipated.

Chapter 2

Profile and organization

Profile and organization

Centre of expertise with independent operating companies

ARN is a centre of expertise for the environment and recycling in the mobility sector. The organization, which was established in 1995 as Auto Recycling Nederland, works on behalf of the manufacturer/importer to fulfil their legal obligation to process end-of-life vehicles in the Netherlands in an environmentally responsible and efficient manner.

Expertise

The expertise that ARN has accumulated in the last fifteen years centres on three key concepts:

Recycling – The knowledge and experience that ARN has acquired in the environmentally sound and efficient recycling of end-of-life vehicles have enabled a broadening of activities. For example, ARN now also focuses on the entire life of the car. Moreover, ARN also deploys its expertise in recycling other vehicles such as mopeds and scooters. In all its activities, contributing to a better environment is the first matter of importance.

Coordination – The manufacturers have conferred responsibility for achieving the legal car recycling objective on ARN. To implement this task, ARN brings together market parties and coordinates their activities. ARN ensures that all parties in the chain deploy their specialisms in a coordinated manner in order to achieve the best environmental result.

Exchange of knowledge – ARN wishes to share its knowledge and experience of innovative, environmentally responsible recycling technologies and sustainability with other parties in the mobility sector. ARN conducts its own research but also collaborates with research institutes and companies. The exchange of knowledge is central to this. Introducing expertise to the market and continuing to gather knowledge support the core activity: the recycling of car wrecks.

Organization

ARN has expanded its activities over the years. These areas of expertise have been divided between four independent operating companies, each of which has its own tasks and profit-and-loss account. The challenge is to allow these operating companies to acquire their own identities in the mobility sector. The ARN companies are:

ARN Holding

ARN Holding directs the activities of the four operating companies. The holding company also looks after such aspects as financial management, personnel management, communications and business accommodation for the operating companies. The exception is the accommodation of the PST plant in Tiel which comes under ARN Recycling.

The holding company is supervised by the Supervisory Board which consists of two members from the industry and three independent members.

Stichting Auto & Recycling

ARN Holding is steered by Stichting Auto & Recycling (Auto & Recycling Foundation), which is the *de facto* customer of the holding company.

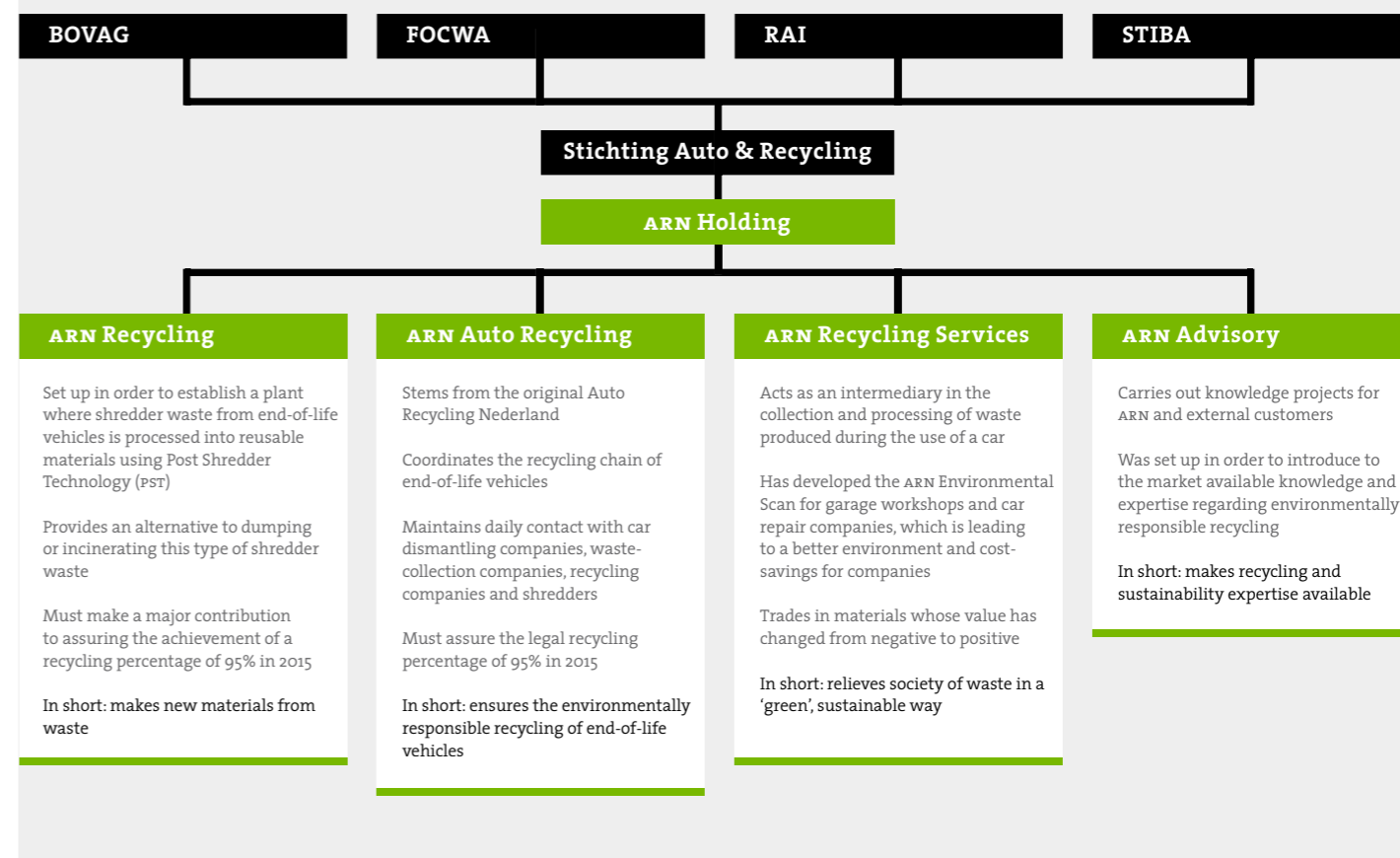
The foundation, which supervises the disposal fee fund, has four governors who represent the car industry in the Netherlands:

- RAI Vereniging, the trade association for manufacturers and importers of road vehicles
- STIBA, trade organization for certified vehicle dismantling companies
- FOCWA, trade organization for vehicle body repair companies
- BOVAG, trade organization for companies in the mobility sector

Developments in 2010

A notable development at ARN in 2010 was the final transition from the old implementing organization to the new expertise-based organization. The operating companies are led by the individual managers, who have final responsibility for company activities. In 2010, the legal names of the operating companies were modified to match the trading names used in practice in order to underline their independence.

Organizational structure



Adjustment legal names

Trading name	New legal name	Old legal name
Stichting Auto & Recycling	Stichting Auto & Recycling	Stichting Auto & Recycling
ARN Holding	ARN Holding B.V.	Auto Recycling Holding B.V.
ARN Auto Recycling	ARN Auto Recycling B.V.	Auto Recycling Nederland B.V.
ARN Recycling Services	ARN Recycling Services B.V.	Recycling Service B.V.
ARN Recycling	ARN Recycling B.V.	Post Shredder Technology (PST) B.V.
ARN Advisory	ARN Advisory B.V.	ARN Advisory B.V.

Dynamism

Looking further, pushing the envelope. Bringing together all players in the chain to achieve a single, common recycling goal. Interpreting and implementing changing legislation. Continuously focusing on improved quality, even if it means going against the flow

Outlook for 2011

The official opening of the PST plant in Tiel in 2011 will represent a milestone in the history of ARN. The PST installation will sort shredder waste into reusable materials. This should lead to a higher recycling percentage and lower cost level.

The four operating companies will also have to profile themselves further as independent business units. The task for the companies is to acquire an individual identity in the mobility sector in the short term.

Employees

ARN is an open organization with short lines of communication. A survey made in 2010 showed that ARN employees consider five core values important in their organization: responsibility, competence, uniqueness, reliability and innovation.

32 people work at the office in Amsterdam and 13 at the PST facility in Tiel, 12 of whom joined in 2010. With regard to employment conditions and remuneration, ARN has an integrated personnel policy for its employees,

who work at two locations of different characters. The average period of employment in Amsterdam is almost eight years.

Education and development

ARN devotes a lot of attention to the education and development of its personnel. The personal development plan of each employee is discussed once a year and updated to meet the wishes of the employee and the organization.

Health

Promoting good health is an important part of the personnel policy. All employees may – on a voluntary basis - have a medical check-up from a specialized doctor who provides them with a personalized health advice. ARN has a company fitness scheme and a cycling scheme to encourage employees to take exercise. Fruit is available during working hours while smoking is discouraged.

Absenteeism

The absenteeism rate was 4.0%. This was a high percentage for ARN considering that average absenteeism in previous years was under 2%. The national average for 2010 in comparable companies was also 4.0%.

Chapter 3

ARN Recycling

What happens with an end-of-life vehicle?



At the end of its life, a car is discarded by its owner. What exactly happens after the last owner has left his car with a car dismantling company? First of all, any usable parts are removed from the car. These are sold as second-hand spares. The car dismantling company then removes a number of materials from the vehicle on behalf of ARN. Examples of these are various fluids, tyres and airbags.

Processing these materials contributes to achieving the required recycling percentage. ARN looks after collection and environmentally sound processing. The car dismantling company then sells the stripped wreck to a shredder company where it is shredded into fist-sized pieces. Various metals are separated for use by the metal-processing industry. What remains is shredder waste. Processing this costs

money. In the past, this waste was dumped; nowadays part of it is incinerated. Now that the PST facility in Tiel is operational, shredder companies can deliver their shredder waste to ARN Recycling. There the shredder waste is sorted into reusable materials by such methods as sifting, grinding and wind-sifting.

ARN Recycling

PST-facility arisen from the drawing board

The reason for the existence of ARN Recycling is the construction of a facility in Tiel for processing shredder waste into usable material flows according to PST. The PST facility, set to go into operation in the second quarter of 2011, is meant to contribute to achieving the statutory target of 95% recycling of car waste by 2015. Replacing manual sorting prior to shredding with an industrial process after shredding, also aims to reduce recycling costs. Following a long period of preparation, construction of the PST installation itself was started in April 2010.

The processing of shredder waste is carried out using mechanical separation techniques in a number of stages, including sieving according to particle size, separation in air or liquid based on density, and magnetism. The innovative character of the installation lies in the combination of stages, processes and handling units with a view to ending up with the cleanest possible material that can be sold on to industrial users. The process, developed by Volkswagen AG and SiCon GmbH, is known as the vw-SiCon® process. ARN Recycling operates its own laboratory for testing the quality of the materials at the end of the processing line, so that any necessary improvements can be made to the process itself.

Three main flows

The first step in the handling process consists of separating the three main flows from the shredder waste: minerals, plastics and fibres. Each of these three material flows is then 'cleaned up'.

- **Minerals.** The fine and coarse mineral fractions, including sand, rust and glass, released during the cleaning stages can be stored in German salt mines. ARN, however, is carrying out further investigation into possibilities for reuse in the brickmaking industry, and for application as a construction material.
- **Plastics.** Three plastic end fractions have been classified according to density. The light fraction (lighter than 1.1 kg/dm³) is transported to a French plastic compounder who turns it into granulate; part of this fraction is then supplied to the French car manufacturer Renault. The middle fraction (1.1 – 1.3 kg/dm³) is used as a reducing agent for the production of iron in blast furnaces in Germany, replacing coke as a primary raw material. The heavy fraction (heavier than 1.3 kg/dm³), that itself consists of two components, PVC-type plastics and copper, is transported to a metal recycling firm in Belgium, where the copper is removed.
- **Fibres.** The fibres are used for sludge dewatering by water boards, in Germany. ARN is currently investigating other possible applications.

