Annual Report 2019

CLIMATE IN THE LEADING ROLE

AVR.

Number of employees (in FTEs)

455

↑ 22
(2018: **433**)

Safety IF rate

3.0

↑ 1.4
(2018: **1.6**)

Sick-leave

5.4%

↓ 1.0
(2018: **6.4%**)

EBITDA

132.8 € mln

↑ 10.8
(2018: **122.0**)

Net result

37.9 € mln

↑ 0.2
(2018: **37.7**)

Quantity of waste processed

Household waste	868
Commercial waste	413
Hazardous waste	91
Imported waste	249
Subtotal waste input for energy-from- waste plant	**1,621**
Biomass: waste wood	146
Biomass: paper pulp	140
Waste water	247
Total processed residual waste	**2,154**

2,154 kton

↓ 144
(2018: **2,298**)

Total energy output

8.1 PJ

↓ 0.4
(2018: **8.5**)

Converted into the number of household to which we supply energy

151,000 Households

↓ 6,000
(2018: **157,000**)

CO_2 emissions

2,267 kton

↑ 36
(2018: **2,231**)

Of which biogenic:
1,360 kton

AVR's year in a nutshell

Altrad Hertel wins the AVR Safety Trophy

– 29 January 2019

Every year AVR awards the Safety Trophy to a contractor that has delivered excellent quality in the field of safety. This time the winner was Altrad Hertel - an AVR international industrial maintenance partner for activities such as work at height, isolation and painting. Altrad Hertel won the trophy for its excellent communications, which work very well despite the fact that many of the company's employees do not speak Dutch, and for its exemplary use of personal protection equipment.

Perfect days

A perfect day is a day on which everything runs smoothly: a day without accidents, without permitted emission levels being exceeded, without unscheduled stops and still within budget. Perfect Days happen when we all work together perfectly. Since 2011 every Perfect Day has 'earned' € 100 that AVR has donated to a charity. Charities are nominated by employees who then hand over the cheque if one of 'their' charities is chosen. In 2019 AVR cheques are gratefully received by many small charities. In November the Pigeons Basketball Club in Duiven received a contribution towards Pigeons on Wheels – the Club's new initiative for fanatical wheelchair athletes . The AVR cheque presented by Chief Operator Henry Slot will be used to buy smart team kit.

AVR. ANNUAL REPORT 2019

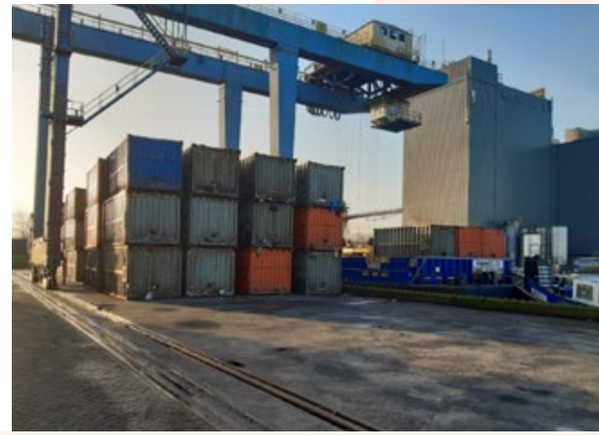
The new reception area is 100% waste-based

– 1 April 2019

On 1 April AVR in Rozenburg opened its renovated reception area for employees, visitors and suppliers. The area is furnished entirely with recycled materials, such as bricks made from incinerator bottom ash, lampshades made from old paper and chairs made from old PET bottles. Commercial Director Jasper de Jong: "This new area tells a good AVR story. Everything you see as you look around brings to life the story of what you can make from waste." Curious? Take a look online at https://www.avr.nl/nl/nieuws/nieuwe-ontvangstruimte-avr-100-waste-basted or come and see.

In 2019 AVR wins tenders for residual household waste

In 2019 AVR won two major tenders for the transfer, transporting and processing of residual household waste. One of the tenders was for the city of Den Haag and the other was for the Rijnmond municipalities (Nissewaard, Brielle, Westvoorne and Maassluis). As of the beginning of 2020 no decision has been made in respect of a third large tender process, started in the summer of 2019, for a collaboration between all the municipalities in the province of Utrecht.



New waste separation line for Rotterdam

– 22 May 2019

Rotterdam Councillor Bert Wijbenga placed a rubbish sack on the conveyor belt and the second line of the waste separation plant set up especially for Rotterdam's household waste was open. The unit separates plastic and drinks cartons from household waste so they can be recycled. This means Rotterdam residents no longer have to separate these items themselves.

AVR leads the way with a CO_2 capture plant

– 09 August 2019

In August 2019, after three years of research and one year of construction, the CO_2 capture plant at the Duiven facility went into service with the first commercial supply to partner Air Liquide. The CO_2 in the flue gasses produced when waste is incinerated is no longer emitted into the air. Instead it is captured and utilised, for example in the greenhouse horticulture sector where it means growers no longer need their gas-fired CO_2 production units. AVR is the first energy from waste company in Europe to capture CO_2 on a large scale. The plant brings us a step closer to achieving our goal of a CO_2-neutral operation by 2050.

Total Plant Shutdown

– 16 to 28 September 2019

As the clock struck 00:00 on 16 September everything stopped in Rozenburg - after extensive preparations the Total Plant Shutdown had begun exactly as planned. The Shutdown was necessary to enable maintenance work that will ensure all the machinery and plants remain at top-quality for the future. A number of essential plant components can only be replaced while the common infrastructure is switched off. The work involved in the Shutdown meant employing numerous temporary workers and organising special facilities, such as extra parking space, catering, shower cabins and electricity generators. On 28 September, after three weeks of intensive activity completed without a single incident or accident, everything was switched on again and running..... like clockwork.

Vattenfall Solar Team crashes

– 18 October 2019

AVR has sponsored the Vattenfall Solar Team that takes part in the annual World Solar Challenge race for solar-powered cars since 2017. The 2019 race was between the Australian cities of Darwin and Adelaide and the Team was hoping their new NunaX would enable them to win the title again. On the final day of the race they were in the lead and all was looking good, until suddenly the car caught fire. It was the first time the Vattenfall Solar Team had failed to reach the finish line. The Solar Team is already planning to get its revenge in the Unites States of America with the new Nuna Phoenix. Good luck!

Hackathon 2019: ideas for new CO_2 applications

– October 2019

AVR started supplying the greenhouse horticulture sector with CO_2 in August 2019. We could supply more CO_2, but are other sustainable applications possible? It's a socially-relevant question to which AVR could not, on its own, give an instant answer. Which is why we participated in a Hackathon with twenty students from the Radboud University Nijmegen. The students, divided into five groups, took on the challenge armed with lots of new knowledge, creativity and youthful enthusiasm. The concepts they came up with will enable AVR to take further steps. The three concepts judged the best by a jury of the public and experts were Waterless washing for the hotel branch, a duckweed reactor for animal feed production and an algae farm on open water. Read more: https://www.avr.nl/nl/nieuws/hackathon-2019-ideeen-voor-nieuwe-CO_2-toepassingen

Our mission, vision and strategy

AVR in brief

AVR specialises in the processing of various types of residual waste: waste water, paper pulp residue, household and commercial waste, waste wood and hazardous waste. We strive continuously to achieve the maximum recovery of energy and materials from this residual waste through effective, efficient and safe business operations. We ensure that metals are recycled and minerals are used in (road) construction. We supply (renewable) steam, heat and electricity to our surrounding area and by so doing obviate the use of fossil fuels. In this way AVR makes an important contribution towards the Dutch and European goals related to the climate and renewable energy. And AVR does all that with residual waste that other people often think is worthless.

AVR has two facilities, in Duiven and Rozenburg, where energy and raw materials are generated from residual waste, and four transfer stations, in Den Haag, Utrecht and central Rotterdam. The central location of these facilities is very advantageous for both the suppliers of waste and the purchasers of energy and raw materials. Whenever possible the residual waste is brought in by water. When that is not possible it is brought in by road. At the end of 2019 AVR employed 475 people (455 FTEs).

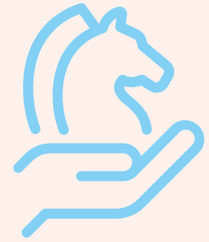
Our mission: to create a clean world in which nothing is wasted

AVR has been contributing towards keeping streets and cities clean for many years. We do it by taking residual waste streams most people consider worthless and giving them a new life as raw materials and energy. The target is always 100%: to convert the residue of the residue nobody else can do anything with into something worthwhile, and with a minimal environmental impact. We believe our solution is the best available at this time. It's why we are here and it's also our motivation: to create a clean world in which nothing is wasted. We, together with our proud employees, are working day in and day out to bring about positive change.

Our vision: too good to waste

Vital raw materials are being depleted and CO_2 emissions are changing the climate. If we want this planet to be liveable for future generations we must make radical changes now. Changes like implementing a circular economy and an energy supply that is 100% renewable. The way we handle residual waste is a key factor in making our planet more sustainable. The global population keeps on increasing, the global waste mountain keeps on growing and in many countries the majority of residual waste is still landfilled.

AVR makes an important contribution towards reducing difficult residual waste streams: as experts in handling the residue of the residue we make new beginnings possible. Achieving this in a constantly-changing world demands a flexible approach. With our sights set firmly on tomorrow we offer the best solution for the residue available today. At the same time we ourselves are constantly changing, adapting. Because that is our goal: to offer the best solution for the day-to-day challenges facing our society and to constantly seek ways to do it that are better, cleaner, more efficient and emission-free. You can't have one without the other: we are striving for a natural balance between economy and ecology. Doing that is what enables us to not only provide a social solution for keeping the streets clean, but also gives us the capacity to be a driving force for far-reaching innovations. A circular and sustainable 2050 is coming. AVR will be part of it.



Our strategy

AVR has developed a strategy that will add substance to its mission and vision. The key elements are encapsulated in three pillars our organisation works on every day:

long-term (residual) waste contracting;

maintaining, and where possible further improving, operational excellence;

maximising energy and resource efficiency and minimising the carbon footprint and negative environmental impact.

The successful implementation of our strategy depends on our employees. They make the difference in respect of all three pillars, which is why safety is always the priority in everything we do. It's also important that our employees are healthy and energetic, can develop their potential and grow and can carry out their tasks in the optimum way.

How we add value

Our mission Create a clean world in which nothing is wasted

Input

Residual waste
- 2.145 ktonnes

People
- 475 people (455 fte)
- Competencies and Qualifications
- Sustainable employability

Means
- Strategic locations
- Plant and maintenance
- Logistics (IT infrastructure)
- Raw and auxillary materials and external services

Capital
- Financing structure
- Subsidies

Legislation & regulations
- Licences
- Legal framework

Our business activities

- Maximum value creation of residual waste in energy and raw materials
- Transferring and transporting (household) residual waste by water
- Conversion of waste into energy in the form of city heating, steam and electricity
- Reprocessing of incineration residues
- Capturing of harmful emissions
- Separation of plastics and drink cartons
- Capturing CO_2 and supplying it to the greenhouse sector

Output

Energy
- Steam (1,2 PJ)
- Heat (5,2 PJ)
- Electricity (1,7 PJ)

Raw Materials
- Metals (2,3%)
- Minerals (22,8%)
- Plastics (19 kton)
- CO_2 (10 kton)

Residues
- Fly ash
- RGR residue

Emissions
- Into the air
- Into water
- Into the ground

Outcomes

Environs and environment 2 4 8
- A reliable partner for customers and suppliers
- Minimise emissions and carbon footprint
- Compliance

Financial stability 3 9
- Dividends paid-out to shareholders
- Access to capital market / financing
- Credit rating

A good employer 1 7
- Job opportunities
- A safe and healthy working environment
- Promote sustainable employability

Materiële thema's

1. A safe working environment
2. CO_2 emissions
3. Innovation
4. Reliability
5. Recycling
6. Renewable energy
7. Sustainable employability
8. Other emissions
9. Financial stability

Impact

5 6

Contributing towards a clean world (by preventing landfill of waste)

Contributing towards renewable energy generation and eco-goal achievement

Contributing towards the transition to a circular economy

Our stakeholders and material themes

AVR reporting policy

AVR's financial and economic contribution is substantial and visible. We are a strong and solid company with economic relevance. We also make a significant social contribution by processing residual waste that would otherwise be landfilled and converting it into energy, thus reducing the need for fossil fuels, or recovering useful raw materials from it.

This is why, since the end of 2016, a motivated and diverse team has been working on professionalising the reporting of AVR's social results. After produced a digital Annual Report in 2017 we took the first step towards an integrated Annual Report. We organised an internal stakeholder dialogue, decided our material themes and defined the most important KPIs. In 2019 the stakeholder dialogue was intensified and in our 2019 Annual Report we have taken the following step towards accountability regarding the material themes by including input from external stakeholders. We have also added new sections, such as Corporate Governance, Compliance and Risk Management, and Summarised Financial Statements. This has resulted in a new structure for the 2019 Annual Report.

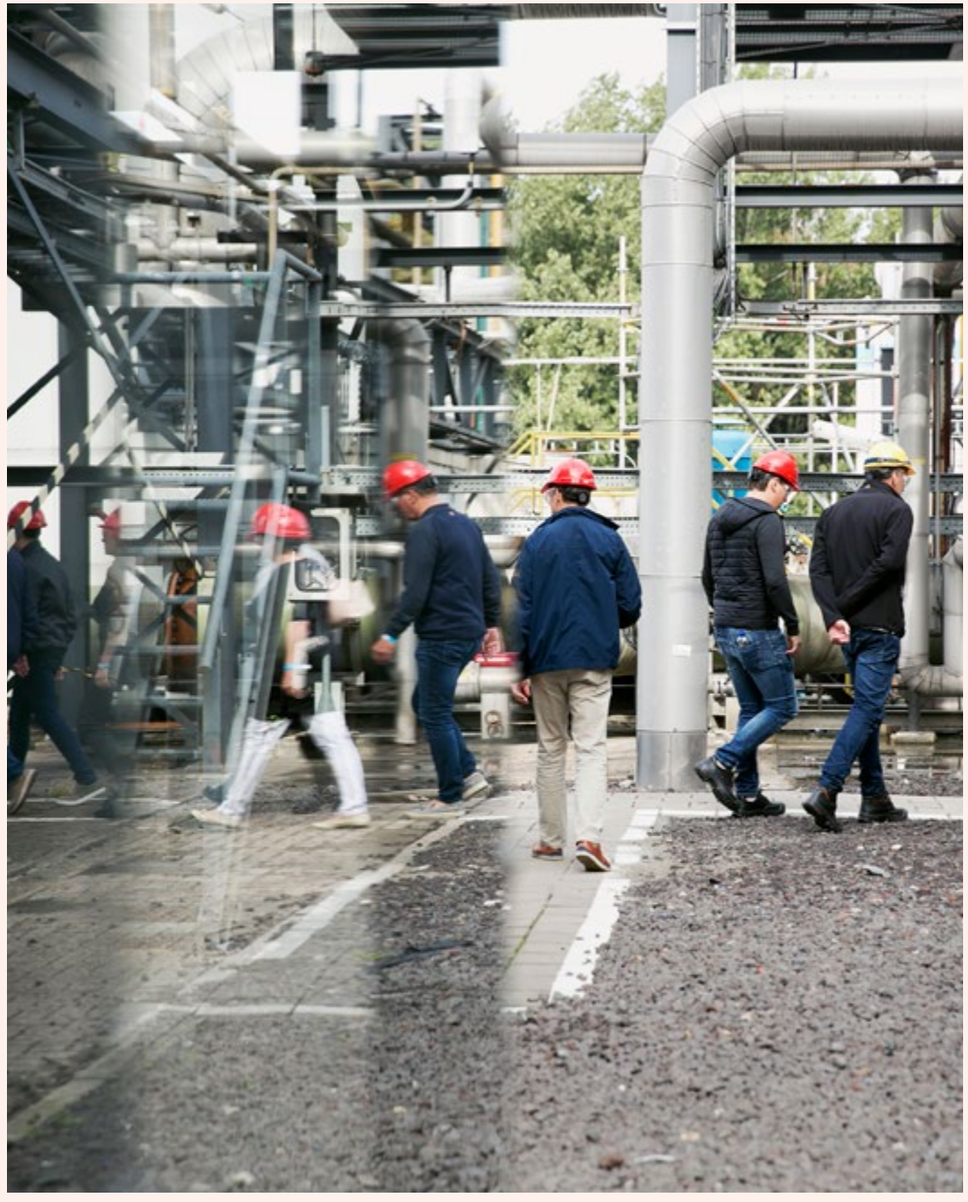
Our goal is to publish a fully-integrated Report within the next few years. A Financial & Social Annual Report that reflects what AVR is and does and that tackles issues that are of crucial importance not only for AVR but also for AVR's stakeholders.

Stakeholder dialogue

In the spring of 2018 internal representatives of the stakeholder groups were interviewed. The aim was to define interests, themes and goals. The first item on the stakeholder dialogue agenda was to identify and classify all the stakeholder groups. The five most important are:

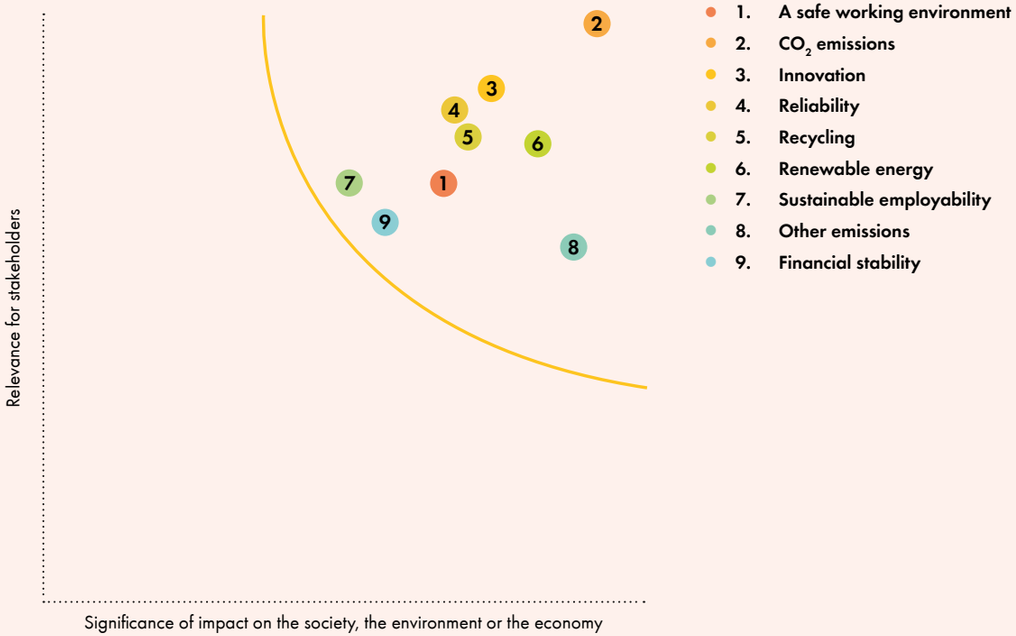
- employees
- shareholders
- waste customers
- energy customers
- policy developers

In October 2019 AVR organised the first official stakeholder dialogue session attended by delegations from all ten of our stakeholder groups. The topics discussed during this 'Day of the Future' included AVR's social contribution and impact and the content of the most important material themes. We have used all the input and feedback to amend our materiality matrix and implement a number of changes to the content of this 2019 Annual Report.



Materiality matrix

The outcome of the stakeholder dialogue was that the most important themes for AVR had been defined and ranked in accordance with their relevance for the stakeholders and their importance for society, the environment and/or the economy.



During the stakeholder dialogue virtually all the stakeholders classified the theme 'Continuity' as very relevant. One reason for this was the developments in the waste sector in the summer of 2019 (see Section 6, theme Reliability) and the cohesion between this theme and the Financial Stability and Reliability themes. During the 'Day of the Future' we came to the conclusion that Continuity did not need to be a separate – named - material theme but should be incorporated within the existing themes of Reliability (continuity is reliability in the long term) and Financial stability.

Material themes, goals and KPIs

The nine most important themes derived from the stakeholder dialogue are linked to AVR's strategic goals. One or more KPIs have been specified per theme. The KPIs make AVR's impact on the relevant themes measurable. Every year we assess whether these KPIs provide sufficient clarity or whether adjustment is required. For 2019 this led to the following full overview.

Material themes	Strategic goals	KPI
1. A safe working environment	• Continuation and improvement of our operational excellence • Promoting and guaranteeing a safe working environment	• Long Term Injury Frequency ratio (IF rate) • Number of Safety Observation Rounds (SOR)
2. CO_2 emissions	• Maximisation of energy and raw material efficiency and minimisation of our Carbon footprint	• CO_2 emissions, direct and indirect (in CO_2 equivalents) • Share of biogenic in CO_2 emissions • CO_2 emissions avoided through energy supply
3. Innovation	• Long-term (residual) waste contracts • Maximisation of energy and raw material efficiency and minimisation of our Carbon footprint • Continuation and improvement of our operational excellence • Growth	• Investments in innovation • Innovative projects achieved
4. Reliability	• Long-term (residual) waste contracts • Continuation and improvement of our operational excellence	• Plant availability percentage • Reliability of steam and heat supply
5. Recycling	• Maximisation of energy and raw material efficiency and minimisation of our Carbon footprint	• Quantity / percentage of recovered raw materials
6. Renewable energy	• Maximisation of energy and raw material efficiency and minimisation of our Carbon footprint	• Total volume of energy supplied – electricity, steam, heat • Percentage of biogenic in the energy supply
7. Sustainable employability	• Continuation and improvement of our operational excellence • Increasing our employees' potential	• Percentage of sick leave
8. Other emissions	• Continuation and improvement of our operational excellence	• In 2019 we have defined the KPIs. We only describe them quantitatively. In 2020 we also want to display them qualitatively.
9. Financial stability	• Long-term (residual) waste contracts • Maximisation of energy and raw material efficiency and minimisation of our Carbon footprint • Continuation and improvement of our operational excellence	• Revenue • EBITDA • EBIT • Net result • Cash flow • Cash position • Investments

CEO Yves Luca (left) and CFO Rob de Fluiter Balledux

Climate in the leading role

Yves Luca & Rob de Fluiter Balledux

For AVR 2019 was a turbulent year in which the climate and the circular economy played the leading roles. There were highs, such as the CO_2 capture plant going into service and the good results achieved by the separation plant. But there was also turbulence: the government decided to levy a tax on imported waste. CEO Yves Luca and CFO Rob de Fluiter Balledux look back at 2019.

What typified 2019 for AVR?

Rob: "In 2019 the climate was high on the agenda of the government and of AVR. It received increasing attention, a Climate Agreement was signed, and we were delighted that we, as AVR, were contributing towards halting global warming. We called 2018 a year of building and investing, and what we sowed in 2018 we were able to reap for the first time in 2019. The CO_2 capture plant went into service. We were quite modest about it in our reports, probably we shouldn't have been, because it really was an amazing project. The plant is a success; since August 2019 it has captured 10 kiloton of CO_2. From 2020 that volume will increase to around 60 kiloton a year."

Yves: "2019 was also the year of raw material conservation. It was the first year the separation plant was in operation for the entire year and in April our second line went into service as well. The response was enthusiastic. Rotterdam City Council, for example, sought publicity in order to show the positive effects of post-collection separation on its recycling-percentages. More and more municipalities are switching from separation at source to post-collection separation because the results are better."

So it's a major step towards a circular economy.

Rob: "Extracting plastics from waste is the gateway to making new, high-quality products. And this serves the environment. The technology is evolving, the problem is it's still prohibitively expensive. Recycling glass is cheaper than making glass from virgin materials. The same applies for paper, but when it comes to plastic that tipping-point is still a long way away. It's a real dilemma."

Yves: "Plastic is transported, separated and washed, that costs energy. But we must invest in it because the long-term effect will be positive. We want the government to do something about it. Like levy a tax

on cheap and polluting raw materials. It's necessary because mineral oil hasn't become scarce yet and fossil plastic is still being produced."

Does AVR invest primarily in new plants?

Yves: "No. Definitely not only in new plants. The key factor for us is the reliability and predictability of the production and our results. Unscheduled maintenance or plant shutdowns must be prevented. They are damaging for the continuity of AVR itself, but also and primarily for the reliability of our waste acceptance and the supply of energy to our clients. That's why in 2019 we once again invested a lot in maintenance. In September we had the first Total Plant Shutdown – TPS for short – in 19 years, at the facility in Rozenburg. The preparations were painstaking, and every replacement or maintenance included in the scope of work was completed as planned. We also successfully upgraded to the latest efficiency and safety standards. The TPS is a good example of our strategic focus on operational excellence and reliability."

Rob: "During the TPS we couldn't accept any waste, so we appealed to our customers and partners in the chain. We also received support from our contacts in the sector. You can't do this alone, you have to work together. It was a major exercise, logistically as well because for weeks there were hundreds of extra people on site, such as sub-contractors. Everything went smoothly, and most important – without incident or accident. We are proud of our people, they did an excellent job."

Completing such a complex task without incident or accident is an impressive performance.

Yves: "Absolutely. During the TPS considerable attention was paid to safety. In fact, a lot of attention was paid to safety throughout the year and in that respect it was a good year – only four incidents none of which was serious. Of course we wish we could have prevented those incidents as well, but we're getting better all the time."

Is the tight labour market making it difficult for AVR to find enough employees?

Rob: "Finding employees isn't easy, especially technical people. We developed a special recruitment campaign, including short films, and it was well received - we had a large inflow of younger employees, including technically-trained people. This was very pleasing because the average age in AVR is pretty high and many employees are approaching the retirement age. Sick leave also went down in 2019, so our robust efforts with the Be Your Best programme worked."

> The CO_2 tax will enable further investments and greening

How was 2019 in operational and financial terms?

Yves: "Residual waste keeps changing. Residual waste from households is becoming less combustible, but on the commercial waste front we are receiving more monostreams that are the residue after recycling. These vary in composition – from high caloric value to low caloric value. To process this waste in a stable way and extract as much energy as possible from it, mixing is essential. This re-stabilises the quality. In the past that was necessary less often. So these days more attention has to be paid to the residual waste that is accepted and to the accumulation of stocks."

Rob: "At the end of 2019 the quality of the waste was once again more consistent, but overall it was a tough year both operationally and financially. It's clear that we must work harder to process the same volume of residual waste. In terms of numbers the result was good, but deep down we know we must do better."

Going back to the climate, was AVR involved in the Climate Agreement negotiations?

Yves: "I took part in the Industry cluster Rotterdam/Moerdijk. A corollary of that is that we are extending the existing Steam Pipeline that currently goes from AVR to a customer in the port of Rotterdam. Companies along the pipeline will be able to add or extract steam and thus minimise their gas usage. The Rotterdam Climate Agreement, in which the Industry cluster participated and to which our Energy and Residues Director, Michiel Timmerije, contributed, was also drawn-up. We are doing well with our heat proposition: we can transfer people from gas to the heat network operated by one of our partners."

Rob: "As the waste sector we have agreed to save 1 million tons of CO_2. The introduction in 2021 of a national CO_2 tax for the industry sector has been announced. We support it. We can respond in an innovative way by investing and becoming greener. As we have already done with the CO_2 capture plant."