ARN Recycling intends to identify a possible sales channel for the dust from the dust removal installation, once the facility has been up and running for some time. Only then will it actually be possible to determine the composition of the dust and on that basis identify suitable buyers.

The role of ARN Recycling is to make the materials, that emerge following the cleaning of the shredder waste, suitable for high-end applications. The purpose of halting the so-called down-cycling process is that the material produced by ARN Recycling can subsequently be reused as replacement for primary material.

ARN Recycling is calling in the services of other ARN operating companies in identifying sufficient numbers of the right kinds of customers for these materials.

Processing capacity

The total processing capacity of the PST facility, when operating in three-shift service, will be 100,000 tonnes of shredder waste per year. Initially, in 2011, the facility will only operate a day shift and will be capable of handling between 30,000 and 35,000 tonnes of shredder waste a year. This is approximately the annual volume of shredder waste from Dutch cars. The remaining capacity can be deployed for processing shredder waste from other production flows. Each year, in total approximately 180,000 tonnes of shredder waste are produced in the Netherlands, including shredder waste from scrapping luxury goods such as white and brown goods and bicycles.

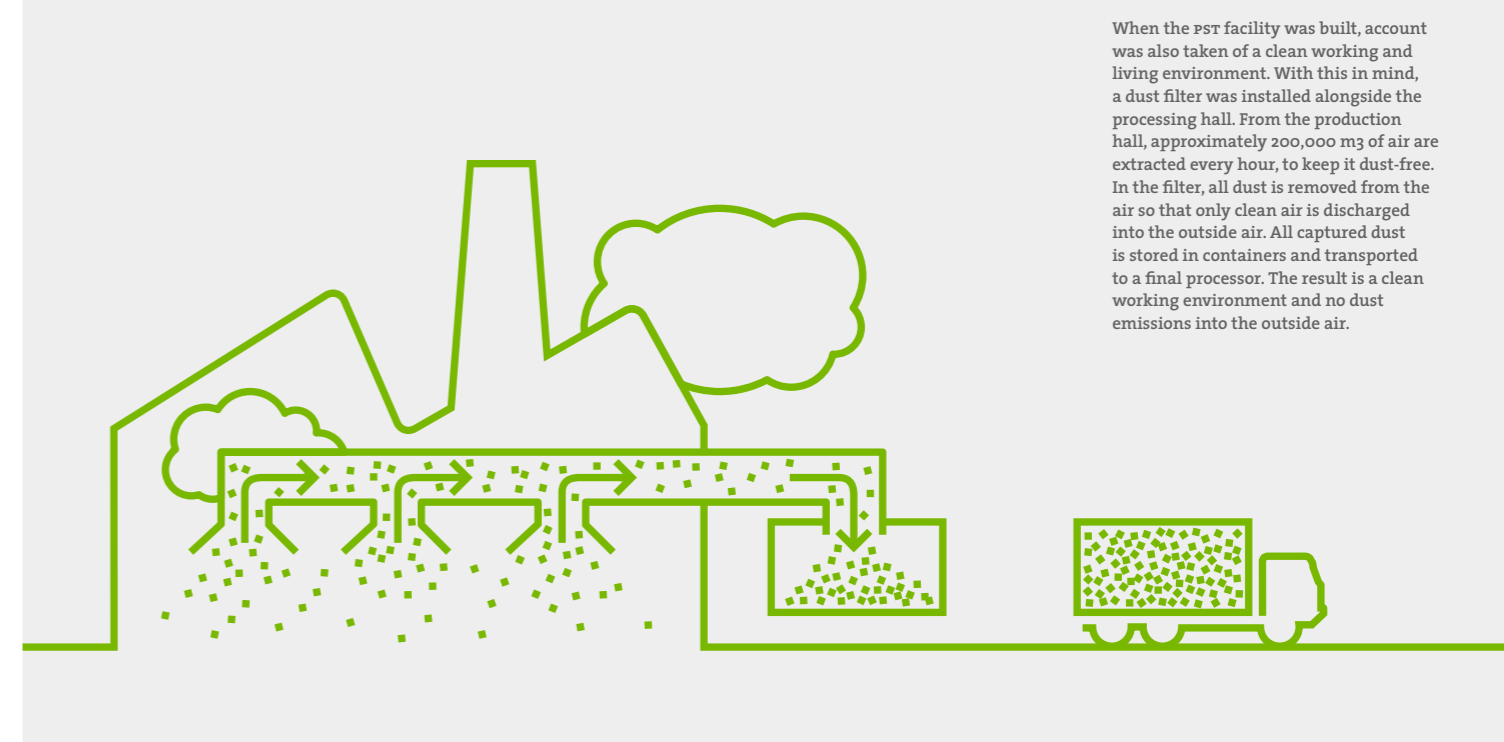
The PST facility currently employs a staff of thirteen including operators and service engineers. They are all relatively highly qualified. The intention is that during the start-up phase they contribute ideas on necessary adjustments to the installation, which should lead to

the optimum tuning of the handling process. They will also gain a thorough understanding of the maintenance management system. In this way, when the facility moves up to three-shift operation, operators will be available who know all the ins and outs of the system.

The commissioning of the PST facility means that ARN will stop paying contributions for the dismantling of a number of materials. These include bumpers, grilles, coconut fibre, PUR foam, rubber strips, safety belts and hub caps. The payment for the dismantling of glass will also be halted as soon as legislation has been adapted to this effect. ARN expects this to be some time in 2011.

ARN Recycling is currently negotiating with the shredder firms on the terms and conditions for the delivery of shredder waste – prices, quantities and material types. An important principle in these negotiations is that the playing field for the sale of shredder waste must remain level for all shredder companies processing Dutch cars.

Clean air installation



When the PST facility was built, account was also taken of a clean working and living environment. With this in mind, a dust filter was installed alongside the processing hall. From the production hall, approximately 200,000 m³ of air are extracted every hour, to keep it dust-free. In the filter, all dust is removed from the air so that only clean air is discharged into the outside air. All captured dust is stored in containers and transported to a final processor. The result is a clean working environment and no dust emissions into the outside air.

Sustainable industrial process

The PST facility aims to be a role model for a sustainable industrial process. The sustainable processing of shredder waste will contribute over the entire chain to less emissions of the greenhouse gas carbon dioxide (CO₂). As a result, the entire chain will enjoy a smaller CO₂ footprint, thereby imposing fewer burdens on energy requirements and the environment. ARN Recycling is aiming to have its environmental management system certified in accordance with the ISO 14.001 standard in 2012.

During the construction of the PST facility, measures were taken to protect the environment and to create the safest and healthiest possible working conditions.

Developments in 2010

- Start on the construction of the PST installation.
- Twelve new employees taken on board.

Outlook for 2011

- Testing of PST installation components.
- PST facility to be commissioned.
- Determination of material composition in the dust removal installation.
- Investigation into the possibilities for the reuse of minerals in the brickmaking industry and elsewhere.
- Conclusions of agreements with shredder companies for the supply of shredder waste.
- Further preparations for certification of the environmental management system according to the ISO 14.001 standard in 2012.

Chapter 4

ARN Auto Recycling

Investigation into the use of liquid CO₂ as a cleaning agent for fibres and minerals



All fibres and minerals released following the processing of shredder waste are contaminated with mineral oils. This makes it more difficult to reuse these materials. ARN Recycling has launched a research project aimed at cleaning these fractions by using liquid carbon dioxide (CO₂). CO₂ has the capability of penetrating deep into the materials. When it comes into contact

with mineral oil, it behaves like a liquid, and the oil is dissolved into the CO₂. Once the mixture is separated off and the pressure is released from the mixture, the CO₂ evaporates. From the mineral fraction, clean oil is left over; the oil from the fibres is slightly less clean, because the dye from fibres is dissolved in the oil. The sale of these oil fractions will depend on the purity of the

oil. One of the options is incineration with energy recovery, whereby any PCBs present will be destroyed. The purpose of the research is to clean the fibres and minerals in such a way that they can be reused in any application. The fibres could for example be reused in cars, and the minerals as construction materials.

ARN Auto Recycling

Focus on quality improvement in the chain

The roots of ARN's Auto Recycling lie in the original Auto Recycling Nederland organization. This ARN operating company manages the recycling of end-of-life vehicles in the Netherlands and must ensure that cars registered for dismantling are recycled correctly, as decreed in the End-of-Life Vehicles Management Decree.

The primary goal for ARN Auto Recycling is to recycle 95% of the weight of a car by 2015 with the largest possible market share; until then the statutory standard recycling rate is 85%. The challenge is to meet the statutory recycling rate at the lowest possible costs and with maximum environmental efficiency.

For the environmentally sound recycling of end-of-life vehicles, ARN Auto Recycling works in the recycling chain together with almost three hundred partners. These include ARN's contract partners: 247 car dismantling companies, 4 collection companies, 17 recycling companies and 14 accredited shredder companies. As chain manager, ARN Auto Recycling determines where materials go for recycling into high quality materials.

In the annex on page 50 the trends in vehicle numbers are admitted.

Efficiency

Tendering

One of the means that ARN Auto Recycling uses to achieve lower costs and a maximum environmental return is the tendering, once every two to three years, for collection and processing of dismantled ARN materials from cars. An additional advantage of the tendering procedure is that in addition to pricing, sustainability criteria can also serve as a weighting factor for doing business with companies. Part of a requirement in a tendering procedure may be, for example, the extent to which a recycler employs the cradle to cradle concept where all the materials that have been used during the life of one product can be effectively used in another, or what is the percentage of 'clean' cars, which meet the Euro 5 standard for pollutant emissions, at a collection company.

ARN Extranet

With a view to potential cost savings and better environmental performance, ARN Auto Recycling continues to explore new techniques to process materials and make improvements in logistics. An example of such a logistical improvement in 2010 was the development of the ARN Extranet that went live on 1 January 2011. With this online application, car dismantling companies can indicate which materials they wish to have removed. Collection companies can enter into the system the quantities of materials that they have collected. If the information is correct, a car dismantling company can issue digital approval and ARN will make the payment.

Another example of increased efficiency in the chain concerns the drainage installations that ARN Auto Recycling has installed in recent years at 218 affiliated car dismantling companies. With the drainage installations, all hazardous liquids – gasoline, dirty fuel, diesel, oil, coolant, washer fluid and brake fluid – are removed from an end-of-life vehicle and stored in separate tanks. During 2010 the project was completed to equip all tanks with sensors that measure the level in the tank and are connected to a telephone. By means of a data line a signal is sent twice a week to the ARN computer, which decides whether a collection company should visit a car dismantling company or not.

2010 Environmental performance

Starting points

Rules governing the treatment of end-of-life vehicles were laid down in EU Directive 2000/53/EC – the End-of-Life Vehicles Directive. In 2002, this Directive was implemented at national level in the End-of-Life Vehicle Management Decree. The Decree, which was revised in 2007, prescribes that at least 85% of the weight of end-of-life vehicles in the Netherlands must be recycled or reused. At least 80% must be reused as a product or material, while a maximum of 5% can be achieved through energy recovery. The weight target has been increased with effect from 2015 to 95%, of which at least 85% through recycling and a maximum of 10% through energy recovery.

Various data are collected for the purposes of verifying these percentages. The European Commission has drawn up detailed rules on how these data are to be collected. European Member States must follow these rules in their reporting to the Commission in order to ensure that they report in a comparable way. The EU uses these reports to verify that the objectives laid down in Directive 2000/53/EC are being achieved.

In 2010, ARN undertook a shredder test. Regular shredder tests are consequence of the rules from the European Commission and are necessary for annual reporting to the Ministry of Infrastructure and the Environment (formerly VROM). The reason for carrying out a shredder test in 2010 was the need to have a zero measurement before the PST facility was put into operation, in 2011. The data from the shredder test 2010 were used for calculating the recycling percentage 2010. The recycling figures and processed quantities of materials published in this report were determined in accordance with the EU monitoring rules.