Imported waste is also going to be taxed. What are your views on that?

Rob: "It came as a shock. This is one of 20 measures put together under high pressure after the Urgenda ruling. The tax was also implemented extremely quickly – as of 1 January 2020. We asked to see the calculations that served as supporting evidence for the legislation and they certainly raise questions. It is a tax that is being presented as a component of the Climate Agreement, but the effect is counterproductive."

Yves: "A quarter of the residual waste incinerated in the Netherlands is imported and converted into energy. If the waste wasn't incinerated in the Netherlands it would be landfilled and the effect would be ten times worse – methane, which is far more harmful than CO_2 would be released. And if less was imported the energy we currently supply would once again have to come from gas, coal or biomass from an unclear source, which would mean higher CO_2 emissions. Obstructing the import does not, therefore, help the climate in a wider context."

How will this affect AVR?

Rob: "We offer our foreign customers a better alternative than landfilling in their own country. We've discussed it with them: who pays which portion of this tax and what are the alternatives? We will see the effects of the tax immediately, in 2020. Whichever way you slice it it's a financial setback. It will cost us our headroom to invest in more sustainable heat and steam and in CO_2 capture."

Yves: "We think it's a shame that there was no consultation with the sector. During the talks around the Climate Agreement the sector was asked how it wanted to reduce 1 million tons of CO_2. The sector embraced that, can invest in that. Reliability is already listed as a key factor for AVR and our stakeholders and we call upon the government to, as a trusted partner, sit around the table with us when decisions related to sustainability and climate are being made."

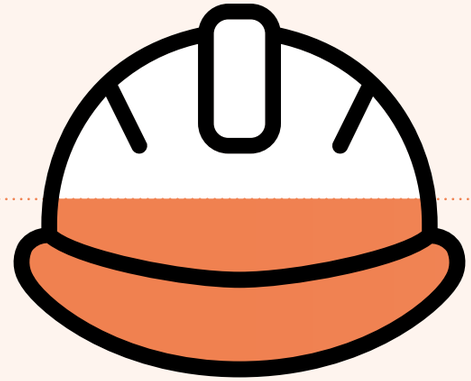
Will the climate continue to play a leading role after 2019?

Rob: "As far as we are concerned, yes. As AVR we are also very prepared to take steps if a long-term climate policy is drawn-up. If necessary we will also make the means for investment available. We can do that, we proved it in 2019 with the CO_2 reduction resulting from separating plastic and with the CO_2 capture. We want to go further down this road. At full speed."

A safe working environment

Safety first and foremost

Our sites and plants are complex environments and they operate around the clock: it's a workplace in which risks are inherent. These risks can be managed very successfully, as long as everyone is aware of them and acts accordingly. Our number-one priority is that after a day (or night) at work everyone arrives back home safe and healthy. It's why AVR creates a safe working environment and puts a lot of effort into making its employees safety-aware. In this manner we want to minimise the number of accidents.



IF-rate*

3.0 ↑ **1.4**

2019: **3.0**
2018: **1.6**
2017: **3.4**

Number of Safety Observation Rounds

1,076 ↓ **84**

2019: **1,076**
2018: **1,160**
2017: **1,007**

*The IF-rate (Injury Frequency rate) is the number of accidents resulting in sick leave per million hours worked (during the calendar year).

KPI: IF-rate

In 2019 the IF-rate rose to 3.0 (2018: 1.6). This ratio was influenced by the fact that in 2019 there were four accidents that necessitated the employees involved taking one or more days sick leave to recover. Three of the accidents were caused by a trip and/or fall. The fourth incident involved one of our employees in the vessel service being slightly injured when the wheelhouse of his ship collided with the Parksluis in Rotterdam.

KPI: Number of Safety Observation Rounds

Our target of a minimum of 900 Safety Observation Rounds (SOR) was amply exceeded - in 2019 1,076 SORs were completed (2018: 1,160). The reduction in the number of SORs compared to 2018 was due to the specifications being amended to enable more detailed observation to be carried out during a round as well as discussions with the employees of sub-contractors working in or around the plants. So, although we now carry-out SORs less often, each SOR is more intensive and takes more time. We believe with this approach we achieve more because the quality of the SORs has improved.

Safety leadership

In 2019 we reinforced the safety culture by working on safety leadership – a component of the safety culture programme we introduced in 2018. During the year several LEAN projects were rolled-out. One of these projects was the 5S-working method: Sort, Set, Shine, Standardize, and Sustain. A workplace that is always kept clean and tidy in accordance with a standard procedure is a safer workplace. In 2020 we will continue learning from each other in safety leadership.

A permanent contact point

The SHEQ department amended its working method so that every AVR department or working area now has a single, permanent contact point. This direct line has improved communication.

Toolbox meetings

Toolbox meetings are one of the ways AVR helps employees and departments work safely. During a Toolbox meeting the team focuses on a specific incident or near incident. The causes are discussed and agreements are made that will prevent such an incident happening in the future. Warning e-mails are sent out to ensure everyone is aware of the potential hazard. In 2020 we will intensify the Toolbox meeting programme and team leaders, shift foremen and department heads will be monitored to make sure they hold Toolbox meetings.

Dialogue

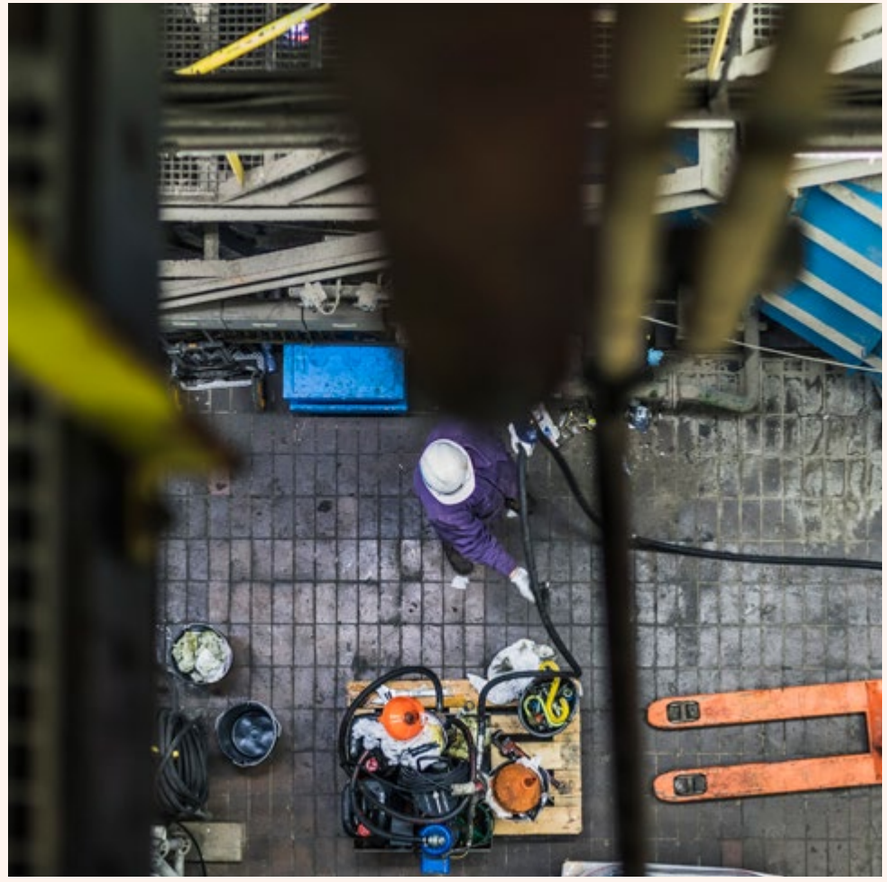
The safety dialogue continues outside the Toolbox meetings. In early summer we hold a Safety Week during which employees assume the role of safety experts and come up with ideas. Once a month the Managers go around the sites to talk to the employees. The Board does this fortnightly. The discussions cover safe behaviour and employees' working methods as well as whether employees have followed the right training courses and topics such as their awareness of emergency numbers and assembly points. With this dialogue we are increasing safety awareness and signalling that we consider it important that everyone goes home safely at the end of their shift.

Notification

Every incident or near-incident (near miss) is reported and the cause is investigated. In 2019 we adopted a system to indicate the severity of every incident notification in the risk matrix with a color. Green means action required; yellow means investigate within one week; orange and red mean the SHEQ department must conduct a thorough investigation based on interviews and that the incident must be discussed during a Toolbox meeting. This system enables us to prevent similar incidents occurring again anywhere in the Company and turns the near miss into a good catch.

Safe maintenance

Before the Total Plant Shutdown (TPS – see AVR's year in a nutshell) we, together with other parties such as our licensing authority, DCMR Milieudienst Rijnmond (the joint environmental protection agency for the region), and the fire service, identified all the risks to safety and the environment. In addition to our own people there were several hundred contractors' employees on our site. To create a safe working environment for all of them, SHEQ (Safety, Health, Environment and Quality) staff were on-site observing 24/7. A great many people moving around the site on foot plus a lot of vans and lorries driving around meant the risk of traffic accidents was high. This is why we 'borrowed' a best practice from another company and had 'spotters' walking in front of every vehicle. It meant the vehicles had to drive at walking pace and that was extremely effective. Everyone communicated well and cooperated and that resulted in an excellent collaboration. There were only two minor injuries that required First Aid. It's a result of which we are justifiably proud and for which we thank our own employees and the temporary employees.



Alcohol, drugs and medicines

In 2019 AVR's new Alcohol, Drugs and Medication policy was introduced. As a component of the policy, and to inform every AVR employee at every level in the organisation, a registered company that works with experienced professionals led a training course on alcohol, drugs and medicines. During the TPS the new Alcohol, Drugs and Medication policy was applied by announcing and implementing a 'zero tolerance' policy and testing every tenth person who entered the site.

"Good communication is important for staying safe"

Maarten Valken, Helmsman Vessel Service OSS

"Before I could walk I used to hang in a cradle by my father, who was a skipper, on board the barge on which we lived. I've sailed all my life, including at sea. I worked for Smit Internationale for many years.
I began as an ordinary seaman and worked my way up to Helmsman. Now I'm a helmsman on the pushtow barges that transport the waste from Den Haag to Rozenburg. The first leg is along The Schie from Den Haag to the transfer station in Rotterdam, where there are a lot of low bridges. The Reinod 6 is suited for that. The Reinod 9 takes over for the Rotterdam to Rozenburg section.
We work as a team of two on board. I'm responsible for the engine room and for coupling the vessel. And for the coffee, I'm also the Cabin Boy. I'm the skipper's right hand. It's important that we keep each other sharp and communicate well, because if you sail the same route many times routine creeps in and that's when a loss of concentration can make work unsafe.
On the water small mistakes can have large consequences. We're low enough in the water to go under the bridge at the Parksluis (sluice) in Rotterdam. But in September, just as we were about to go under the bridge a swell made the water level rise and the top of the wheelhouse hit the bridge. We got away with just minor injuries, but it could have been much worse. Since then the bridge is always opened, even at low tide. Better safe than sorry. After all, everyone wants to get home to their family in one piece after a day's work."

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CO_2 emissions

Reduce CO_2 emissions

Once we've removed everything that can be recycled or re-used from the residual waste, what's left over is used to generate electricity, steam and heat. By supplying this to the community we prevent CO_2 emissions from burning fossil fuels. We generate energy in a way that ensures we achieve the highest possible yield and the lowest possible negative environmental impact. We also reduce the environmental impact by capturing CO_2. Our target is climate-neutral waste processing in 2050.

Total CO_2 emissions* (in CO_2 equivalents)

(in kton)

2,267 ↑ **36**

2019: **2,267 kton**
2018: **2,231 kton**
2017: **2,218 kton**

CO_2 emissions avoided through supply of energy

584 ↓ **24 kton**

2019: **584 kton**
2018: **608 kton**
2017: **628 kton**

Share of biogenic in CO_2 emissions

60% =

2019: **60%**
2018: **60%**
2017: **63%**

*The reported CO_2 emissions are based on AVR's own process records for which, to date, there are no formalised guidelines or protocols at individual plant. The actual CO_2 emissions of our sector, including the biogenic portion, are determined by the government each year on the basis of the waste composition.

Targets

Our target is to not add any additional CO_2 to the atmosphere as a result of processing the offered residual waste in 2030. Measured on the basis of our current waste portfolio, this means that by 2030 we will have reduced our annual emissions by around 800 kton. We aim to achieve this by capturing CO_2 and using it for useful applications. In 2019 we took the first step towards this with the start-up of the CO_2 capture plant in Duiven and the supply of CO_2 to the greenhouse horticulture sector. To achieve our ambitious reduction target additional application possibilities must be developed. One (temporary) measure being considered very seriously is CO_2 storage. AVR is also continuing to make every effort to introduce measures that will lower emissions in the chain still further. Supplying more energy in the form of electricity, process steam and heat will lead to a lowering of CO_2 emissions in the chain. The same applies for the recovery of more raw materials.

KPI: CO_2 emissions

We measure our CO_2 emission continuously. It depends primarily on the quality of residual waste we process. In 2019 our CO_2 emission amounted to a total of 2,267,000 ton (2018: 2,231,000 ton). The 1.6% increase was due to the changing of measuring equipment at one of our sites plus possible minimal changes in the residual waste we received.

KPI: Share of biogenic in CO_2 emissions

A large portion of the residual waste we process comes from biomass (waste wood, paper residue and organic material). The biodegradable part of this waste is fixed annually on a flat-rate basis through sorting and inventory sampling under the responsibility of the national government. Incinerating 1 ton of residual waste releases around 1 ton of CO_2. A portion of this CO_2 comes from biomass and we call this biogenic CO_2. In 2019 the share of biogenic CO_2 was 60% (2018: 60%).