Quantity of end-of-life vehicles

In 2010, 232,448 end-of-life vehicles were registered with the shredder companies for treatment. The number of registrations in ORAD (the online vehicle dismantling registration system) in 2010 was 215,975. The upturn in numbers can partly be explained by the rise in metal prices in 2010; this development kick-started the market once again, as a result of which the built-up stocks of dismantled end-of-life vehicles from 2009 were transported to the shredder. Also in 2010, huge efforts were made to ensure correct reporting of the Eural code, as

part of which the incentive for car dismantling companies to correctly dispose of end-of-life vehicles to the shredder was raised by ARN.

Determination of the average weight of end-of-life vehicles

In 2010, the average empty weight of all end-of-life vehicles was 999.1 kg. This figure was calculated on the basis of the ORAD registrations, as corrected by RDW for the weight of the driver and the fuel.

Share of dismantling companies in the recycling percentage

Table 1 shows the EU codes for the materials and the volumes of materials actually processed. These figures were provided by recycling companies contracted by ARN. These companies provide details on the mass balance, in which a statement is provided on how much of the processed materials have been usefully reused, incinerated with energy recovery and dumped. For a balanced report, these mass balance figures are compared with the weighing note figures from the collectors. In calculating the recycling percentage, fuel and LPG tanks are not included. In 2010, 201,846 kg of fuel (diesel, petroleum and gas) and 3,686 LPG tanks were processed in an environmentally-safe manner.

The dismantling companies also dismantle parts for reuse. This proportion is included in the recycling percentage by weighing the stripped end-of-life vehicle before it is transported to the shredder. This proportion contributes fully as reuse, excluding the ARN materials.

Share of shredder companies in the recycling percentage

A shredder test was carried out in 2010. The results of this shredder test serve as a basis for determining the contribution from shredder businesses to the recycling percentage. This applies only for the end-of-life vehicles processed by the Dutch shredder companies. For the end-of-life vehicles processed at foreign shredder companies, the mass balance details of these companies are taken into account.

The reuse share consists of the metal separated by the shredder company from the end-of-life vehicles for further use in the metal processing industry.



Ambition

ARN goes one step further. The goal is to make sustainability common practice within the mobility sector; not only because it helps improve the environment, but also because it can generate savings. Measuring means knowledge and knowledge means improvement: ARN is the driving force behind the sustainability debate.

Table 1 EU-monitoring table (in kg)

LoW code	Material	Reuse (kg)	Recycling (kg)	Energy recovery (kg)	Total recycling and recovery (kg)	Disposal (kg)
13 02 05	mineral-based non-chlorinated oil		872,715	18,768	891,483	51,488
16 01 07	oil filters		49,756	21,324	71,080	0
16 01 13	brake fluids		60,046	2,591	62,637	983
16 01 14	anti-freeze fluids		607,711	32,012	639,723	228,737
14 06 01	refrigerant		956	0	956	614
16 01 16	tanks for liquid gas		99,190	0	99,190	0
16 06 01	lead batteries		1,016,360	140,188	1,156,548	11,682
16 01 03	discarded tyres		3,867,406	118,257	3,985,663	0
16 01 20	glass		4,094,059	0	4,094,059	558,281
16 01 19	plastics		2,638,038	1,732,333	4,370,371	177,526
16 01 99	waste not otherwise specified		54,005	0	54,005	5
		56,789,334	13,360,242	2,065,473	15,425,715	1,029,316

Processing of shredder waste

Since March 2010, it has been possible to incinerate (car) shredder waste in a waste-fired power station (waste incineration installation) with R1 status. This status means that the waste incinerated in this plant counts towards useful application with energy recovery. Various shredder companies supply their shredder waste to a waste incinerator installation with R1 status. This means that this share also contributes to the recycling performance of end-of-life vehicles as energy recovery. As a consequence, the energy recovery proportion of the recycling percentage was considerably higher in 2010 than in 2009.

Recycling yield in 2010

The figures in table 2 show the recycling yield of end-of-life vehicles in 2010. The reuse percentage of 24.5% consists of the components dismantled from the end-of-

life vehicle by the vehicle dismantling companies.

The recycling percentage of 58.9% represents the total of material reuse of ARN materials (see table 1) and the metals reused following shredding.

The metal percentage from the shredder test equates to more than 75% and consists partly of reuse and partly of recycling. The recovery percentage of 70.9% is the total of recycling (58.9%) and energy recovery (12%).

The figures in table 2 show that a reuse percentage of 95.3% was achieved in 2010, of which 83.3% reuse as product or material and 12% by energy recovery. These figures represent compliance with the statutory obligations from the End-of-Life Vehicles Management Decree.

As compared to the recycling percentage for 2009, this is a huge increase. It was above all caused by the

processing of shredder waste following the shredding process. Of the 12% energy recovery, according to the European rules, from 2015 onwards, a maximum of 10% may be reported as recovery.

EFFECTIVENESS**Increasing market share**

For the optimum performance of ARN Auto Recycling, the largest possible share of the market for end-of-life vehicles is desirable. Therefore, ARN Auto Recycling strives to affiliate with more car dismantling companies that meet ARN's requirements.

The combating of unfair competition in the market is another means of gaining market share. The activities of ARN Auto Recycling in this field include:

- The curbing of so-called leakage flows that occur when car dismantling companies do not state the correct Eural code 16.01.06 or if intermediaries do not deliver their materials to shredder companies that cooperate with ARN Auto Recycling.
- Tackling illegal dismantling by companies that do not keep to the rules or by metal traders that do not offer end-of-life vehicles to shredder companies, but cut them up and bring the materials to a smelter.

- Checking tips about illegal practices against the information in the ARN database.

Car dismantling companies must submit an accompanying form and weighing receipt to ARN Auto Recycling for each end-of-life vehicle. Shredder companies also provide information about the end-of-life vehicles that have been received. By comparing data, it is possible to determine leakage flows. By means of this system and following further research, it was established that two metal traders each mislaid 500 tonnes of discarded cars.

Leakage can be controlled by ensuring that the correct Eural code is used. An end-of-life vehicle that has been stripped of hazardous substances, thus is free of fluid, must be legally disposed of with the Eural code 16.01.06. ARN Auto Recycling assumes that an increase in the fee paid to car dismantling companies when an end-of-life vehicle arrives at a shredder company will also contribute to reducing the leakage flows. The fee was increased by 2.50 euros to 10.00 euros per discarded vehicle on 1 January 2011.

ARN Auto Recycling receives tips from, for example, car dismantling companies about illegal practices within the industry. If after checking the information against

Table 2 Recycling percentage

Reuse	Total recycling	Total recovery	Total reuse and recycling	Total reuse and recovery
56,789,334 kg	136,743,422 kg	164,608,747 kg	193,532,756 kg	221,398,081 kg
24.5%	58.9%	70.9%	83.3%	95.3%
Total number of end-of-life vehicles				232,448
Average weight per vehicle				999.1 kg

the data in the ARN database the suspicion is confirmed that something might be wrong, the information is passed on to the competent authority. The informer remains anonymous.

Rewarding quality

The strategy of ARN Auto Recycling is aimed at improving quality in the recycling chain. In line with this, steps are being taken to shift from payment for dismantling to rewarding quality at car dismantling companies.

In 2010, ARN Auto Recycling developed a remuneration system to provide extra payments to certified dismantling companies. These companies receive an additional payment amounting to about 60 percent of

the annual certification costs if they meet the following requirements:

1. Discarded vehicles must have demonstrably been delivered to a shredder company with an ARN contract.
2. Discarded vehicles must be delivered clean to a shredder company in line with the ARN standards.
3. The ARN stickers must be correctly applied.
4. The correct Eural code must be given.
5. The end-of-life vehicle records must be in order.
6. The requirements of the contract with ARN must be complied with.

ARN Auto Recycling performs a quality measurement at each affiliated car dismantling company several times a year in order to assess whether the conditions are met.

Participant in consultative bodies

The prevention of unfair competition and monitoring for improved implementation of the responsibility to meet the statutory recycling rate are two important reasons for ARN Auto Recycling to participate in many consultative bodies, including:

• Car Dismantling Sector team

As part of the nationwide project to reform supervision, the former ARN consultation with provincial regulators has been replaced by the Car Dismantling Sector team. This new consultative body, which includes all provinces, trade association STIBA, RDW (Dutch road traffic agency), inspection and verification organization SGS, the tax authorities and LIV (National Vehicle Crime Information Centre), is now under the direction of IPO, the umbrella organization of the twelve provinces.

Besides exchanging information, the aim of the sector team for the provinces is also to achieve the supervision reform goals that are directed towards less, improved and clearer supervision and enforcement. This should ultimately result in a 25% reduction in supervision nationally, a target to be achieved jointly by the participants in the sector team.

To improve supervision and enforcement, the sector team, together with industry partners in the chain, has established a number of study groups. These cover, for example:

- Combating illegality.
- Applying the mass balance.
- Comparing files from the province and tax authorities among others.
- Implementing the scrappage scheme.

• **Foundation for Tackling Vehicle Crime (AVC)** Since 2009, ARN Auto Recycling has been an associate member of the AVC. The government (including the Ministry

of Security and Justice, the Police and RDW) and private parties (including the Dutch automobile association ANWB, BOVAG and RAI Association) are working together in this foundation to reduce vehicle crime. The partners in the network work closely together to combat the leakage flows, for example.

Customer satisfaction survey

In 2010, ARN Auto Recycling commissioned a survey among car dismantling companies into the satisfaction with ARN's services and the needs and expectations of these companies. The car dismantling companies gave ARN an average rating of 7.4 on a 10-point scale. Two thirds were positive about the services and 14 percent negatively disposed towards them. 13 percent were positive about ARN, but simultaneously negative about the PST facility.

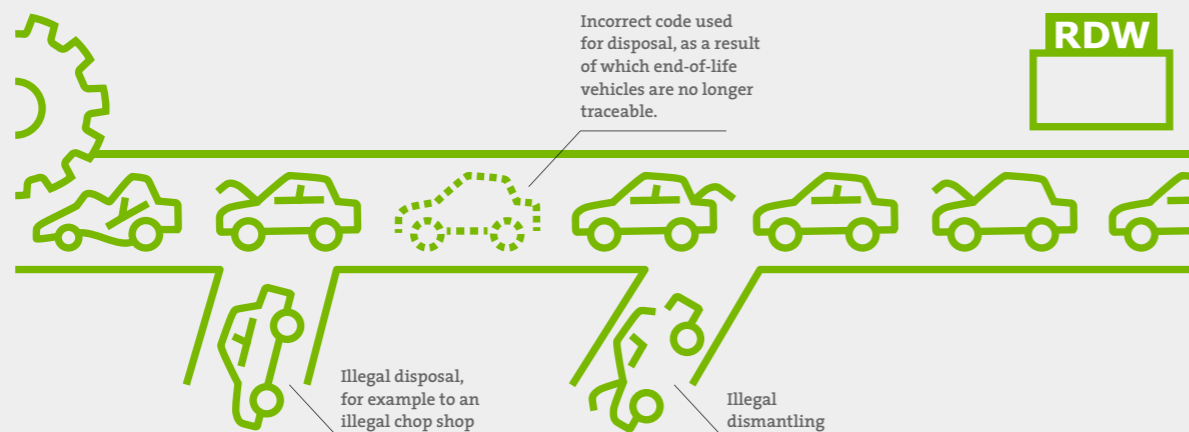
One of the conclusions of the survey is that the companies want to receive more information about developments in the field of legislation and regulations and about changes in the sector, including the commissioning of the PST facility. In general, car dismantling companies want to become more involved in the activities of ARN Auto Recycling. Another customer satisfaction survey will be conducted in 2011.

Developments in 2010

- Rates for the collection and processing of discarded cars from the tender in 2009 came into force in 2010.
- Until 21 April 2010, there was a scrappage scheme in effect in the Netherlands for old, polluting cars. A total of more than 81,000 cars were traded in and replaced by a cleaner one.
- Processes within ARN Auto Recycling were described with a view to the introduction of a new IT system and a first step was taken in the certification of business processes in accordance with ISO 9001 for quality management system of an organization.

Leakage flows

Leakage flows consist of vehicles missing from the recycling system. In theory, all vehicles officially deregistered with RDW should be delivered to the shredder. This is not the case, for a number of different reasons:



Outlook for 2011

- From 1 January 2011, car dismantling companies receive 10.00 euro for an end-of-life vehicle supplied to a recognized shredder company (was 7.50 euro).
- ARN Extranet was launched on 1 January 2011. This simplifies the administration for the collection of materials.
- The Dismantling Manual is being updated and will be available on ARN Extranet.
- ARN Auto Recycling will reward quality delivered by car dismantling companies with an extra payment amounting to about 60 percent of the annual certification fee (KZD).
- Information will be provided to affiliated car dismantling companies about market trends, impact of the PST facility and changes in legislation and regulations, including by means of the organization of regional meetings.
- Customer satisfaction survey.

Investigation into self-managed dismantling

Within the scope of fighting unfair competition, in 2010 ARN Auto Recycling examined all notifications of self-managed dismantling from car dismantling companies registered with the Chamber of Commerce. In the end, there were 157 companies registered with the Chamber of Commerce that filed a self-managed dismantling notification without a car dismantling permit. These illegally operating companies dismantled a total of

845 cars under own management. Of the 157 companies, there were 51 that filed five or more self-managed dismantling notifications for a total of 581 cars. ARN Auto Recycling has alerted the competent authority to this type of unfair competition. The competent authority will use this information to create a level playing field for companies that do possess a provincial environmental permit. It seems to be very easy to file a notification of self-managed

dismantling. To raise the threshold, ARN Auto Recycling has advised RDW to increase the age limit of cars for self-managed dismantling from 15 to 25 years. This is also the age for cars that are no longer liable for road tax. Furthermore, it has been proposed to allow only one notification of self-managed dismantling per person or company. Both ARN proposals have been included in the government road transport department policy plan for 2011.

Chapter 5

ARN Recycling Services

ARN Recycling Services

Utilising expertise in the right way

Ensuring the correct, environmentally-sound disposal of waste materials is not only relevant at the end of a car's lifecycle but also throughout its useful life. ARN Recycling Services now supplies the garage and vehicle repair sector with the knowledge it has acquired over the years about the recycling of old cars and recycling costs. The objective is to improve the efficiency of managed waste flows.

ARN has also developed the Environmental Scan to encourage garages and damage repair businesses to organize their waste flows and energy consumption more efficiently. As well as saving costs for these companies, the ARN Environmental Scan improves awareness in the field of sustainable business practice. The majority of customers for this scan are car businesses with their own workshop.

Waste management

Each waste flow calls for a specific approach to storage, transport and processing. Sound waste management guarantees minimum environmental burdens while improving cost effectiveness. ARN takes over full responsibility from these companies in organising their waste flows, via a one-stop-shopping service. ARN as it were acts as a broker for the waste flows, by bringing together supply and demand, while also guaranteeing that the waste materials are disposed of in a responsible and environmentally-friendly manner.

ARN offers businesses a single contact point for registering their waste materials. Via the Internet, the registration is automatically passed on to the most suitable waste collection company. Invoicing is also an automated process. Once a year, the business receives an annual overview listing the quantities of the various types of waste handed in, and the costs incurred. The ARN waste materials concept combines ease of organization with cost savings.

ARN Environmental Scan

The Environmental Scan developed by ARN helps companies understand their current waste management and energy consumption. The scan is combined with a series of targeted recommendations on sustainable improvements the company can make to ensure more efficient and more environmentally-friendly working processes. The ARN Environmental Scan is the pragmatic first step towards reducing environmental burdens generated by car companies, and, in the longer term, by the entire mobility sector.

ARN has now carried out an ARN Environmental Scan at more than 100 companies. The combined results represent a benchmark allowing each business to compare its own performance with that of fellow operators in the sector. Useful yardsticks are for example the quantity of waste or the power consumption per workshop visit. To ensure a valid comparison, it is important to make a distinction between the different groups of companies in the mobility sector, for example general garages, damage repair companies and dealerships, since there are after all major discrepancies in the waste flows from for example a general garage or a damage repair company.

The combined results of all ARN Environmental Scans offer businesses with a poor score within a group an opportunity to learn from higher-scoring businesses from the sector. Improvement programmes suitable for implementation at individual business level often relate to improving the logistic processes within the company, for example, or to tracing more accurately why the volume of waste is higher than at other comparable businesses.

Damage repair companies, for example, can reduce waste levels by a smarter approach to repair; instead of automatically selecting a new part, they can first assess whether it is not more efficient to repair the existing part.

Huge gains can also be made by garages and damage repair companies in terms of the packaging for waste storage. By working with larger units and operating a smarter approach, it is possible to reduce the number of waste collection visits, which can result in considerable financial savings.

For dealerships, electricity bills are usually very high. Lighting in the showroom, after all is of vital impor-

tance. Nonetheless, through a few simple measures, considerable energy savings can be achieved without reducing the actual lighting levels.

In 2010, the ARN Environmental Scan was expanded to include the energy survey by Energiecentrum MKB (SME Energy Centre). This addition has enabled ARN to offer its customers an even more complete scan in the fields of waste management and energy consumption. The energy survey shows how a business deals with its energy requirements and identifies possible savings opportunities. The account managers at ARN Recycling Services have been trained by Energiecentrum MKB to carry out the energy survey. The decision has been taken to not standardize the environmental scan, in order to ensure continued flexibility and to make it possible to adapt the ARN Environmental Scan to the latest developments on the market.

ARN certificate

The ARN Environmental Scan focuses mainly on waste materials and energy consumption. Attention is also paid to the consumption of gas and water. The environmental scan delivers a qualitative judgement on:

1. Waste prevention and waste separation.
2. Waste storage.
3. Waste removal.
4. Energy and water consumption.
5. Other environmental aspects of operations.

If a company obtains a satisfactory score on four of these five points, an ARN certificate is issued that is valid

for two years. The environmental scan also delivers a benchmark figure that shows the score achieved by the company as compared to other businesses in the sector, for example in terms of costs per service engineer or energy costs per workshop visit.

In collaboration with Care Schadeservice (a chain of specialist damage repair companies) and the BMW dealers' association for the Netherlands, ARN carried out an ARN Environmental Scan at all Care branches and almost all BMW dealerships in 2010. Interest in the scan has now spread to the special vehicle division of the RAI Association. These companies specialize in building vehicles for disabled people and for ambulance services, and interest has also been shown by agricultural machinery organizations. Other car makes have also expressed an interest in the ARN Environmental Scan.

Useful support

On many occasions, the environmental scan has proved a useful support for managers in their efforts to make changes to traditional business processes. One important step in reducing the environmental burden is for example to prevent waste being generated in the first place. If a garage that uses three thousand half-litre containers of windscreen washer a year replaces those containers with bulk packaging with a tap system, the result is not only a reduced environmental burden but also a cost saving. The environmental scan reveals just these kinds of opportunities for change, which result in financial and environmental advantages for businesses, without excessive effort.

ARN Environmental scan



The ARN Environmental Scan assesses the car business according to 5 points. If a pass grade is achieved on 4 points, the company receives an ARN certificate, and is allowed to display the inspection mark shown opposite. In addition, recommendations are given which result in considerable cost savings.

Batteries and cable trees

Despite the many environmentally-harmful materials they contain, batteries and cable trees can now be very effectively recycled. The value of batteries lies above all in the lead and of cable trees in the copper they contain. ARN buys in batteries and cable trees at standard market prices from vehicles dismantling companies and garages, from municipal authorities and operators in the SME segment. Together with its contract partners, ARN guarantees the sustainable processing of both materials.

Developments in 2010

- ARN Environmental Scan expanded to include the Energiecentrum MKB energy survey.
- Throughout 2010, ARN Recycling Services saw its client base grow by between 10 and 15 new customers each month. By the end of 2010, there were already several hundred customers.
- More than 100 ARN Environmental Scans have now been carried out

Outlook for 2011

- ARN Recycling Services will strengthen its position in the mobility sector.
- The ARN Environmental Scan is set to enter the next phase: the first company to receive an ARN certificate in 2009 will have a follow-up scan carried out in 2011.
- ARN aims to offer an improvement programme as a follow-up stage.
- Integration of the ARN Environmental Scan and the BOVAG Sustainable Business Scan will lead to a more detailed scan that will help businesses improve their CSR performance.
- Investigation into possibilities for reconditioning components such as starter motors and dynamos.

Menu: three scans for sustainability



Collaboration with BOVAG makes it possible for ARN to offer garages and damage repair companies a range of three choices in terms of sustainability scans, each with their own character and price ticket: the ARN Environmental Scan, the BOVAG scan for an Approved Sustainability Certificate, and the integrated ARN/BOVAG scan that examines all aspects of corporate social responsibility. For the ARN Environmental Scan, an expert from ARN visits the company and together with the owner fills in the ARN

Environmental Scan forms. The result is information and practical recommendations for the business operator on how to prevent waste in the company, and how to reduce energy and water consumption. This scan is suitable for many types of business in the mobility sector (garages, damage repair companies, truck dealerships, agricultural machinery companies, etc.). In the BOVAG scan the company owner himself completes a detailed questionnaire. The scan examines the management approach to environmental

protection as well as communication, finance, procurement, sales and HRM. The Approved Sustainability Certificate is valid for one year, and is only available to BOVAG member companies. The integrated BOVAG/ARN scan is the most complete CSR scan available to companies in the automotive sector. It offers the business a complete overview of the extent to which sustainability is an integrated element of business practice, as well as identifying possible areas for improvement.

Chapter 6

ARN Advisory

ARN Advisory

Knowledge and expertise can be applied in a broad field

Originating from ARN's Innovation department, ARN Advisory has been functioning as a separate operating company since the end of 2009. ARN Advisory is ARN's centre of expertise. It applies knowledge from the entire organization during the performance of both internal and external advisory assignments in the field of environmental management and recycling. This mainly relates to issues concerning the reuse of raw materials, auxiliary materials and parts. Customers are companies and organizations from the private sector and public authorities. There is also a lot of interest in the knowledge and expertise of ARN from other countries.

ARN Advisory plays a key role in ARN's aim to serve the entire mobility chain with its knowledge and not only to be active at the end of the life cycle of a car. In addition, its expertise can also be put to good use for mobility products other than cars.

The knowledge gathered by ARN Advisory is divided into four areas:

- Processing, for the recycling of mobility products.
- Chain management, logistical aspects of the road travelled by a vehicle after it is discarded up to and including recycling.
- Legislation & regulations.
- Statistics and information products.

Ecotest

Together with FFact, an environmental consulting firm, ARN Advisory developed a model to calculate the environmental impact of the waste chain in the automotive industry in 2010. The aim was to gain insight into the

importance of recycling, also with a view to the commissioning of the PST facility in 2011 and the feasibility of 95 percent recycling in 2015. The central question was: is the assumption correct that car recycling results in a lower CO₂ footprint?