Material	Factor	Tons 2019	Contribution	Replaces
Metal Molybdenum	6.26	137	858	Ore
Minerals	0.004	362,000	1,303	Gravel
CO_2 greenhouse application	0.95	10,000	9,500	Gas
Separated plastics and drinks cartons	1.31	19,000	24,928	Oil
TopCrete	0.93	31,000	28,737	Cement
Ferrous metals	1.63	32,000	52,160	Ore
Non-ferrous metals (aluminium, silver, etc.)	11.5	6,000	69,000	Ore
Material recycling contribution		460.137	**186,486**	**tCO_2**

This is the first year AVR has included these calculations in its Annual Report. The figures are based on the EpE Protocols together with Life Cycle Analyses (LCAs) from relevant parties. We are striving to have the calculations for 2020 validated and included as standard in the KPI overview under the theme CO_2 emissions.

KPI: CO_2 emissions avoided through supply of energy

By processing residual waste we generate process steam, district heating and electricity for the surrounding area. This energy replaces the use of gas and coal thus preventing CO_2 emissions from these fossil fuels. We call this CO_2 avoided in the chain. In 2019 AVR's supply of energy meant the emission of 584,000 tons of CO_2 was avoided.

CO_2 emissions avoided through the recovery of raw materials

We also avoid CO_2 emissions by separating raw materials from waste: metals and minerals from the bottom ashes, TopCrete from paper sludge processing, packaging material from the separator line and, since August 2019, CO_2 from the flue gasses. Read more about this under the theme Recycling. The recovery of raw materials reduces the use of fossil resources. In 2019 AVR's recovery of raw materials prevented the emission of around 186,000 tons of CO_2.

CO_2 capture and supply in Duiven

In August 2019 a unique facility for the large-scale capture of CO_2 from the waste-to-energy plant flue gasses went into service at our site in Duiven. From now on we can supply the greenhouse horticulture sector with around 60,000 tons of captured CO_2 each year. This will enable the growers to say 'goodbye' to their gas-fired CO_2 generators. Industrial customers can also use the captured CO_2. During the five months the plant was in operation in 2019 we delivered 10,000

tons of CO_2 to our partner, Air Liquide, which handles distribution to the growers.

CO_2 capture fits our strategy: we strive for CO_2-neutral waste processing. To achieve this, AVR has made a major investment and sought cooperation with other parties. With this plant AVR is leading the way - in the Netherlands, in Europe and even the world - and is also the first waste energy-from-waste company to translate the plans in the Climate Agreement into concrete results. In 2019 we also investigated the feasibility of building a CO_2 capture plant with a capacity of 500,000 tons of CO_2 in Rozenburg (see the theme Innovation).

Climate Agreement

The Dutch Climate Agreement signed in June 2019 includes the (fossil) CO_2 reduction targets for our sector (industry). In total it amounts to around 1.1 Mton in 2030, which means that, as a sector, we must reduce our total CO_2 emissions by 35%. As this target is binding for AVR we will focus our strategy more sharply on its achievement. A CO_2 tax on the portion of the targeted reduction that is not achieved has been announced. We also anticipate the announcement of more instruments that will enable us to accelerate the necessary innovation investments, such as the SDE++ regulations.

Talking about CO_2

AVR has participated in various stakeholder consultations at a European, national and regional level aimed at the further shaping of the overall goal of 49% CO_2 reduction in 2030 stated in the Climate Agreement. AVR also organised a stakeholder consultation with Glastuinbouw Nederland *(Dutch Greenhouse Growers' Association)* and the Vereniging van Afvalbedrijven (*Dutch Waste Management Association*). The topics discussed were the energy transition, making the greenhouse horticulture sector more sustainable and the supply of CO_2 by the waste sector.

AVR CO_2-neutral in 2050

It's a difficult question: can AVR meet the EU's target and be climate-neutral in 2050? Looking 30 years ahead isn't easy, but we are certainly investigating ways to reduce CO_2 emissions further. Not just the emissions from our own chimneys, but throughout the chain. For example, supplying CO_2 to the greenhouse sector doesn't reduce AVR's CO_2 emissions, but it does reduce the growers'. We assess processing technologies on the basis of their effectiveness and energy performance: If CO_2 emissions are unavoidable, we would like to see them being re-used somewhere in the value chain, such as in the industry sector. If that's not possible we must consider (temporary) storage.

Our thermal processing is focussed on residual waste and waste biomass that cannot be re-used or recycled – we have already reclaimed raw materials, such as plastics and drinks cartons from these waste streams. After incineration we reclaim minerals, metals and CO_2. This process also avoids CO_2 emissions. We foresee that in the future the energy we produce will not only be converted into electricity and heat, but also into other energy-carriers such as hydrogen. When combined with the captured CO_2 hydrogen can be re-used to make chemical building blocks.

"Building the CO_2 capture plant took a gigantic effort"

Rients Gercama, Operator, Duiven

"I usually do shift work as an Incinerator Operator, but 18 months ago I was asked to help with building the CO_2 capture plant. I was asked because after nine and a half years working there I knew a lot about the Duiven site. So I became the link between AVR and the project organisation. Most of the people came from AVR Rozenburg and the rest came from outside. It was both very enjoyable and very educational. When you operate a plant you do sometimes wonder why on earth they designed something the way they did. Now I can contribute towards the thought process and make my colleagues' work easier for them in the future. Turning a bare car park into a working capture plant within a year took a gigantic effort. A year isn't long. Now the plant is up and running we are still optimising some things and making some final adjustments. It's like a car – you buy a car and then you add some accessories to make it perfect. The plant is, obviously, good for AVR's continued existence, but it's just as important that we all blow less CO_2 into the air. It's gratifying that everyone sees the usefulness and the necessity. With this ambitious project we have taken the lead, and that's something we, as AVR, can be proud of."

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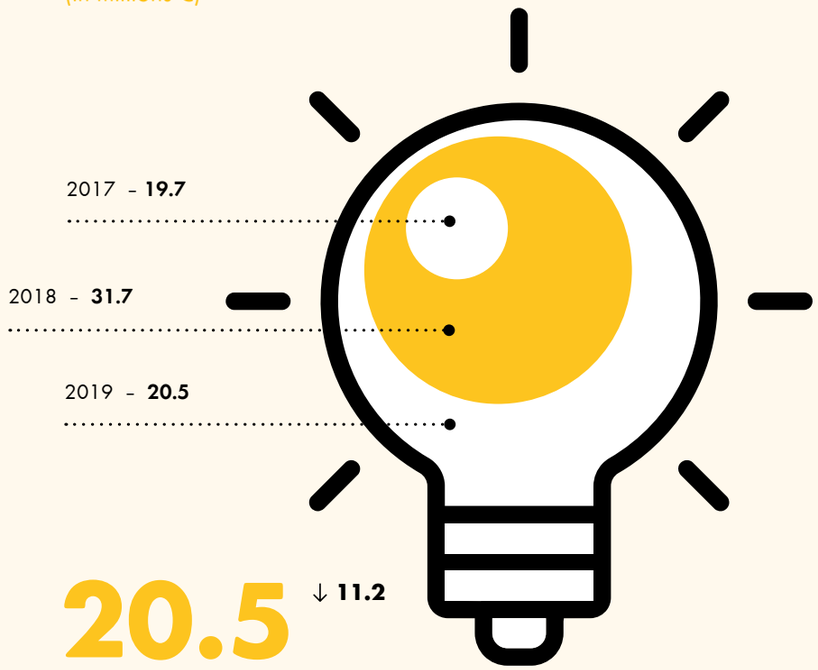
Innovation

More efficient, more sustainable, more innovative

To make the processing of residual waste increasingly sustainable and efficient, AVR constantly innovates and invests in large and smaller projects. These investments contribute towards the achievement of our strategic goals and, at the same time, deliver an environmental return: reduced CO_2 emissions, more recycling and more energy supplied. AVR invests in state-of-the-art facilities and seeks collaborations with partners for innovative projects.

Investments in innovation

(in millions €)



Completed innovative projects

In 2019 AVR completed the following sustainable investment projects:

- Expansion of separation plant
- CO_2 capture plant
- Waste oil processing
- Connection of biomass energy plant to Steam Pipeline

*For the purposes of comparison the figures for 2018 have been adjusted in-line with the system used for 2019.

Innovation

AVR's interpretation of the term 'innovation' is quite broad. We focus on both the development of new activities and the optimisation and improvement of existing processes. This involves not only the development and application of innovative technologies and business concepts, but also the application of existing technology. We see innovation as both progress and continuous improvement.

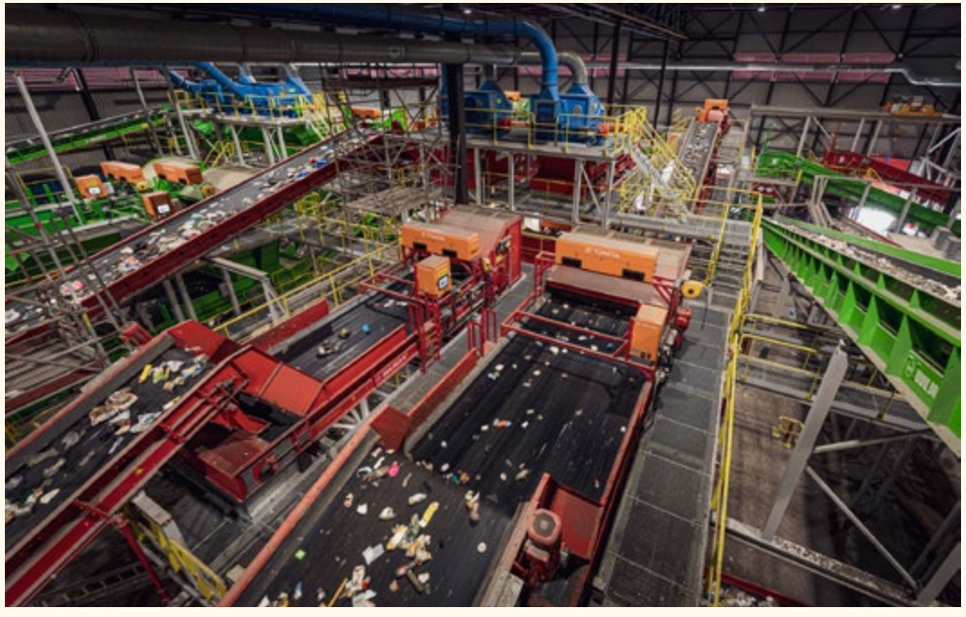
Goal: a well-filled pipeline

AVR is constantly investing in improving its operating processes and seeking out market opportunities for new activities and revenues. The result is a pipeline of projects ranging from initial ideas to projects with a detailed business case. We want to keep this pipeline well-filled because it contributes not only towards the Company's long-term continuity and earning-power, but also towards the achievement of its sustainability goals. We have no quantitative targets in respect of the number of projects in the pipeline. A project is not included in our annual budget until it has been sufficiently worked out and a final investment decision has been taken internally.

KPI: Investments in innovation

In 2019 we invested in the following innovation projects:

- Completing the second separation line at the separation plant in Rozenburg;
- Completing the construction and start-up of the CO_2 capture plant in Duiven;
- Enabling an industrial customer's waste oil to be processed in the Water Treatment-plant in Rozenburg;
- Connecting the biomass energy plant in Rozenburg to the steam infrastructure and supplying 40 bar steam to customers (delivery was expected in 2020);
- Starting a study into the feasibility of CO_2 capture at the Rozenburg site;
- Facilitating the connection and supply of process steam from chemical company Cabot on the Botlek Steam Pipe.



KPI: Completed innovative projects

In 2019 AVR completed a number of projects.

Separation plant expansion
The first line of the separation plant in Rozenburg went into service in December 2018. In mid April 2019 we added the second line with, like the first line, a nominal capacity of 215 kton a year. The plant separates plastics and drinks cartons from residual household waste so they can be recycled. The second line handle the majority of the Rotterdam municipality's household waste. In 2019 considerable attention was paid to optimising the plant.

In cooperation with the Afvalfonds Verpakkingen *(Packaging Waste Fund)* we drew-up an innovation agenda for further improvements in the plastics chain. On the basis of this agenda we started looking into the possibilities for expanding and adapting the plant to make the separated streams even more suitable for immediate recycling.

The CO_2 capture plant goes into service
In 2019 the CO_2 capture plant in Duiven went into service and AVR supplied the first 10,000 tons of CO_2 to customers in the greenhouse horticulture and industry sectors (see the Theme CO_2 emissions).

Waste oil processing
In 2019 AVR tested the processing of waste oil from a local industrial customer. Unfortunately we couldn't take the project any further because processing this waste stream would create too many operational problems. This means a reliable solution is not possible for either the customer or AVR.

Connecting the biomass energy plant to the steam pipeline
At the end of 2019 the biomass energy plant on our Rozenburg site was connected to the Steam Pipeline so that, from 2020 on, it can also supply steam to all our process steam customers.

Projects under development

In 2019 we also started several projects that will not be completed until 2020 or subsequent years.

CO_2 capture Rozenburg
Together with partners OCAP and TNO we investigated the feasibility of large-scale CO_2 capture (500,000 tons a year) at our Rozenburg site. We also looked at the possibilities for greenhouse-related applications together with Glastuinbouw Nederland (Dutch Greenhouse Growers' Association). And we investigated sustainable applications of CO_2 in fields such as construction materials and basic chemistry with the Dutch Waste Management Association's CO_2 Working Group, the CO_2 Smart Grid Collective and Deltalinqs. In 2020 we will formulate more specific plans in line with the regulations (CO_2 tax, Climate Agreement) and the subsidy possibilities (SDE++).