This has resulted in Ecotest, a decision model that facilitates a comparison of policy choices with the aid of clear indicators in the field of ecology (CO₂ footprint, toxicity, etc.), recycling (resource conservation) and economy (costs). In 2010, this test was used to assess the CO₂ emissions in the car recycling chain. The reduction of CO₂ that can be attributed to the activities of ARN appears to be consistent with the approximately 10% recycling activities performed by ARN in the chain. The metal recovered by shredders accounts for the largest share of the savings. In addition, the recycling of plastics via the PST route makes a significant contribution.

By comparing various processing alternatives in advance, the model can also be used to examine for the PST facility where the greatest benefit can be achieved in terms of CO₂ emissions and recycling rates. Calculation results can be used to produce a higher quality of materials and find better sales markets. This is possible because in addition to determining the highest recycling rate, the recycling alternative that produces the highest CO₂ gains for the lowest costs can also be calculated.

The model has also created new insights into the effectiveness of particular processes in the field of CO₂. This helps assess whether material recycling in a given situation has added value compared to incineration with energy recovery.

Talks have been initiated between ARN Advisory and FFact about using the Ecotest method to determine the environmental impact of other chains.

Shredder test 2010

In August and September 2010, ARN Advisory performed a shredder test with mass balances being prepared during the entire recycling process of end-of-life vehicles. Regular shredder tests are required for the annual reporting to the Ministry of Infrastructure and Environment (formerly Ministry of Housing, Spatial Planning and the Environment). An additional reason for carrying out a shredder test in 2010 was to obtain

a 'baseline measurement' before the PST facility is brought into service in 2011.

A shredder test is mainly intended to test the actual recycling rate of body shells since shredder plants will normally process end-of-life vehicles together with other 'welfare waste'. ARN has contracted a shredder plant to process the discarded vehicles purchased in advance by ARN after they have been thoroughly stripped down. The quantity of end-of-life vehicles and composition of the batch was representative of the Dutch vehicle fleet.

The results of the shredder test show that the recycling rate was easily achieved in 2010. The increase compared to 2009 was mainly caused by an enormous increase in the thermal treatment of shredder waste, which was made possible by the R-1 status of some waste incineration plants in the Netherlands. The results of the shredder test held in 2010 are included in calculation of the recycling rate in 2010.

Two-wheelers

In 2010, ARN Advisory held discussions with government bodies, companies and trade organizations in the two-wheeler sector in order to apply knowledge of recycling systems in this sector. Bicycle manufacturers have indicated that they want to wait with the introduction of a recycling system. Manufacturers of mopeds and motorized bicycles have already expressed interest in establishing a system. On behalf of the RAI (car manufacturers and importers organization) and in cooperation with BOVAG, ARN Advisory will start to set up a nationwide recycling system for mopeds and motorized bicycles on 1 January 2011. This system should be fully functioning in the third quarter of 2011. Motorcycles requiring a Dutch driving licence category A remain outside the system for the time being, but manufacturers of this class of motorized two-wheelers are keeping an eye on the positive developments in order to have the option of joining in at a later date.

Important reasons for setting up a recycling system for motorized two-wheelers are: social responsibility in the environmental field, combating crime and cleaning up the moped fleet. All parties active in the moped and motorized bicycle sector are free to participate in the scheme, since unlike the car industry there is no

legal obligation to participate. The sector represents a significant recycling market with approximately one hundred thousand new mopeds coming on the road every year and an estimated twenty thousand mopeds and motorized bicycles being discarded.

Knowledge sharing

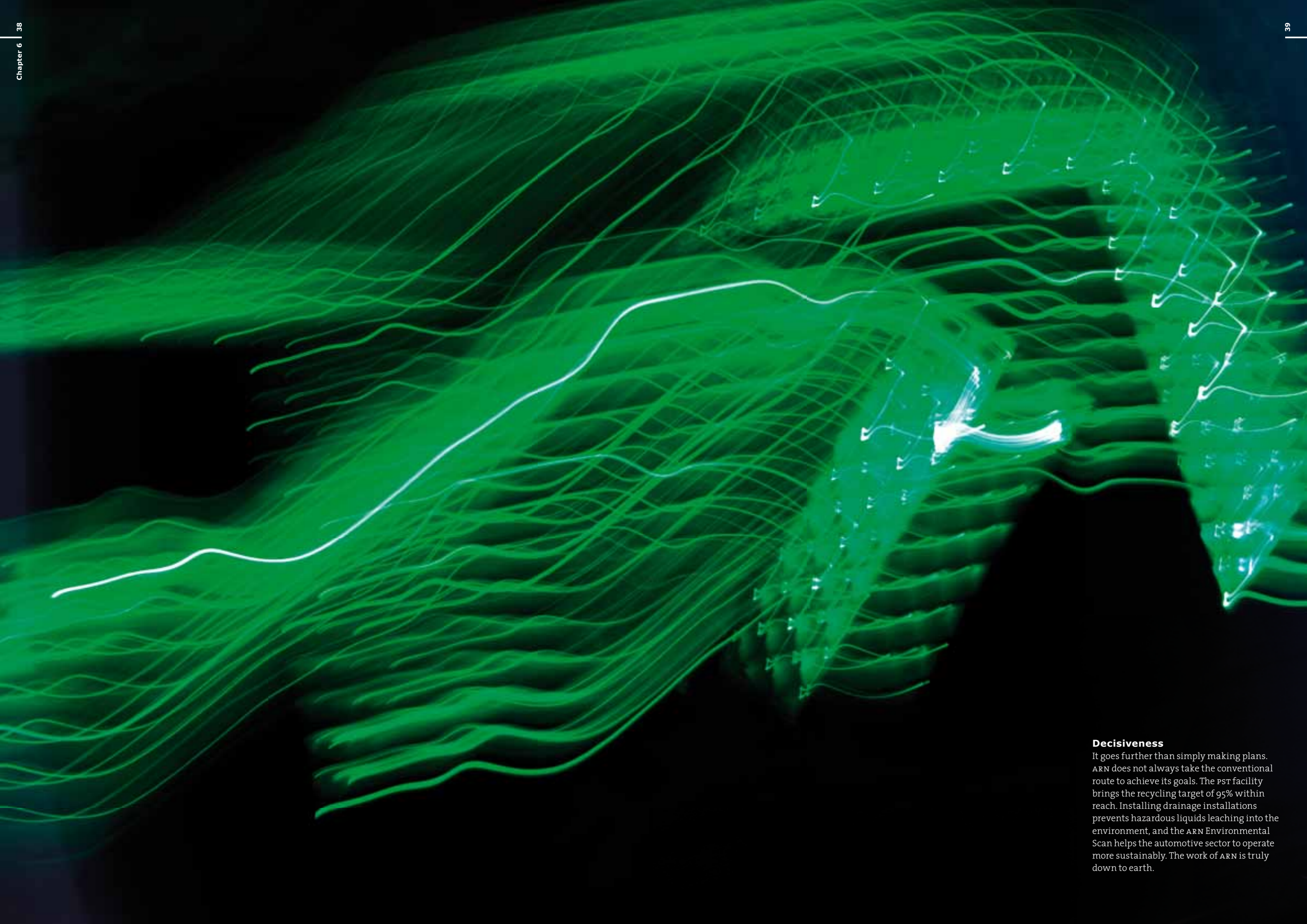
An important activity of ARN Advisory is knowledge sharing. This includes giving presentations, publishing articles and participating in educational projects. Knowledge sharing also contributes to an expansion of the ARN network.

ARN Advisory organized two seminars in 2010:

1. **Design for Recycling**, March 24, 2010, Amsterdam. The main question was how to bring design and recycling closer together. The automotive industry was compared to the electronics industry and the packaging industry. The conclusion was that each industry has its own characteristics and legislation. Thus, in the automotive industry the user phase is much more important than the recycling phase. In the electronics industry and the packaging industry, the recycling phase is more important and the influence of retail sector, which demands sustainable consumer products, is much greater.
2. **The leakage in recycling**, October 27, 2010, Amsterdam. Leakage in the recycling phase has an adverse effect on the responsibility of both car manufacturers and importers for the management of the products they introduce onto the market, also in the waste phase. The conclusion was that collaboration in the chain is essential to combat the leakage flows.

Shanghai, Nizhny Novgorod and Quebec

At a symposium organized by the Dutch road traffic agency RDW in Shanghai, ARN Advisory gave a presentation on the car chain in the Netherlands and compared this with the Chinese automotive industry and the role of the Chinese government in the automotive sector. ARN Advisory also attended a round table conference on car recycling in Québec, Canada. Furthermore, ARN Advisory travelled to the Russian Federation with other Dutch companies within the framework of a trade mission organized by the Dutch government. The destination was the Nizhny Novgorod region where discussions were held with Russian companies in the automotive industry.

**Decisiveness**

It goes further than simply making plans. ARN does not always take the conventional route to achieve its goals. The PST facility brings the recycling target of 95% within reach. Installing drainage installations prevents hazardous liquids leaching into the environment, and the ARN Environmental Scan helps the automotive sector to operate more sustainably. The work of ARN is truly down to earth.

Developments in 2010

- First year of ARN Advisory as an independent operating company.
- Together with FFact developed a CO₂ footprint for the waste chain in the automobile industry.
- Shredder test performed.
- Provided support during the construction of the PST facility.
- Held discussions with the trade associations of the manufacturers of bicycles and of mopeds and motorized bicycles about the possibility of introducing the ARN recycling system.

Outlook for 2011

- Further professionalization of the organization as an independent operating company.
- Working on the further advancement of the professional network.
- Offer a method for determining CO₂ footprint to other chains.
- Further support for PST facility.
- Establish a nationwide recycling system for mopeds and motorized bicycles in collaboration with car manufacturers and importers association RAI and BOVAG.
- Give presentation at the 11th International Automobile Recycling Congress IARC 2011 in Budapest (March).

Chapter 7

ARN Management Plan

Knowledge about hazardous materials used in the building of large yachts



In 2010, ARN Advisory examined what effects the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships from 2009 has on the operational management of the builders of large yachts. The investigation was performed for the SYBASS trade association (Superyacht Builders' Association). The Hong Kong Convention requires that an inventory must be made of hazardous materials used in the construction of every ship. With this list ship recycling companies can see at the end of the life

cycle of a ship where it contains hazardous materials, so they can take measures to ensure environmentally and employee-friendly recycling. During the performance of the assignment, ARN Advisory applied knowledge from the automotive industry where a similar inventory already exists. In addition, best practices from the automotive industry were presented to the shipping industry. The new requirements from the Hong Kong Convention mainly have administrative consequences for the shipbuilders. Shipyards must be

able to demonstrate that certain materials are not present. This requires a declaration from manufacturers of ship components, which in turn must have a declaration from their sub-suppliers, so there is a chain of responsibility. If permitted hazardous materials are present, the shipyard must indicate where these materials are located on the ship. In 2011, ARN Advisory will further examine whether it is possible to set up a system to enable shipyards to efficiently collect and process the necessary information.

ARN Management Plan

Efficient, safe management of batteries

The ARN Management Plan provides companies marketing batteries for the first time – namely, manufacturers and importers – with a collective solution for satisfying their obligations under the 2008 Battery Management Decree. The decree covers all car batteries and high-voltage (HV) batteries for hybrid cars and electric cars including the built-in car batteries that were previously covered by the End-of-Life Vehicles Management Decree.

ARN submits a combined notification on behalf of manufacturers and importers regarding how the batteries are collected and processed, and how the continuity of collection and processing is safeguarded at times when there is a negative residual value for batteries on the market. ARN also takes care of the annual reporting to the Ministry of Infrastructure and the Environment. This system reduces the administrative burden on the individual companies.

With respect to the Battery Management Decree, ARN also provides a national network of collection points where private users can dispose of their car batteries free of charge. Private and business end users are informed of the location of these collection points through the media.

Cooperation with Stibat

To calculate the number of car batteries and HV batteries coming onto the market each year, ARN works closely with Stibat. Stibat is the implementing organization for portable and other industrial batteries. Stibat and ARN both use the online registration system myBatbase. For companies, this cooperation means that they can register the quantities of batteries online using the same system.

MyBatbase automatically ensures that all data regarding car batteries and HV batteries for hybrid and electric vehicles are supplied to ARN. To calculate the number of car batteries and HV batteries collected and processed, ARN and Stibat also both use the online system MyBatteryBalance. In this system, collection companies and recycling companies register what they have collected and recycled.

Management contribution for 'ordinary' batteries

To take part in the ARN Management Plan, manufacturers and importers pay a management contribution for each battery that is marketed in the Netherlands. This management contribution is set annually. For 2010, the management contribution was 0.09 euro and it was lowered for 2011 to 0.07 euro (VAT excluded) per battery.

A total of 1,211,088 batteries and HV batteries were marketed in 2010:

- 500,221 built-in batteries in passenger cars
 - 14,444 HV batteries for hybrid cars
 - 696,423 other car batteries
- 20% of the total concerned motorized two-wheeled vehicles; 1% were batteries from trucks and special vehicles.

In 2010, a total of 41,313 euro were added to the automotive batteries reserve, which is intended to enable the continued collection of end-of-life batteries if their residual value is negative.

In 2010, total expenses incurred by ARN with regard to the Management Plan amounted to 74,967 euro. This sum covered:

- Licence and service contract with Stibat for myBatbase.
- Communications with consumers as to where they can dispose of car batteries.
- Reporting to the Ministry of Public Housing, Regional Planning and the Environment (now the Ministry of Infrastructure and the Environment).
- Submitting a notification for new participants.

The automotive batteries reserve stood at 109,570 euro on December 31, 2010.

Management contribution for lithium-ion batteries

ARN has set the management contributions for recycling lithium-ion batteries for electric vehicles (EV) for 2011 at:

- 180 euro (including 19% VAT) for lithium-ion batteries with a total weight of 100 kg or more.

- 90 euro (including 19% VAT) for lighter lithium-ion batteries with a total weight of less than 100 kg.

Both rates apply from January 1, 2011 for lithium-ion batteries for electric vehicles marketed in 2011.

SafeBAT: Safety and standardization of EV batteries



At the end of 2010, the Mitsubishi i-MiEV became the first mass-produced electric vehicle (EV) to be launched on the Dutch market. Electric vehicles use an electric motor with a high-voltage battery (mainly lithium-ion). In 2011, ARN Advisory and a number of companies in the automotive industry and research institutes will be taking part in a large-scale study into battery safety in EV applications, second life and recycling. For ARN the importance of this research lies in setting up a safe, environmentally sound management structure for end-of-life EV batteries as quickly as possible because the market for electric vehicles is expanding very rapidly. The complete aims of the SafeBat project are:

1. To draw up guidelines for the industry for producing safe batteries and for their

safe integration in electric vehicles. Also to shorten and simplify development programmes and validation processes.

2. To develop and produce a knowledge database on battery ageing, a safe management structure for EV battery recycling and strategies and technologies for second life and recycling (especially lithium recycling).
3. To create a safe test environment for the Dutch EV industry in order to test and validate new innovative products as to battery safety.

It is expected that the research – which should be completed before the end of 2011 – will result in a new technology for the optimum recovery of lithium from battery waste. This will be an electrochemical technology based on an innovative lithium-ion-selective membrane that is

more energy-efficient and effective than existing methods. Another expected result is a new management structure for the reuse and recycling of EV batteries aiming at a higher percentage of reused batteries and recycled materials. As part of this, more knowledge will become available on the ageing of EV batteries and residual life following scrapping of the vehicle, by such means as accelerated life tests. ARN Advisory's partners in the SafeBAT project are: KEMA Nederland; TNO Industrie en Techniek; NXP Semiconductors; AweFlex Systems; Heliox; TÜV Rheinland TNO Automotive International; TNO Automotive Safety Solutions; Rups Consultancy & Project Management and Delft University of Technology.

In setting the management contributions, ARN took account of the safety aspects involved in the collection, storage and processing of high-voltage lithium-ion batteries. Still little is known about the possibilities for product reuse – so-called second life applications. One example of this is storage of energy from solar panels and from materials recycling. At the moment, the residual value of discarded lithium-ion batteries is negative. The cost of processing these batteries is very high.

In 2011, ARN will join a number of companies in the automotive industry and research institutes in SafeBAT, a large-scale investigation into battery safety in EV applications, second life and recycling. The results of this research will be used in setting the management contributions for 2012.

Developments in 2010

- The management contribution for lithium-ion batteries for electric vehicles was set on January 1, 2011.

Outlook for 2011

- The management contribution for car batteries and high-voltage NiMH batteries marketed in the Netherlands for the first time in 2011 will be set at 0.07 euro (plus VAT) per battery.
- The management contribution for lithium-ion batteries for electric vehicles marketed in the Netherlands for the first time in 2011 will be set at 180 euro (including 19% VAT) for batteries with a total weight of 100 kg or more and 90 euro (including 19% VAT) for batteries lighter than 100 kg.
- ARN will take part in the SafeBAT project – a large-scale investigation into battery safety in EV applications, second life and recycling.

Appendix

Consolidated balance sheet as of December 31

(after appropriation of result, in euro)

	2010	2009
1 Tangible fixed assets	32,236,831	24,858,165
2 Financial fixed assets	33,307,657	29,063,395
Total	65,544,488	53,921,560
3 Stocks	55,152	17,938
4 Accounts receivable	2,949,641	2,524,722
5 Liquid resources	31,907,237	70,561,232
Total	34,912,030	73,103,892
Total assets	100,456,518	127,025,452
6 Group equity	14,521	14,521
Total	14,521	14,521
7 Waste disposal fee fund	81,551,616	93,556,932
8 Long-term liabilities	11,209	401,043
9 Short-term liabilities	18,879,172	33,052,956
Total	100,441,997	127,010,931
Total liabilities	100,456,518	127,025,452

Consolidated profit and loss account

(in euro)

	2010	2009
10 Income from waste disposal fee	11,909,903	5,344,365
11 Income from investments	991,884	656,967
12 Realised changes in the value of investments	-63,206	-
13 Non-realised changes in the value of investments	905,815	4,702,390
14 Other income	2,425,699	1,335,257
15 Interest and similar income	845,106	2,297,504
Total operating income	17,015,201	14,336,483
16 Cost price of sales	19,525,438	1,033,776
17 Costs of outsourced work	2,441,694	40,325,032
18 Wages and salaries	2,105,297	1,672,896
19 Social insurance contributions	513,381	374,085
20 Depreciation of tangible fixed assets	4,290,296	3,637,917
21 Other operating expenses	130,110	1,907,479
22 Interest and similar expenses	14,301	10,332
Total operating expenses	29,020,517	48,961,517
Operating result	-12,005,316	-34,625,034
23 Tax on result	-	-
Result after tax	-12,005,316	-34,625,034

The consolidated balance sheet and the consolidated profit and loss account include the figures for the Auto & Recycling Foundation, ARN Holding B.V., ARN Auto Recycling B.V., ARN Recycling Services B.V., ARN Recycling B.V. and ARN Advisory B.V.

The figures are taken from the annual financial statements of the various entities, which were audited by KPMG Accountants N.V.

1. Tangible fixed assets

ARN Auto Recycling B.V. lent drainage installations to 217 (2009: 217) affiliated vehicle dismantling companies. On March 3, 2008, ARN Recycling B.V. purchased the land from the Municipality of Tiel, and started construction of the PST facility. The building and infrastructure were completed in May 2009.

Evaluation of the possible process has led to a definitive choice: the VW-SiCon process. Following completion of the building and infrastructure, a start was made on installing and building the processing line. The facility will be fully operational in mid-2011.

2. Financial fixed assets

Auto & Recycling Foundation has delegated management of the investment portfolio to a single asset manager. The funds are invested in both bond and share funds. The asset manager has been given a defensive mandate, characterized by investment in bonds and shares. The risks connected with investment are therefore as limited as possible.

As at the balance sheet date, 33,307,657 euro (2009: 29,063,395 euro) was invested in shares and bonds.

3. Stocks

Trade goods are valued at acquisition price, namely the purchase price plus additional costs. Any loss in value as at the balance sheet date is taken into account in the valuation of stocks.

4. Receivables

The receivables consist mainly of interest to be received and value-added tax that can be reclaimed.

5. Liquid assets

The cash of the Auto & Recycling Foundation, ARN Holding B.V. and ARN Auto Recycling B.V. held at ING Bank comes under the notional pooling arrangement. The cash of ARN Recycling B.V., ARN Recycling Services B.V. and ARN Advisory B.V. is not included in this arrangement.

6. Equity capital

The foundation's capital has been paid up by the shareholders RAI, BOVAG, FOCWA and STIBA. Each organization contributes a proportional share to the capital.

7. Waste disposal fee fund

The waste disposal fees received are deposited in the fund. The fund is used as a reserve for both anticipated and unforeseen future expenditure.

8. Long-term liabilities

The affiliated vehicle dismantling companies have deposited a guarantee for the use of logo signs. As at December 31, 2010, 249 (2009: 251) vehicle dismantling companies had an affiliation agreement.

9. Short-term liabilities

The short-term liabilities item covers the income from consumers / dealers who wanted to import their vehicle via the RDW testing stations. The Foundation had to receive the waste disposal fee before the RDW could issue the registration number. Since 1 January 2007, these vehicles have been exempt from paying the waste disposal fee. Advance payments and monies received before 31 December 2006 will not lead to payment of a waste disposal fee.

There is a procedure that consumers can use to claim a refund on the payment. In addition, the procedure automatically covers duplicate payments and excessive payments. Income that is not reclaimed or cannot be repaid because there is insufficient information, is released in favour of the result after 5 years. The portion of the waste disposal fee that is expected to be released or to be refunded in 2011 is accounted for under short-term liabilities. The remaining term of the 'advance and excess payments of the waste disposal fee' item is 1 year. ARN Holding B.V. forms a fiscal unit for corporation tax with ARN Auto Recycling B.V., ARN Recycling Services B.V., ARN Recycling B.V. and ARN Advisory B.V. This fiscal unit has a consolidated off-settable loss. Current account agreements have been concluded with importers. The waste disposal fee owed is charged each month to the current accounts. Interest is paid on the outstanding balances each year at the 12-month Euribor rate.

The 'liability to vehicle dismantling companies for materials' item shows the premiums still to be paid to the vehicle dismantling companies for dismantling, collection and processing. The liability is linked to the outstanding materials balances of each company. Outstanding materials balances represents the materials that are still in the end-of-life vehicles that have been registered for dismantling, are in the existing

packaging or have already been disposed of but may not yet be claimed for. The liability for material is calculated on the basis of the prevailing rates in 2010.

10. Income from waste disposal fee

In 2010, waste disposal fees were collected for a total 500,238 (2009: 439,629) newly registered vehicles. Furthermore, 73,665 euro (2009: 71,955 euro) was released for non-reclaimed waste disposal fees.

11. Income from investments

The income from investments in 2010 was lower than in 2009 due to poorer market conditions.

12. Realized changes in the value of investments

A loss was made in 2010 due to changes in the investment portfolio.

13. Non-realized changes in the value of investments

The investment portfolio is valued at market value as at December 31, 2010. The difference compared with the purchase price, or the market value on January 1, 2010, is recognized as the non-realized change in the value of investments. In 2010, the non-realized change in the value of investments was positive.

14. Other income

Other income consists mainly of the proceeds from the sale of materials and consultancy for third parties.