Steam Pipeline extension
Together with NetVerder (Stedin), the Port of Rotterdam and various local industrial companies we investigated the feasibility of extending the existing Botlek Steam Pipeline. This would allow process steam from fossil fuel-fired plants to be (partially) replaced by steam from AVR and Cabot – the chemical company that has also been connected to the Steam Pipeline since November 2019 – and, at the same time, enable AVR to further improve the energy-efficiency of its own plant. A decision regarding the extension of the Steam Pipeline is expected in 2020.

Bottom ash conveyor belts
In Rozenburg bottom ash – incineration residue – is moved around the site on conveyor belts. We are investigating the possibilities of changing the routing to reduce transport movements and lower infrastructure maintenance costs. A large-scale, multi-year investment programme is involved.

Rozenburg turbine park
We are constantly looking for ways to achieve more return from our plant. We are, for example, looking at how the configuration of the Rozenburg turbine plant can be optimised. One option could be investment in a new back pressure steam turbine. To assess this, at the end of 2019 AVR issued a Request for Information (RFI) in the market. The results will be available in the course of 2020.

Residual heat
In our striving to improve our energy-efficiency we are working on the further supply of steam and heat. AVR is working on several projects, such as the proposed installation of a heat-pump and the utilisation of residual heat from a neighbouring company.

ICT upgrade

We have invested in upgrading the ICT to enable the available data to be converted into useful information.

TrendMiner, data lake and analysing crane movements
The implementation of TrendMiner has enabled us to analyse very quickly which (measured) events in the factory have led to certain exceptions and to determine very simply whether these situations have occurred before. We have also implemented a data lake in which validated data from several applications is unlocked. Dashboards make the operational and financial management visually transparent. We now also use a dashboard to analyse crane-movement data. This prevents disruptions in the incineration lines by enabling Crane Drivers and Stokers to assess more accurately whether the incoming residual waste is sufficiently mixed for incineration.

Ultimo
AVR has been working with a new Enterprise Asset Management-system, called Ultimo, since 2019. This system supports the maintenance processes better and makes it easier to see what costs are being incurred by which units in the organisation. In this way the system is contributing towards good decision-making related to keeping our plant running smoothly.

Model turbine
In cooperation with General Electric we set-up a trial involving linking our turbines to a digital model of a turbine (digital twin). The idea is that the model turbine can interpret the measured conditions and performance relative to other turbines and thus predict a potential disruption better and faster. In this trial we are testing this assumption.

"My children must also inherit a planet that's fit to live on"

Robert van Dullemen, Shift foreman, Rozenburg

"Nine years ago I joined AVR as an Operator in the Waste Incineration department, I then became a Head Operator, and recently I was promoted to Foreman of one of the five teams. When I'm on the morning shift I'm one of the large group of people from all over the operation who take part in a briefing about what has happened in the previous 24 hours. This briefing forms the basis for decisions about what has to happen during the day and that dictates how I steer my team. I also arrange training courses for my team members and discuss their progress with them.
AVR never stops innovating. Take the separation plant that went into operation at the end of 2018. It extracts plastic from the residual waste and that has meant changes to the stoking process. This is discussed regularly with various departments because we want to continue getting the maximum return from the incineration within the emission and environmental stipulations.
Recently the biomass energy plant was connected to the district heat network. I was closely involved. I think it's really cool, because it's a great step forward for the Company and it's good for the environment. I always think it's a shame if people think we emit a lot of junk when in fact we always comply with the emission standards and actually do it better than specified by the government. I think that's important. After all, my children must also inherit a planet that's fit to live on."

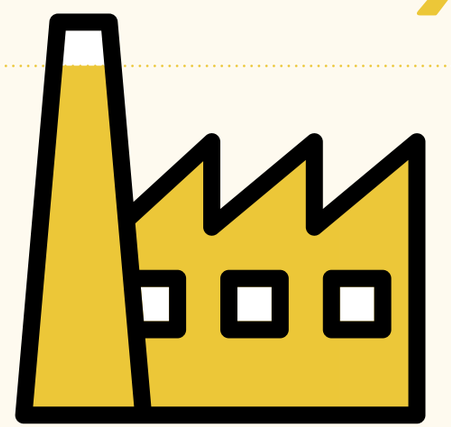
Reliability

Availability and continuity

The primary factor that determines customers' satisfaction with AVR's services is reliability: AVR must be a reliable partner for its customers. Supply security, the quality of the services, communication and the continuity of the waste processing all play a role. As AVR serves a variety of customers, the Reliability theme has been split into two parts: the availability of our factories and the reliability of our supply of steam and heat.

Availability of the factories (AVR-wide)

90.7% ↓ **1.6%**



2019: **90.7%**
2018: **92.3%**
2017: **92.1%**

Availability of steam and heat

97.7% ↑ **0.5%**

2019: **97.7 %**
2018: **97.2 %**
2017: **98.1 %**

Availability and continuity as a theme

The continuity of waste processing in the Netherlands was an important theme in 2019. Four of the six lines in the Amsterdam energy-from-waste plant (AEB) were out of action for a long time. In the Dutch market this led to residual waste being diverted, enormous stocks at waste processing company facilities and even, temporarily, more landfilling. AVR's stakeholders and customers emphasised to AVR that the continuity, that ensures the long-term success of AVR's business, is an important theme. The theme Reliability focuses on performance in the shorter term.

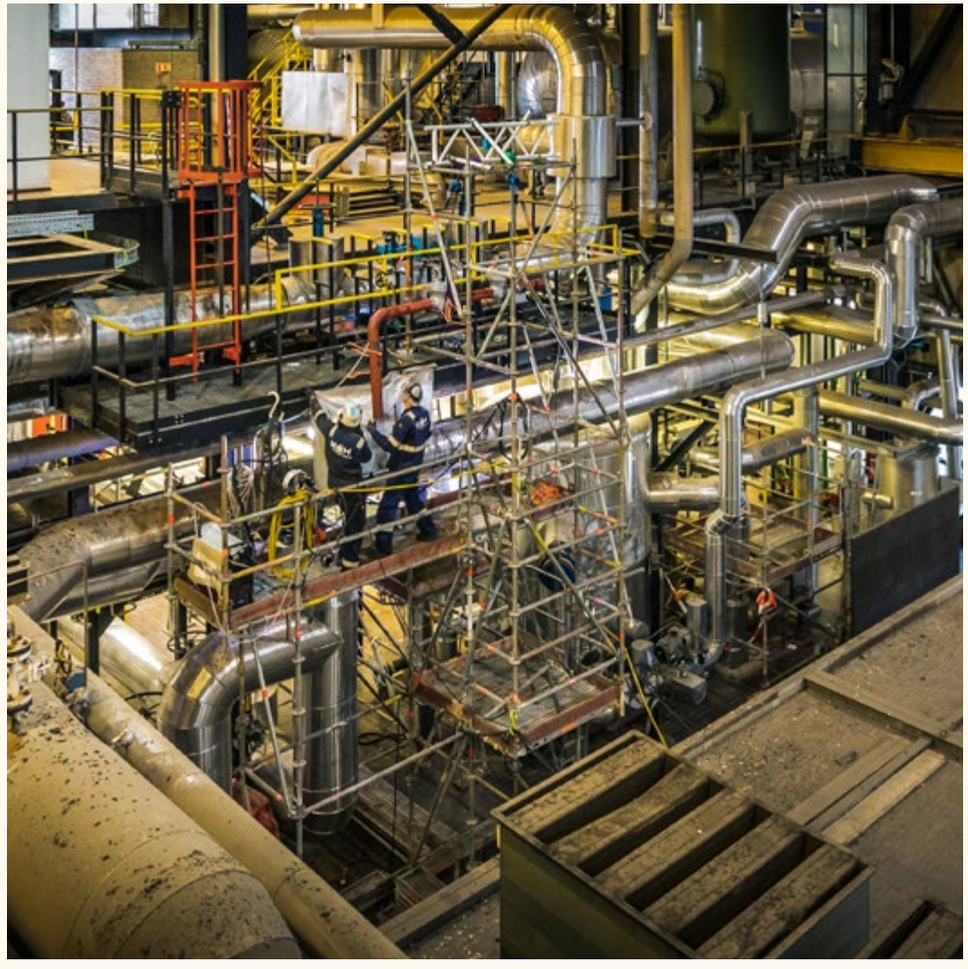
AVR's reliability and continuity has been increased by investments in new sustainable projects and the maintenance of existing plant. This demonstrates that we are working on a future-proof waste processing and are ensuring a flexible and reliable provision of our energy.

KPI: Availability of the factories

AVR strives to maintain an availability of its factories as high as possible, taking into account carrying out scheduled maintenance. In 2019 our availability was 90.7%. The drop compared with other years was due to the Total Plant Shutdown in September (see AVR's year in a nutshell).

The availability of our factories is taken into account when drawing up contracts with customers. AVR has several incinerators and plans maintenance to ensure not too many incinerators are out of action at one time. We can hold (limited) stocks on our sites, which means our customers can be sure they will be able to deliver their residual waste. Our agreements with customers oblige them to deliver residual waste to us and oblige us to accept it. We are almost always able to fulfil our agreements.

Within the Dutch waste processing sector AVR is a high scorer for reliability, partly because our maintenance is well planned and executed, for example there is an annual stop of the biomass energy plant. To keep 'surprises' to a minimum, our biomass customers are informed of the dates on which the annual stop is planned during the fourth quarter of the previous year.



Although the lower throughput in 2018 and 2019 meant that several times during the year we could accept less waste, measured over the year as a whole, all our customers were able to deliver the agreed quantities. We were even able to accept extra volumes from some customers because they could deliver less residual waste to AEB in Amsterdam.

Contracts

The new contracts we signed with the city of Den Haag and the Rijnmond municipalities (Nissewaard, Westvoorne, Brielle and Maassluis) in 2019 mean the existing long-term cooperations can continue. This gives AVR the assurance of continuity for its residual waste processing activity and gives the municipalities a guarantee that for the coming six to eight years their residual waste can be brought to us for processing. We have also been able to improve the current long-term contracts with collectors and welcome a number of new collectors as customers.

AVR has also signed various energy supply contracts. These contracts specify the quality (temperature and pressure of the steam and district water) as well as the availability.

KPI: Reliability of the heat and steam supply

In 2019 the reliability of the heat and steam supply to our energy customers was 97,7%. We regularly hold operational consultations with energy customers. In our process of converting boiler steam into useful energy we always endeavour to find a balance between offering our customers the best possible service and utilising our plant components in the most efficient way. This remains a challenge because the demands of our customers and the market are constantly changing.

In 2019 AVR invested in raising its supply reliability. In December the biomass energy plant in Rozenburg was connected to the Steam Pipeline. Being able to supply heat and steam from this biomass energy plant has made a substantial contribution towards guaranteeing our supply reliability. Connecting chemical company, Cabot, to the Steam Pipeline as an additional supplier has increased the reliability of the energy supply to our steam customers even further.

Communications

Although the production process caused several disruptions to the energy supply, thanks to our Energy Desk's good 24/7 contact and communication with our customers, the operational and financial consequences remained limited.

Timely communication regarding the impact of process disruptions at AVR is a key factor for the satisfaction of our customers. A good example of this was the communication related to the three-week-long Total Plant Shutdown (TPS) of the Rozenburg facility for major maintenance. Our energy customers used this time to carry-out their own scheduled maintenance. To give customers the opportunity to find an alternative the sales team had informed them of the planned TPS 18 months in advance – in some cases two years in advance.

AVR is in weekly contact with its larger customers that deliver collected residual waste. We update them regarding how the plants are running and discuss their forecasts of the quantities of residual waste they will deliver in the coming week. During this frequent contact our planning staff also is informed how our customers' businesses are going. These are, therefore, important communication moments.

"I am the link between the technology and the figures"

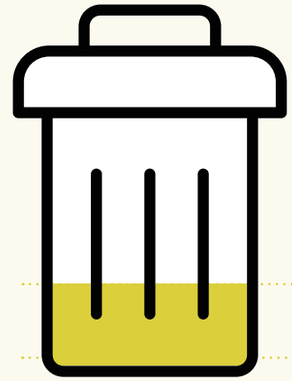
Theo Zorgdrager, Energy Portfolio Manager, Rozenburg and Duiven

"My job is managing all the energy streams at both facilities. I advise the people who press the buttons how we can use the plants most efficiently. For example, you can set-up some sections of the plant to supply more heat and set-up other sections to produce more electricity. That could be for financial reasons - perhaps heat pays more than electricity - but first and foremost it's to enable us to supply our customers with the energy they need, because they depend on us for that. Reliability and customer satisfaction are, therefore, the priority.
Our figures must also be reliable and I'm also responsible for the metering reports. In most companies the worlds of technology and figures are separate because people are experts in either one or the other, but in my job they are linked together.
I joined AVR straight after finishing a technical course at the Maritime Academy. After 10 years working as an Operator and Process Technologist I wanted to do something else within the Company. To make the switch to energy I retrained – 'went back to school'.
I've now been with AVR for 24 years and I still enjoy my work, especially now I am the link between the technological and financial sides. That makes the job very varied."

Recycling

Recovering raw materials

The residual waste we process contains many valuable raw materials that can be reused. We either separate these materials from the waste streams or recover them. Our objective is to put as much into the circular economy as possible and extract as much out of the residual waste as possible. We achieve this objective with various raw materials, such as (precious) metals, minerals and plastics. Very often a further step is necessary before the materials can actually be recycled and we do this in cooperation with a number of different partners.



Quantity of recovered or separated raw materials*

Minerals
(as a % of the quantity of waste)

22.8 ↓ **0,1%**

2019: **22.8%**
2018: **22.9%**
2017: **21.3%**

Metals
as a % of the quantity of waste

2.3 ↓ **0.1%**

2019: **2.3%**
2018: **2.4%**
2017: **2.3%**

TopCrete

31 ↓ **9 kton**

2019: **31 kton**
2018: **40 kton**
2017: **41 kton**

Plastics

19 ↑ **18 kton**

2019: **19 kton**
2018: **1 kton**
2017: **n.a.**

Molybdenum

137 ↓ **34 ton**

2019: **137 ton**
2018: **171 ton**
2017: **170 ton**

Captured CO_2

10 ↑ **10 kton**

2019: **10 kton**
2018: **0 ton**
2017: **0 ton**

*For the purposes of comparison the figures for 2018 have been adjusted in-line with the system used for 2019.