15. Interest and similar income

Interest consists mainly of the interest on deposits and savings. The fall in relation to 2009 is due to a reduction in liquid assets in 2010.

16. Cost price of sale

The cost price of sale relates mainly to the cost price of purchase, collection, lease of packaging and storage of materials.

17. Costs of outsourced work

In 2010, there were on average 251 affiliated vehicle dismantling companies which between them dismantled 215,975 end-of-life vehicles (2009: 228,783). The companies are paid premiums for dismantling, collection and processing.

The maintenance and service of the drainage installations is subcontracted to the companies that installed the systems.

Some of the packaging is leased from the collection companies; the rest is the property of the Foundation. This item includes the leasing costs and the costs of maintaining the foundation's own packaging. The RDC supplies the data for the collection of the waste disposal fee and for monitoring the vehicles registered in ORAD.

18. Wages and salaries

ARN's workforce consists of 42.6 FTEs (2009: 32 FTEs). The employees perform work for the Foundation, its subsidiaries and external parties. ARN Holding B.V. has a Supervisory Board comprising five members.

19. Social insurance contributions

From the moment of entering service, employees participate in the collective pension scheme.

20. Depreciation of tangible fixed assets

This item relates mainly to the depreciation on the drainage installations that ARN Auto Recycling B.V. has lent to the vehicle dismantling companies. The depreciation charges include any book profits or losses on the sale or return of the installations and any other changes in their value.

21. Other business expenses

'Other business expenses' account for the accommodation costs (i.e. the rent, service and maintenance) of the offices at Entree 258 in Amsterdam Zuidoost, and the business premises at Grutterij 2 in Amstelveen.

22. Interest and similar costs

Interest is paid on the balance held by the importers at the 12-month Euribor rate.

23. Tax on the result

ARN Holding B.V. and its subsidiaries form a fiscal unit for the purposes of corporation tax.

Recovery in the sale of new cars

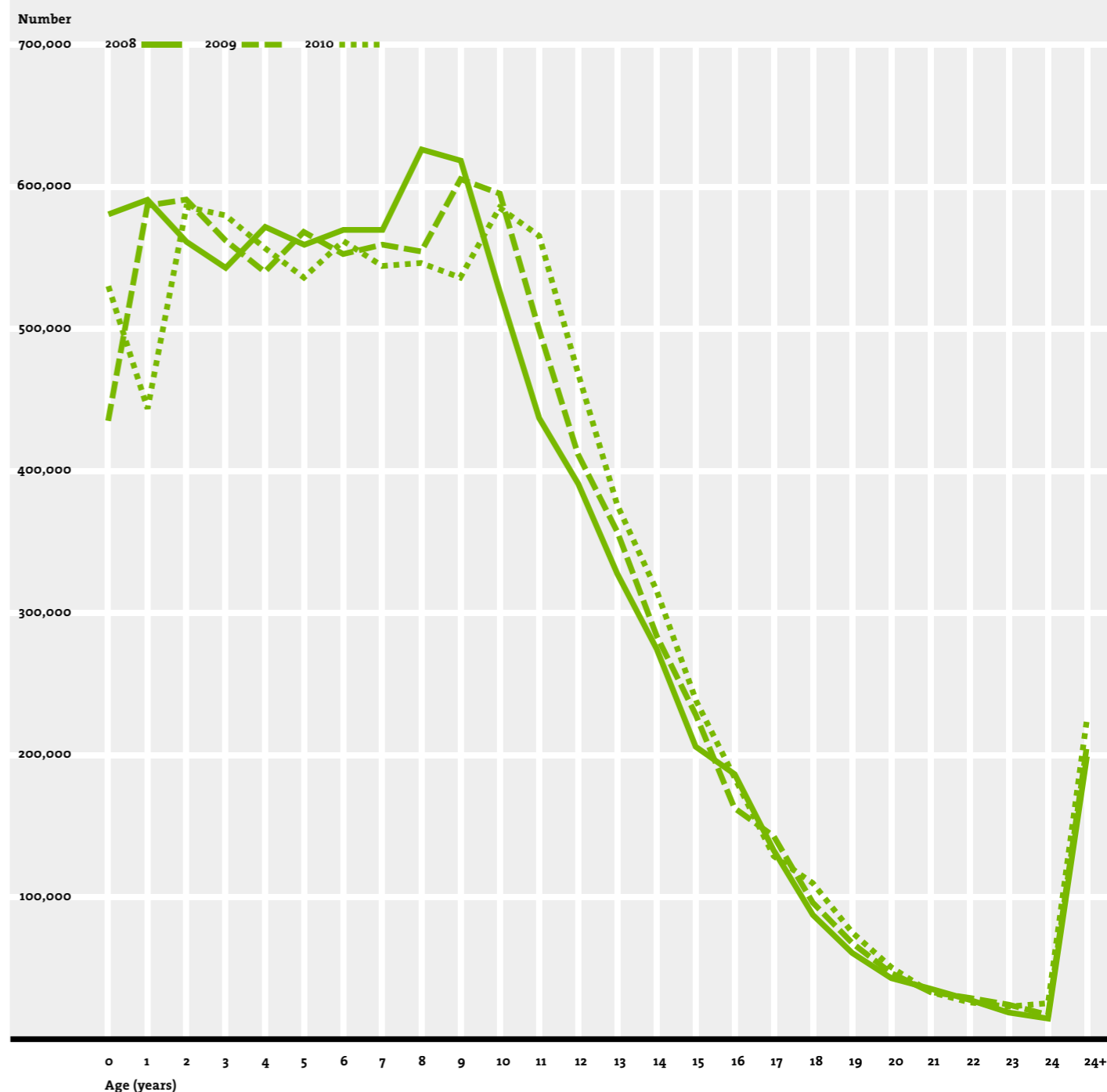
Every single month in 2010, more new cars were sold than in the corresponding month of the previous year. A total of 533,586 new passenger cars and light commercial vehicles were sold – 21.4% more than in 2009 when the economic crisis was having an effect. In spite of this strong recovery, the number of new cars sold in 2010 was still well below the number sold in 2008, the year before the crisis, when 578,277 new cars were bought in the Netherlands.

Based on the vehicle parc – the number of cars on the road - ARN can deduce how many end-of-life vehicles will have to be disposed of in the years to come. In other words, how much it is likely to cost ARN to carry out its statutory tasks and safeguard the continuity of the car recycling system. In general terms, ARN's recycling responsibility extends to all four-wheeled vehicles that may be driven with a B-class driving licence and which have a maximum laden weight of 3,500 kg. The information regarding developments in the vehicle parc in this report therefore concern this section of the vehicle parc.

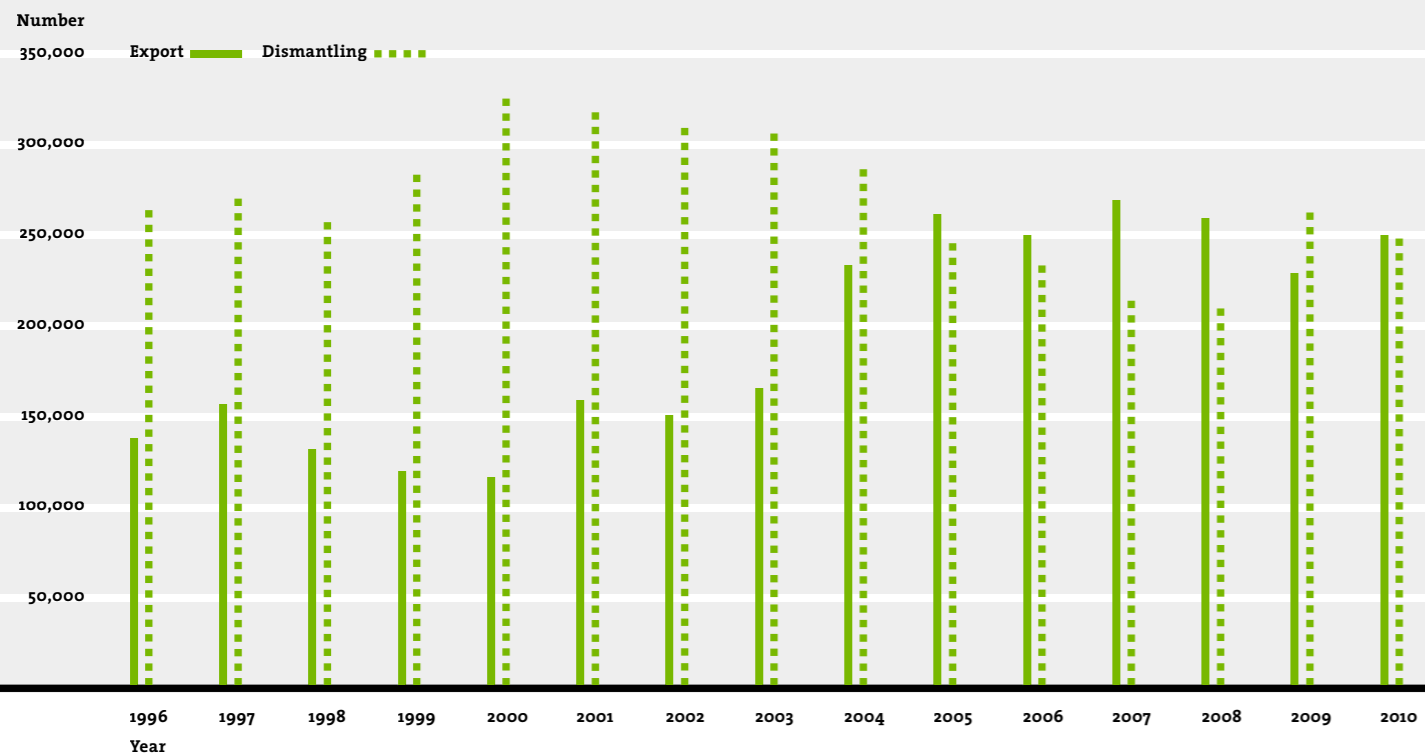
Vehicle parc

At the end of 2010, there were a total of 8.8 million registered cars on the road in the Netherlands. As well as an increase in new registrations via dealers, there was also explosive growth in imports. Imports increased by 22% compared with 2009.