All recycled materials prevent the use of the (fossil) raw materials. This can be translated into the quantity of CO_2 emissions that has been avoided. For this Annual Report we have calculated the avoided emissions for the first time. Recycling all these materials meant the avoidance of around 186,000 tons of CO_2 emissions in 2019. See the Theme CO_2 emissions.

Plastic separation plant

Our separation plant for sorting plastic, foils and drink cartons from residual household waste went into service in December 2018. This plant is an asset, not only because separation at source rarely results in a high-quality sorted waste stream, but also because collection is often difficult, especially in densely-populated urban areas or neighbourhoods containing a high proportion of high-rise buildings. In 2019 – the first time the plant was in operation throughout the year - the results were impressive: over 19,000 tons of plastic packaging and drinks cartons were separated. The high-quality of the separated streams was proven by the fact that 90% was offered to recyclers. The results were credited to the municipalities of Utrecht, Den Haag, Leiden, Barendrecht and Rotterdam, which enabled them to record a plus on their recycling targets.

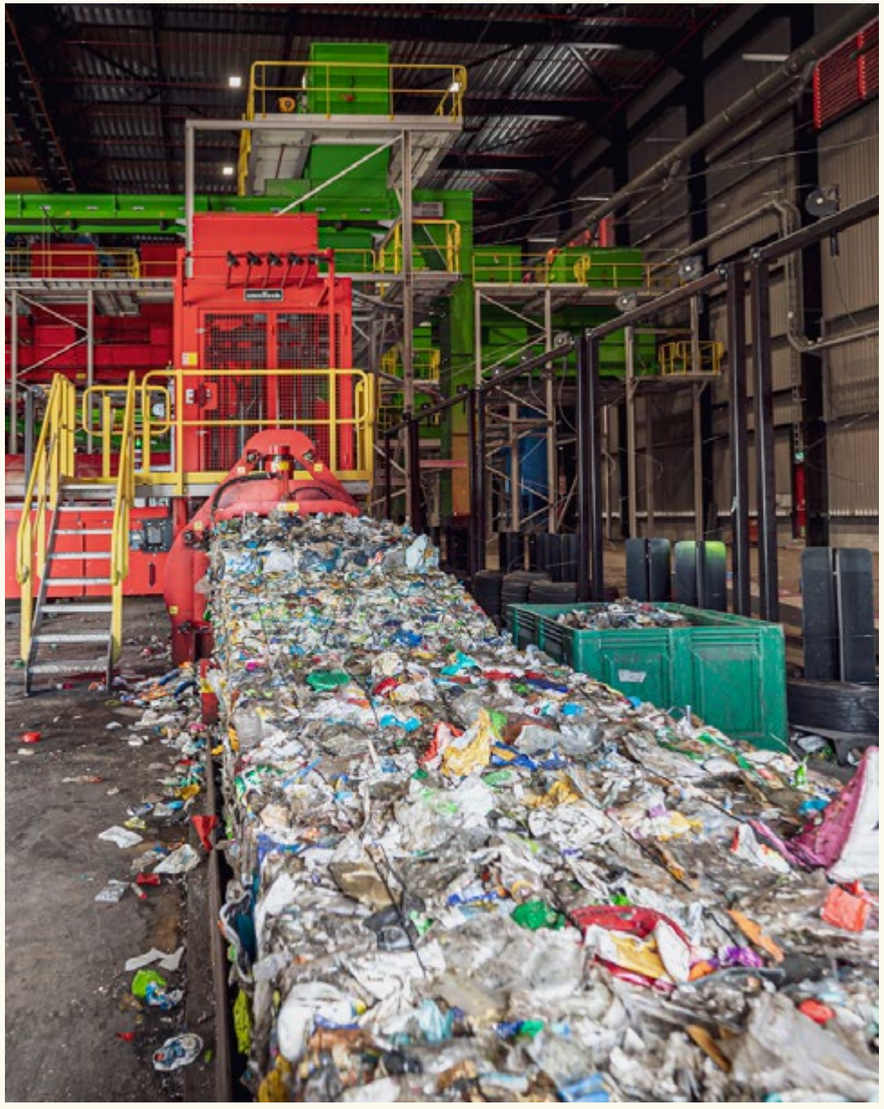
The new customers bringing their residual waste to AVR for separation from 2020 include the municipality of Den Bosch, four municipalities in the province of Zeeland and the municipalities of Leiderdorp and Oegstgeest. We have said farewell to the municipality of Barendrecht. In 2020 the separation plant will be optimised and we will investigate the possibilities of expanding the range of waste streams we separate or extending the activity to include additional steps in the plastics chain.

From bottom ash to building material

After residual waste is incinerated around 25% remains as bottom ash that still contains many minerals, base metals such as iron, copper and aluminium and precious metals including gold and silver. AVR, together with specialised partners and with the help of advanced technology, recovers the metals from the bottom ash so it can be recycled. The granules that remain comprise inert residues, such as stone, sand, porcelain and glass, which can be used as building material in place of primary raw materials. In the Green Deal for bottom ash from Energy-from-Waste plants it was agreed that the use of granules that must be treated as an ICM (Isolation, Control, Maintenance) material must be phased out so that in 2020 it must be possible for 100% of the granules to be used as 'freely applicable building material'. AVR, in association with partners Mineralz and Heros, is working hard to achieve this: in 2019 over 50% of the minerals acquired from the bottom ash were freely applied without ICM. This contributed directly towards our customers' recycling percentages. Due to the long turnaround time of reprocessing the definite figures for 2019 will not be available until June 2020.

TopCrete

Paper can be recycled seven to eight times before the fibres become too short for further recycling. However, as the woody content is still present the material can



be used as biomass for the generation of renewable energy. AVR has a plant in Duiven in which these paper residues can be incinerated. After the maximum quantity of renewable electricity and heat has been generated from the residue what remains is a chalky substance that can be used as an alternative to cement: TopCrete. In 2017 this material was given end-of-waste status, which means it can be used as a product without the qualification 'waste'. The material can also be used to de-acidify the flue gasses, which extends the life of the boilers in Duiven.

Molybdenum

In Rozenburg AVR processes salt-laden waste water streams from the chemical industry. One of these streams contains molybdenum, which occurs as a residual stream during the catalysis phase of our customer's production process. AVR recovers the molybdenum (as a rare heavy metal) from the waste water so it can be reused in the (steel) industry. The procedure is special. Because the water contains organic material we can incinerate that part with the help of waste fuels needing less natural gas. The residual water evaporates and is clean. The residual heat released during the process is used to supply district heating. In 2020/2021 the customer for which we recover the molybdenum from waste water will start doing it in-house.

> Using the CO_2 we supply means that growers burn less natural gas

CO_2

Thanks to the CO_2 capture plant in Duiven, in 2019 we could supply CO_2 as a product for the first time. This carbon dioxide is, in fact, the chemically-recycled residue from textile, paper and wood and also from plastic. Binding the carbon dioxide from these products with oxygen during incineration creates not only useful heat but also CO_2 which we capture so new chains can be built in the area. In just the last five months of 2019 we supplied nearly 10,000 tons of CO_2 to customers, mainly in the greenhouse horticulture sector. As a result the growers had to burn less natural gas to produce CO_2.

Fly ash

The new availability of CO_2 in 2019 created an interest in using it for mineralisation. Fly ash is a residual product that is landfilled because the mix of fine particles is too varied to be useful for anything. However, these particles can be 'baked' together with CO_2 to make larger granules that can be used, for example in concrete products. Together with a company that developed the technology – and is already using it on a large scale in the UK – and a local partner that could use the granules, we are developing a new chain for the process and product. At the moment we are still working on a laboratory scale, but there are plans for a pilot project in Duiven. In the future it will be possible to use these minerals instead of river bed gravel.

"With post-separation we extract three to four times as much plastic out of the waste"

Marco van Velzen, Separator Plant Process Technologist, Rozenburg

"I control the quality of the plastic sorted from household waste in our separation plant. For example, there have been occasions when grit from new conveyor belts has ended up in the plastic. I enjoy thinking about practical solutions to problems like that because my goal is to achieve a plastic stream from which top-quality new products can be made.
It's very interesting to see how quickly the recycling world has developed and how far it has come. The quality of separated plastics is advancing rapidly and the demand for some types is growing. Take polypropylene, which is used in vacuum cleaners among other things. Now more and more companies are switching to using recycled polypropylene instead of virgin material we can't get enough of that type of plastic.
Post-collection separation is very successful. It's not just us here at AVR who see that, the municipalities also notice it. We're serving more and more municipalities. The figures speak for themselves: let people separate waste themselves and in urban areas you'll get four or five kilos of plastic per resident per year, with our plant we get 15 to 20 kilo. There is still room for improvement. For example, the dirt in the plastic flies in every direction, the plant has to be kept clean and we're still doing the cleaning manually. We could learn a few things."

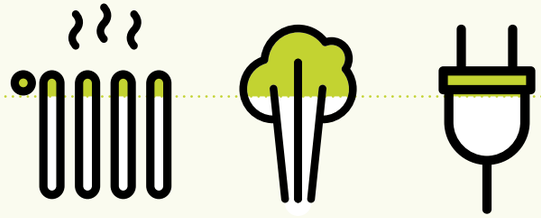
Renewable energy

Renewable energy through incineration

From the waste we process we extract as many materials as possible for recycling or re-use. What remains may be the residue of the residue, but it's still very valuable because we convert it into energy. We produce (renewable) electricity, steam and heat in our energy-from-waste plants and out bio-mass energy plants. This is the most sustainable solution.

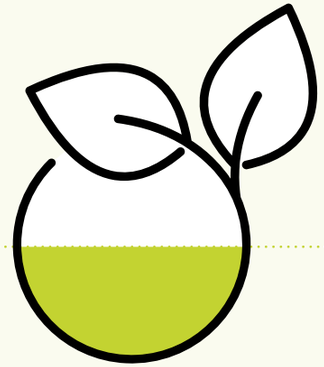
Total energy output
(in PJ)

8.1 ↓ **0.4**



heat steam electricity

2019: **8.1**
2018: **8.5**
2017: **8.8**



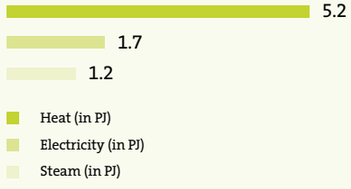
Share of biogenic / green from energy supply*

57% ↑ **3%**

2019: **57%**
2018: **54%**
2017: **51%**

*For the purposes of comparison the figures for 2018 have been adjusted in-line with the system used for 2019.

Division of heat, electricity and steam (in 2019)



KPIs: result in 2019

The system used for the KPIs related to renewable energy has been slightly modified. This also applies for the figures for previous years.

In autumn 2019 the complete stand-still of AVR's Rozenburg facility for scheduled maintenance (Total Plant Shutdown) affected the total external steam and district heat supply. This had been agreed with our energy customers well in advance and they arranged to carry out their own maintenance during the same period.

In August the CO_2 capture plant in Duiven went into operation (see AVR's year in a nutshell). We use heat to extract the CO_2 from the flue gases, but the plant also uses electricity, which is why since August we have supplied slightly less electricity to the public network.

In total slightly less heat was sold than in 2018. The reasons for this included the high outdoor temperatures and a temporary transmission restriction due to maintenance of the Rotterdam district heat network.

Connecting chemical company Cabot to the Botlek Steam Pipeline was scheduled for early 2019, but the process was delayed and finally took place in November. As a result AVR supplied more process steam and electricity generation was slightly lower than in 2018.

Targets

Each year we formulate a forecast for the generation and supply of energy. The supply of energy in the form of district heat and process steam depends to a great extent on our customers' demand. Naturally the outdoor temperature has a significant effect on the demand for district heat. And our industrial customers determine how much process steam they require.

> As long as residual waste exists we will seek out the most sustainable way to use it

The definition of renewable energy

AVR follows the official definition of sustainable (renewable) energy used in the Electricity Act and by the Central Bureau of Statistics (CBS): energy to which society has access for an unlimited period and the use of which does not cause any disadvantage for the living environment and the possibilities for future generations.

The most common forms of renewable energy are biomass, hydro power, solar energy and geothermal energy. The most important renewable energy source used by AVR is biomass. We process three types of biomass:

- The biodegradable part of the household and industrial residual waste that goes into the incinerator;
- Specific waste-biomass streams (construction and scrap wood) that we process in the biomass energy plant;
- the residues (sludge) from paper recycling that we process in the thermal conversion plant.

Each year the government specifies the energy percentage that is held in the biodegradable component. In 2019 this was 53%, which means that 53% of the energy output of our waste incineration plants was classified as renewable and certificated with guarantees of origin. The energy we generate in our other plants – the thermal conversion plant in Duiven and the biomass energy plant in Rozenburg – is 100% renewable. We supply this energy in the form of electricity, process steam and district heat.

The non-biodegradable part of the residual waste is also converted into energy in our waste incineration plants. According to the definition, industrial residual heat and energy from non-biodegradable residual waste does not qualify as renewable energy, but it reduces the use of fossil resources.

In our industrial waste water processing lines we recover industrial residual heat and use it for the supply of district heat.

Renewable solar energy

In 2019 we installed solar panels with a capacity of 58kW on our transfer station on the Brielselaan in Rotterdam. They generate 52,000 kWh a year – the amount used by app. 20 households.