Age of vehicles on the road in the Netherlands



Dismantling and export 1996-2010



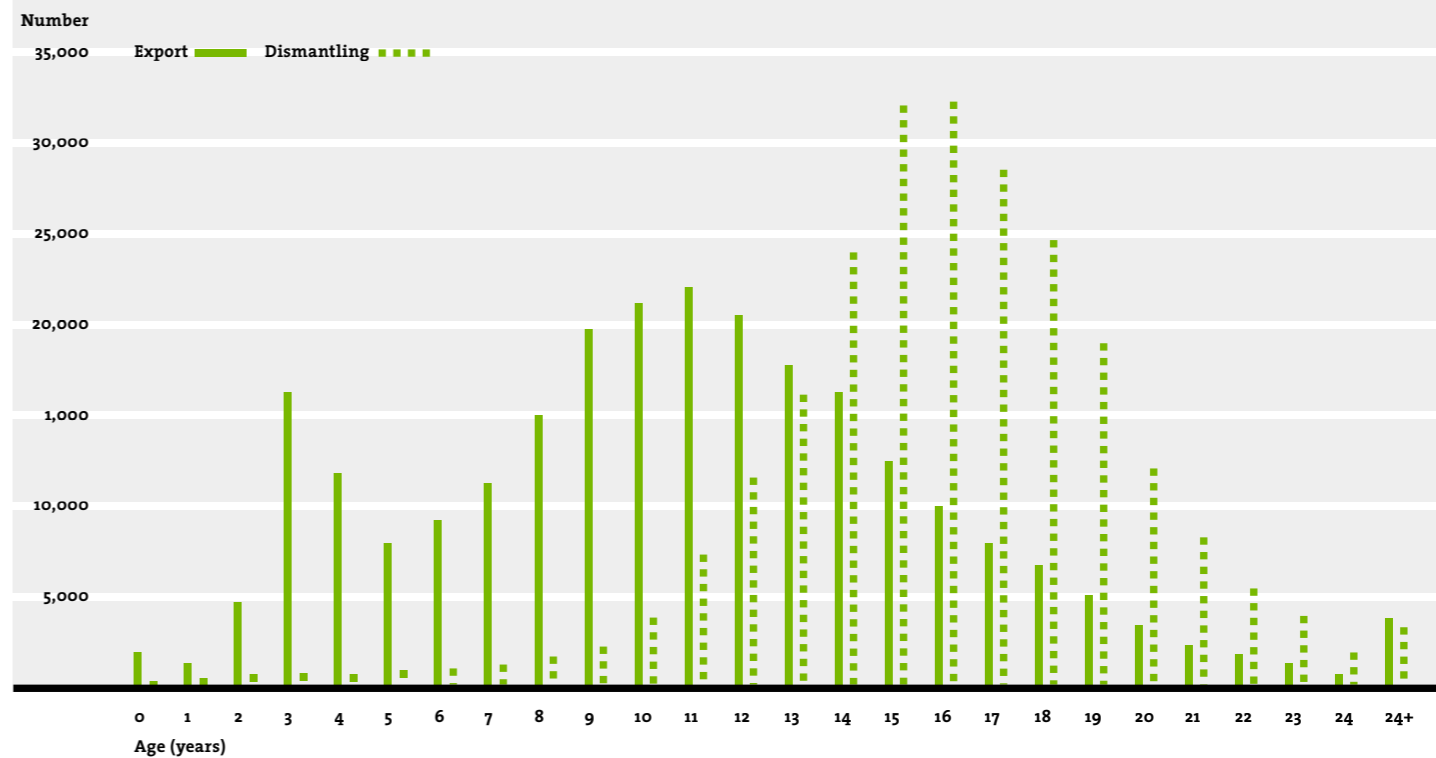
Veteran cars

The average age of the vehicle parc is continuing to increase and is now 8.8 years. In 2009, the average was 8.6 years and in 2008 8.4 years. ARN has observed a striking 9% increase in the number of so-called veteran cars – cars that are 25 years old or older. ARN expects a further increase in the number of veteran cars in the Netherlands in 2011. At the end of 2010, there were 223,000 veteran cars on the road.

Dismantling

A total of 249,008 end-of-life vehicles were dismantled in 2010 – 5.5% fewer than in 2009. The reason for this fall lies in the national scrappage scheme that applied for seven months of the previous year and brought about a change in the trend. At 16.6 years, the average age of a dismantled end-of-life vehicle was slightly higher than in 2009, when the average age was 16.4 years. 2010 was the year in which the first hybrids and electric cars were offered for dismantling. 21 of these vehicles were dismantled.

Dismantling and export by age 2010



Market share

Of the total number of end-of-life vehicles dismantled in 2010, 215,975 were processed through ARN. This gives ARN a market share of 86.7%, which is less than the 87.3% in 2009. At the end of 2010, ARN had a cooperative agreement with 247 car dismantling companies. That was one company fewer than in 2009.

Export

The number of end-of-life vehicles dismantled in 2010 was lower than the number of second-hand cars exported from the Netherlands. 250,245 second-hand cars were exported, representing an increase of 9% compared with 2009. The average age of exported cars was 10.6 years. This average was also about 11 years in the preceding years. ARN is monitoring the export of second-hand cars as this influences the number of vehicles to be processed.

ARN contract partners

Vehicle dismantling companies, collection companies, recycling companies and shredders with which ARN has entered into a contract

ARN Extranet

Online registration system via which vehicle dismantling companies can indicate the materials they wish to have removed, and collection companies can enter the quantities of materials collected. If the details match, a vehicle dismantling company can issue digital approval, and ARN will make the payment

ARN materials

Materials ARN has dismantled by vehicle dismantling companies for recycling, and for which a dismantling payment is made.

AVC

Foundation for Tackling Vehicle Crime, public-private partnership with the following participants: Ministry of Security and Justice, RDW, Centre for Vehicle Technology and Information; Board of Chief Commissioners; Public Prosecutor's Office; Dutch Association of Insurers; ANWB; RAI association; BOVAG; Dutch Transport Operators Association and ARN (associate member)

AVI

Waste incineration installation

Battery Management Decree

Decree dating from 2008 that determines how producers (including manufacturers and importers) must organize the collection and processing of batteries, and describes the statutory requirements

BOVAG

Sector organization for businesses in the mobility sector

Car Dismantling Sector team

New name for the former ARN consultative body with provincial supervisory bodies. Participants are: all provinces, DCMR Rijnmond Environmental Service; Environmental Protection and Building Supervision Service; RDW, LIV, KIWA, Tax and Customs Administration, ARN, SGS, STIBA and the Ministry of Infrastructure and the Environment (formerly Housing, Spatial Planning and the Environment)

CO₂ footprint

Calculation of the burden imposed by a company or chain in terms of energy consumption and the environment, according to a range of indicators

End-of-Life Vehicle Directive Eural code

Unique six-figure code according to which a waste substance is included in the European Waste Substances List (Eural) that contains about 800 different waste substances

End-of-Life Vehicles Management Decree

Decree dated May 24, 2002 for the implementation of European Directive no. 2000/53/EC (End-of-Life Vehicle Directive). This Decree lays down the recycling objectives that must be achieved, and in respect of which reporting is required. It was revised in 2007

Euro 5 standard

European emission standard for motor vehicles

FOCWA

Association of businesses in the vehicle body building sector

Framework Directive Waste Substances

European Directive 2008/98/EC that enables businesses to grant waste incineration furnaces the status of recovery operation, the so-called R(ecycling) 1 status

Hazardous waste

Waste that is harmful to man, animals or the environment. The European list of waste substances (Eural) indicates for each substance whether or not it is a hazardous substance

IARC

International Automobile Recycling Congress

IPO

Association of Provincial Authorities, umbrella organization for the twelve Dutch provinces

ISO 9001

International standard for quality management systems for organizations

ISO 14001

International standard for environmental protection systems for organizations

IVDM

Institute for Sustainable Mobility

KIWA

International testing and certification organization

KZD

KwaliteitsZorg Demontage (Quality Assurance Dismantling), a certified quality management system for the vehicle dismantling sector

Leakage flows

Illegal waste flows that arise if vehicle dismantling companies do not apply the correct Eural code or if scrap dealers do not supply their materials to shredder installations

LIV

National Vehicle Crime Information Centre

Mass balance

Describes the quantity of material entering and leaving a recycling system in a given period

Ministry of Infrastructure and the Environment

New name following the merger of the Ministries of Housing, Spatial Planning and the Environment and Transport, Public Works and Water Management by the Rutte Cabinet that took office on October 14, 2010

myBatbase

Online registration system for specifying quantities of batteries placed on the market by specific companies

myBattery

Balance Online system used by ARN and Stibat for indicating the numbers of batteries collected and processed by collectors and foreign processors

PCB's

Polychlorobiphenyls, collective name for a large group of organic substances with a long residence time in the environment, and that can cause toxic fumes if incinerated

Producer responsibility

The financial and/or physical (co)responsibility of the partner who places a particular product on the market, to subsequently retrieve that product from the market in the waste phase, and to recycle it

PST

Post Shredder Technology

RAI Association

Sector association of manufacturers and importers of Motor Vehicles

RDW

Dutch registration authority for vehicles and controller of the basic registration of vehicles registered in the Netherlands

R(ecycling)-1 status

All waste incineration installations intended for processing solid urban waste and that comply with the required minimum energy efficiency can be awarded the status for useful application (R1)

Recycling percentage

Statutory obligation to achieve 95% useful application of the weight of a car, to be achieved by 2015; until that time the legal standard is 85% useful application

SafeBAT

Extensive national survey in 2011 into Battery Safety & standardization, second life (product reuse) and collection and recycling of high-voltage Lithium Ion batteries used in electrical vehicles

SGS

International inspection and verification organization

Shredder

Installation in which end-of-life vehicles etc. are ground, and the metal parts are recovered

Shredder residue

Materials left behind following the shredding of an end-of-life vehicle

Shredder waste

Residual material after the shredder has separated off the metals; shredder waste consists of a light fraction and a heavy fraction

STIBA

Sector organization for certified vehicle dismantling companies

Stibat

Implementation organization that coordinates the collection and recycling of used batteries in the Netherlands, on behalf of battery manufacturers

SYBASS

Superyacht Builders' Association, sector organization for builders of superyachts

vw-SiCon® process

Process used in the PST facility for processing shredder waste into usable material using mechanical separation techniques, developed by Volkswagen AG and SiCon GmbH

Waste disposal fee fund

The fund in which waste disposal fee payments are reserved

Assurance report

Assurance report
To the board of Auto & Recycling Foundation

Terms of engagement

We have performed an assurance engagement in accordance with Standard 3000 "Assurance engagements other than audits or reviews of historical financial information". The purpose of our engagement was to obtain reasonable assurance regarding the design and effectiveness of the administrative organisation and system of internal control of Auto & Recycling Foundation during the 2010 financial year with regard to the goods-flow and payment of premiums. Our assurance engagement was also intended to obtain reasonable assurance that the quantities of materials collected and processed as reported in table 1 of the 2010 sustainability report (page 26) are presented correctly in all material respects.

Criteria

The administrative organisation and the system of internal control with respect to the goods-flow must be set up and work in such a way that it can be established, on the basis of ORAD registrations by contracted car dismantling companies, that all materials supplied by these car dismantling companies are collected by contracted collectors and accepted for processing by contracted processing companies.

The administrative organisation and the system of internal control with respect to the payment of premiums must ensure that premiums are paid correctly.

In view of the restrictions inherent to any system of internal control, errors and irregularities may occur that are not discovered by internal control.

Responsibility of the management

The management of the Foundation is responsible for the design and continuous effectiveness of an adequate administrative organisation and system of internal control. The management of the Foundation is also responsible for the information contained in table 1 of the 2010 sustainability report (page 26).

Responsibility of the auditor

Our responsibility is to express our conclusion concerning the design and effectiveness of the administrative organisation and the system of internal control, as well as our conclusion concerning the accuracy of the information regarding the quantities of materials collected and processed in table 1 of the 2010 sustainability report (page 26) in an assurance report.

We performed our work in accordance with Dutch law, which includes rules of conduct including requirements with regard to the independence of members of the assurance team.

The principal procedures for the performance of our assurance engagement comprised:

- identifying inherent risks with respect to the management of the goods-flow and the payment of premiums and investigating the extent to which those risks are covered by internal control;

- carrying out observations to assess whether the internal control worked effectively during the year under review, in as far as they were relevant for our engagement;
- establishing that the quantities of materials collected and processed in 2010 are accurately reported in table 1 of the 2010 Sustainability report (page 26) through a combination of interviews with the officials responsible for measurement and registration, analytical review of the figures, association testing and substantive testing. We performed substantive testing (ad random) based on internal and external data.

In our opinion the information we acquired is sufficient and a suitable basis for our conclusion.

Conclusion

On the basis of our work we conclude that the administrative organisation and the system of internal control with respect to the goods-flow and the payment of premiums during the 2010 financial year were in all material respects designed adequate and worked effective.

On the basis of our work we also conclude that the quantities of materials collected and processed as reported in table 1 of the 2010 sustainability report (page 26) are in all material respects accurate.

's-Hertogenbosch, 16 May 2011

KPMG ACCOUNTANTS N.V.
R.P.A.M. Engelen RA