Cooperation

In 2019 AVR participated in many discussions with various parties. We worked intensively with the greenhouse growers in the Arnhem-Nijmegen area regarding supplying CO_2 from the capture plant in Duiven. And, together with several other industrial parties in the Rotterdam region, we were and are in detailed discussions with Deltalinqs, Netverder (part of Stedin) and the Port Authority regarding the joint supply and use of steam after the steam pipeline in the Rotterdam Botlek area is extended.

The future

AVR focuses on the useful application of the 'residue of the residue'. As long as residual waste exists we will seek out the most sustainable way to use it. Paper is a good example. After being recycled several times the fibres become too short for further recycling. We incinerate the residue, which produces 100% renewable energy. What remains after incineration is processed into TopCrete that can be used in the construction sector instead of cement. The end-processing of paper pulp residue (sludge) after it has been through all the recycling steps and then the production of energy and raw materials is the capstone of an ideal circular economy.

"What makes my job so enjoyable is that I'm working on the future"

Cocky Stijger, Energy Desk & Head of Plant Performance, Rozenburg

"The Energy Desk is where we distribute our energy. Recently I've concentrated mainly on steam and heat. Incinerate waste and you get steam. Steam is very useful for the industries around us, and selling steam directly is advantageous for AVR. Since the companies in our neighbourhood started purchasing our steam their use of primary fuels has been far lower. A good step. Their continuity depends on our steam supply, which makes it a priority for us. Now our supply also includes steam from our biomass energy plant plus the steam of an external supplier, our steam production is so large and stable that we are looking to expand further in the Botlek.

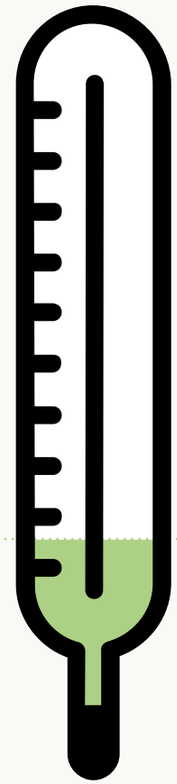
I really enjoy my work. Especially as it means I'm working on the future because our energy is environmentally-responsible. And in the winter you don' want to leave the people who receive heat from us in the cold. I feel very responsible for that.

I'm one of the few women working here. I'd like to see more of them in technology. Having both men and women in the team creates a different dynamic. In practical terms I see this as beneficial for the process because those teams work more efficiently."

Sustainable employability

Healthy, energetic professionals

Our mission 'Too good to waste' is aimed at sustainability. We translate this into the sustainable employability of our employees under the motto: 'Be your best – because you are too good to waste'. We want everyone at AVR to work with pleasure, with up-to-date knowledge and in good health. And as what employees need to achieve this varies from one person to the next, our approach is also individual based. The number of employees who follow training courses and a low level of sick leave show our policy is successful and our employees are healthy and energetic.



Sick leave

5.4% ↓ **1.0%**

2019: **5.4%**
2018: **6.4%**
2017: **7.0%**

KPI: Sick leave reduced

Although our sick leave figure fell to 5.4% in 2019 (2018: 6.4%) we want to reduce it even further. To put it a better way: what we really want is to increase the number of employees who are healthy and energetic. We continuously discuss the sustainable employability of our employees and their wishes, needs and (im)-possibilities.

Be your best 2.0

Our 'Be your Best' programme helps our employees to be healthy and to work with pleasure and up-to-date knowledge. Everyone wants something different – one person wants to learn new skills, another wants to feel fitter and yet another wants better working conditions. All these 'wants' are equally important. We support our people with 'Be expert' and 'Be fit'. 'Be expert' focuses primarily on knowledge and skills, 'Be fit' focuses on physical and mental health. Our facilities and provisions vary from a sick leave approach and comprehensive supplementary health insurance to a Company fitness programme, chair massages and a healthy range of options in the Company canteen.

'Be expert': knowledge and skills

In 2019 we increased our communications with the labour market in order to recruit new, skilled colleagues who fit in with our Company values of professionalism, accepting responsibility and independence. Age also plays a role, because in the coming years many of our knowledgeable and experienced employees will reach retirement age. We want to and we must pass on their knowledge to all age categories. That means we must not only ensure colleagues are properly inducted, we must also ensure a solid basis for, and sometimes add extra depth or breadth to, our existing workforce. This is why we have doubled the number of training courses for Operations Rozenburg, where more attention was needed.

> What we're working to achieve is a workforce that is healthy and fit

We have also increased our investment in function--oriented professional training and personal development. We now offer professional training courses in thermodynamics and complex calculations and have tools for 360-degree feedback as well as development assessment, mentorship and coaching, which may or may not be combined with (often multi-year) Personal Development Plans.

In Rozenburg we analysed the match between occupation and activity and then adjusted the way the work

in our production department was organised. Thanks to the training courses and opportunities for personal development we could steer employees towards positions that fitted them better. Some younger employees were promoted to positions with more responsibility. The new ideas and fresh perspective they bring is helping AVR achieve further improvement and innovation.

In 2019 five older employees utilised the Generation Pact that allows them to work fewer hours.

We are delighted to welcome students and pupils who want to gain knowledge at AVR. In 2019 we received 11 work experience students. One HBO *(technical college)* student carried out his graduation project at AVR,

one student came to us to experience working life and we offered three apprenticeships with day release. Many students and apprentices come back for holiday work or a following phase. In 2019 we could even put two 'old students' on our payroll.

'Be fit': Health and energy

A healthy diet and plenty of exercise are two key components of a healthy lifestyle. We have once again made our catering offering healthier and asked our supplier to provide seasonal products and dishes containing less salt, sugar and fat. We have also introduced new products, such as meat substitutes. It's how AVT is constantly adapting its offering in response to the latest insights. We have been encouraging our employees to exercise more for years by offering facilities such as a Company bicycle plan. Employees can also enjoy sports at reduced prices.

The work-leisure balance

Many of our employees are 'keeping several balls in the air'. If a bottleneck in the balance between work and private life arises we look for a solution. This is always made-to-measure – provisions vary from an information package with tips & tools for family care and special sabbatical leave, to social work, psychological counselling and trauma care. When necessary the occupational health & safety service will advise or suggest a referral.

Dialogue

The common thread in AVR's sustainable employability policy is 'De Dialoog' *(The Dialogue)*. In recent years we have invested a considerable amount in training Managers in communications to improve their dialogue in general and so they can carry out employability and absenteeism discussions in particular. In 2019 we went further and provided on-the-job training in which the HR advisor and the occupational health & safety service Case Manager provided practical guidance. The Manager is given on-the-spot coaching in dealing with an absenteeism situation and conducting difficult discussions.

Social participation

In 2019 we offered (refugee) status holders opportunities at AVR. In Duiven and Rozenburg we organised open days after which interested job seekers could work for a trial week under the guidance of a mentor. The next step was a coaching trajectory that included elements such as intercultural communication. After a further selection round and trial placements lasting two months we were able to offer five people a permanent job at different levels. These new colleagues are now broadening their professional knowledge and taking Dutch lessons at our sites. We are proud to have been able to offer them – and sometimes their entire family – a new future.

"Working shifts gives me a lot of time for sport"

Henk Dolle, Head Operator Duiven

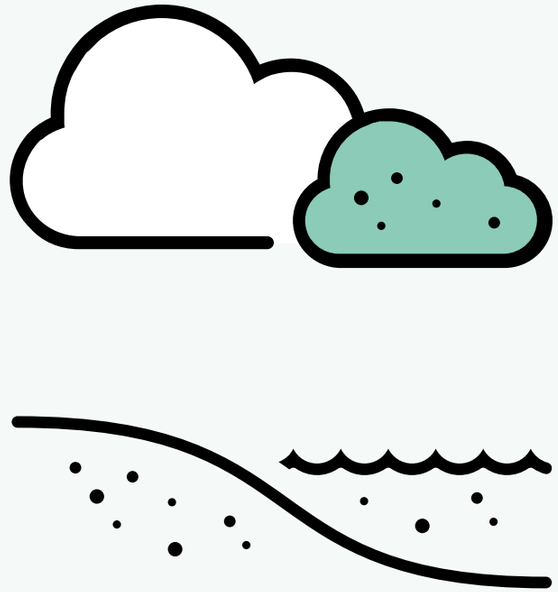
"After nearly 21 years as an Operator, in January I was promoted to Head Operator. I'd been doing the job on an interim basis for some time and really wanted to do it on a permanent basis. Now I'm working with the same team, but with more responsibilities. If there's a service disruption everyone looks at me because I'm the person who has to make the decisions. And I stand in for the Shift Foreman. It can be a little scary, but also very enjoyable.

At 50 years old I'm the youngest in my team. Shift work is easier if you're fit. That's not a problem for me because I'm very keen on sports, and working shifts means I have more time for sport. For example, I'm on the afternoon shift I can go for a run or a bike ride in the morning. In daylight not the dark. I always set myself a target, such as running a marathon once a year. I train for it - it's always good to have something to work towards. And in June I am taking part in a mountain bike race in The Dolomites in Italy for the first time. Those are steep mountains. I'll be going with a colleague. We live too far apart to train together, but since we discovered we have the same interest the two of us get together for a long trip several times a year. Sport in the open air is great, relaxing. I couldn't be without it."

Other emissions

Striving for minimum impact

Our incineration of residual waste has a positive social impact. But the processing of residual waste releases not only CO_2, but also materials that can be harmful. Smell and noise can also be a nuisance. It is our responsibility to minimise the negative impact of our activities. To achieve this we invest a lot in and utilise the best possible technologies.



Qualitative reporting

As we announced in our 2018 Annual Report, in this 2019 Report AVR is reporting on its other emissions – the emission of harmful substances other than CO_2 into the air, water and the ground - for the first time. During the year under review we determined the subjects about which we want to report. In this Annual Report we will do that in terms of quality. In our 2020 Annual Report we will endeavour to report quantities.

Other emissions apart from CO_2

Our sector is not bound by any specific licences related to CO_2 emissions although there are specific licenses for other emissions such as NO_X and SO_X.

AVR regularly reports on these emissions to various regulatory bodies, such as the Rijkswaterstaat *(Ministry of Infrastructure and Water Management)*, DCMR Milieudienst Rijnmond *(the joint environmental protection agency for the region)*, water companies and Omgevingsdienst Regio Arnhem (ODRA) *(Arnhem Region Environment Agency)*. We monitor and control our processes very closely. Any deviations or contraventions are reported to the competent authorities (ODRA, RWS and DCMR) and in close liaison with these authorities the cause is investigated so that we can implement measures to prevent a reoccurrence.

Within this Annual Report theme we are describing the topics that are relevant for our immediate neighbourhood: nitrogen (NO_x), fine particulate (PM10) and dioxin as well as odour and noise (in connection with local environmental complaints). Each year we will also discuss issues that have been relevant during the year under review. For 2019 these issues were "Zeer Zorgwekkende Stoffen" (ZZS, including PFAS) *(Substances of Very High Concern (SVHC including PFAS)* and fire prevention (due to concern regarding fires in the waste sector).

Nitrogen, fine particulate and dioxin

Once every 10 years the European Commission specifies the best available technology for waste incineration in regulations for all the member states. In our case that is the BREF Waste Incineration that was revised at the end of 2019 and which contains incineration emission limit values predominantly to air and water. These limits are translated into license stipulations for our plants. As the technologies improve the specifications are becoming more stringent. AVR is proactive: we will have to comply with new standards sooner or later and we would prefer to do it sooner. We do not want to cause any nuisance, we want to work on creating a sustainable society. Towards that end we invest millions of Euro in our facilities. And it is because these are such capital-intensive investments that we want to get the most out of them – we want them to enable us to continue complying with increasingly more stringent regulations for as long as possible.

Nitrogen

Our nitrogen emissions are relatively low due to DeNOx catalytic converters on every incineration line that filter the exhaust gases in the same way vehicle exhaust gases are filtered by catalysts. The fact that around 30% of the waste is brought to us by water in containers and bulk rather than in fleets of lorries also reduces our nitrogen emissions.

Fine particulate

AVR applies various technologies to clean the Energy-from-Waste plant flue gases. This involves five steps. The first step is the use of electrostatic filters that capture fine particles and convert them into flue gas. During the following steps any fine particulate residues are extracted from the flue gases.

Dioxin

Dioxin is released when organic waste is incinerated. Until the 1980s the emissions of dioxin from waste incineration plants were high, which led to concerns.

In the early 1990s AVR began capturing and deep-cleaning flue gases and since then the emissions have fallen considerable. Currently dioxin emissions are extremely low: the combined total from both our facilities is less than 350 milligrams per year from 1.7 million tons of waste. The activated carbon filter captures virtually all the dioxin. The residues from our plants are taken to recognised processors.

Smell and noise

We want to limit the smell and noise nuisance from our activities as far as possible and are obliged to prevent nuisance from our processes and from the delivery, transfer and processing of residual waste on and around our facilities. Although our plants are not near built-up areas, nuisance can occur if the wind direction is unfavourable or if abnormal operating conditions involve loud noises being made. In recent years AVR has not received any noise complaints from the local area. We have received a number of complaints related to smells. Most of these complaints were related to the initial phases of the process – the delivery and transfer of the waste. We receive most complains via the DCMR and ODRA incident rooms. When a complaint is received we immediately check to see what could be causing the problem. We have implemented measures to deal with potential sources of smells and noise by transferring the waste inside the transfer terminal - the container hatches remain closed until after the barges have sailed into the terminal.

Substances of Very High Concern

Our environment contains substances that are classified as Substances of Very High Concern (SVHC). These include PFAS. SVHC can, for example be poisonous, carcinogenic or hormone-disrupting. Most waste streams contain SVHC. The exceptions are household waste, separately-collected green waste, green and business waste, and litter. In our view we must be able to process all the waste we receive in a way that results in SVHC being either broken down during the incineration process or captured through flue gas cleaning and water treatment.

Since January 2016 our country has been legally obliged to minimise SVHC in raw and auxiliary materials in manufacturing processes, in consumer goods and in emissions into the air or water. At the moment the competent authorities are compiling inventories of the SVHC in AVR's waste, emissions into the air or water, auxiliary materials and residue streams. These inventories must be completed in May 2020. The Rozenburg facility's emissions of SVHC into the air or water were inventoried in 2017. The formal follow-up investigation will take will be decided after May 2020 based on the results. In addition, every five years AVR, like every other company in the Netherlands, must compile a SVHC report containing an updated inventory, figures for the quantity of emitted SVHC, the technologies used to prevent or limit SVHC emissions, and a prevention and reduction plan combined with a description of any deviations.

Projects to optimise the incineration process and flue gas cleaning contribute towards reducing SVHC emissions. One example of this is the Optimisation of Energy from Waste Water treatment at the Rozenburg facility aimed at improved reliability, increased capture and lower emissions.

Fire prevention

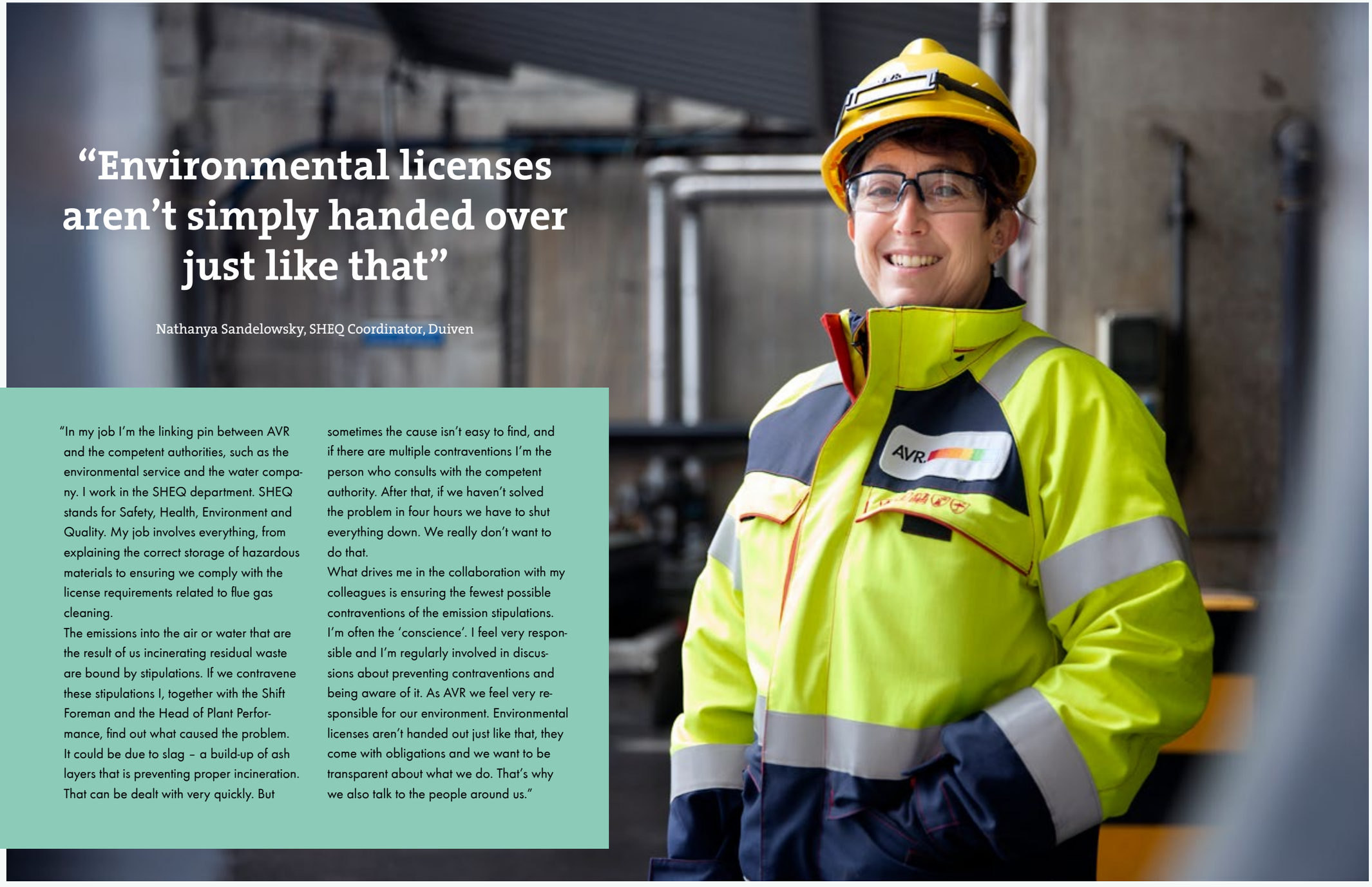
Fires release a lot of hazardous substances, so preventing fires is extremely important. For waste processing companies, especially the ones active in the area of collecting and recycling, fire is always waiting for its chance, for example due to spontaneous heat generation. In 2018 and 2019 there were so many fires in the sector the insurance companies introduced more stringent conditions and increased the premiums. There has not been a significant fire at an AVR facility since around 2000. That fire made us far more aware of the risks and since then we have paid far more attention to fire prevention and have made substantial investments in repressive measures, such as automatic extinguishing systems. Our fire prevention policy and our underlying systems, including our extinguishing facilities, are comprehensively certificated and are inspected and tested every year. AVR complies with the standards of the National Fire Protection Association (NFPA), under the supervisory eye of our insurers.

Our environment

Taking the environment into account means maintaining contacts with all our stakeholders, including our neighbours. We want to know what's going on with them, but we also want to tell them what's happening on our sites. That is why we participate in residents' associations and sounding board groups in Rozenburg and Duiven. We regularly organise open days so we can show people what we are doing and we often give guided tours of our facilities, for example to schools and local authority employees in the municipalities from which we receive waste. This transparency is appreciated and leads to more understanding.

"Environmental licenses aren't simply handed over just like that"

Nathanya Sandelowsky, SHEQ Coordinator, Duiven



"In my job I'm the linking pin between AVR and the competent authorities, such as the environmental service and the water company. I work in the SHEQ department. SHEQ stands for Safety, Health, Environment and Quality. My job involves everything, from explaining the correct storage of hazardous materials to ensuring we comply with the license requirements related to flue gas cleaning.

The emissions into the air or water that are the result of us incinerating residual waste are bound by stipulations. If we contravene these stipulations I, together with the Shift Foreman and the Head of Plant Performance, find out what caused the problem. It could be due to slag – a build-up of ash layers that is preventing proper incineration. That can be dealt with very quickly. But sometimes the cause isn't easy to find, and if there are multiple contraventions I'm the person who consults with the competent authority. After that, if we haven't solved the problem in four hours we have to shut everything down. We really don't want to do that.

What drives me in the collaboration with my colleagues is ensuring the fewest possible contraventions of the emission stipulations. I'm often the 'conscience'. I feel very responsible and I'm regularly involved in discussions about preventing contraventions and being aware of it. As AVR we feel very responsible for our environment. Environmental licenses aren't handed out just like that, they come with obligations and we want to be transparent about what we do. That's why we also talk to the people around us."

AVR. ANNUAL REPORT 2019

Financial stability

A solid foundation for the future

It is important that AVR is and remains a financially stable company. Several stakeholder groups have an interest in this: shareholders, financiers, employees, customers and suppliers. We can only safeguard our continuity and achieve our goals if we are financially solid. And that once again requires investments in our facilities and strategic projects.

EBITDA

(in millions €)

132.8 ↑ **10.8**

2019: **€ 132.8 mln**
2018: **€ 122.0 mln**
2017: **€ 117.1 mln**

Net result

(in millions €)

37.9 ↑ **0.2**

2019: **€ 37.9 mln**
2018: **€ 37.7 mln**
2017: **€ 37.0 mln**

Revenue

267.3 ↑ **20.0**

2019: **€ 267.3 mln**
2018: **€ 247.3 mln**
2017: **€ 244.0 mln**

EBIT

80.8 ↑ **0.8**

2019: **€ 80.8 mln**
2018: **€ 80.0 mln**
2017: **€ 76.8 mln**

Investments

65.7 ↑ **1.4**

2019: **€ 65.7 mln**
2018: **€ 64.3 mln**
2017: **€ 50.1 mln**

Cash flow

- 8.2 ↑ **41.2**

2019: **€ -8.2 mln**
2018: **€ -49.4 mln**
2017: **€ 9.1 mln**

Cash position

20.5 ↓ **8.2**

2019: **€ 20.5 mln**
2018: **€ 28.7 mln**
2017: **€ 78.1 mln**

Financial stability

We define financial stability as a solid financial basis that guarantees AVR can continue to exist, is profitable, can make (strategic) investments and can absorb unexpected set-backs. We have budgets approved by our shareholders for our goals and KPIs. These KPIs are driven by our activities, which we have described in the other sections of this Annual Report.

Results

AVR's financial result for 2019 was good - net result rose by € 0.2 million to € 37.9 million. Compared with 2018 the one-time negative effect on the result of the 2019 Total Plant Shutdown amounted to approximately € 5 million. This major maintenance project was completed as planned and will contribute towards the Company's future operational stability and, therefore, its financial stability. Costs also increased, especially the costs related to maintenance and personnel. These negative effects were ultimately offset by positive price effects and one-time windfalls as a result of which the result for 2019 was slightly higher than for 2018.

KPI: Revenue

Revenue (including other income) rose from € 247.3 million to € 267.3 million despite the one-time negative effect on processed volumes caused by the Total Plant Shutdown. The energy output from the biomass energy plant was higher than in 2018 because 2018 was the start-up year of the Rozenburg plant's connection to the heat and steam network. Energy and waste price developments also contributed towards the revenue. An important contribution towards revenue growth was made by the separation plant which for the first time was in operation for the entire year. The CO_2 capture plant in Duiven generated revenue from August on.

KPI: EBITDA and EBIT

At € 132.8 million EBITDA was nearly € 11 million higher than for 2018 due to higher revenue and costs. The increase in costs was the result of the new activities, higher maintenance and personnel costs, and the one-time costs of the Total Plant Shutdown in Rozenburg. The increased EBITDA also included an effect of € 4.7 million resulting from an amendment to the IFRS16 annual reporting regulations for the treatment of leases.

The higher EBITDA was partially negated by higher depreciations as a consequence of which operating result (EBIT) amounted to € 80.8 million – an increase of € 0.8 million compared to 2018. The higher depreciations were related to the separation plant, the CO_2 capture plant, the Total Plant Shutdown in Rozenburg and the effect of the IFRS16 regulations. They also included a negative effect of the expectation that as of the end of 2020 part of the Water Treatment plant will be taken out of operation.

KPI: Cash flow

As expected, in 2019 AVR achieved a negative cash flow of € 8 million due primarily to high investments. The cash flow comprised a cash flow from operating activities amounting to € 121 million of which € 65 million was used for investments and € 64 million for financing activities. The cash flow from financing activities comprised interest payments (€ 30 million), dividend pay-outs (€ 40 million), extra withdrawals from the current account facility (€ 10 million) and lease payments (€ 4 million).

KPI: Cash position

The cash position fell to the (planned) level of around € 20 million.

KPI: Investments

In 2019 AVR's investments amounted to € 65.7 million (2018: € 64.3 million) and were related to both innovation (for example the separation plant and the CO_2 capture plant) and the existing plant (including the Total Plant Shutdown in Rozenburg). More information about investments can be found under theme Innovation.

Financing structure

AVR has a prudent financing structure: over 50% of the financing is through shareholder equity and subordinated loans from the shareholder. This financing structure is reflected in the relationship between the Company's debt and its operating result before depreciation and amortisation (EBITDA) – the so-called leverage. AVR has a leverage ratio of around 3x, - the net debt amounts to approximately three times the EBITDA. AVR strives to achieve the long-term retention of this leverage. This makes it clear that our strategy is focused on long-term stability that enables us to absorb unexpected negative financial effects and continue investing in developing AVR and making it more sustainable.

AVR's outstanding loans and credit facilities with banks and investors amount to € 450 million. During 2019 no loans or credit facilities expired and no new financing was arranged. The next (partial) refinancing is expected to take place in 2021.

Financiers believe in AVR's innovative strength, the steps we are taking towards a circular and climate-neutral world and the results of these steps. As a result, in 2018 AVR was advanced a so-called Green syndicate loan by five banks led by Rabobank. We have linked sustainable targets to this loan and will receive an interest-rate discount if we achieve these targets. This form of financing shows that banks recognise the importance of the steps AVR is taking to promote a circular economy.

"Searching for solutions together brings people together"

Franklin Vicario, Controller

"During the 19 years I've worked for AVR the company and the processes have become increasingly more complex and dynamic. That has also made the job of Controller more challenging. As Controllers we look at whether the results are consistent with what is going on in the organisation. We monitor the expectations and look ahead.
If you want to achieve financial goals, having a stable financial basis so you can anticipate internal and external changes is essential because it gives assurance.
In addition to having a stable financial basis it's also important that a company is professional and energetic. If one of these three factors is less than optimal the company becomes unbalanced, which inhibits its healthy growth. As a Controller and business partner I try to support the creation of balance between these three essential aspects. In addition to the controlling tasks we assist operations and the management and offer advice regarding operational, and sometimes strategic, decisions.
There are important social themes, such as climate change and the transition to a CO_2-neutral world, and I enjoy seeing what we as AVR are doing in these areas. We have made a conscious choice to work in a positive way and to welcome sustainable initiatives in the sector. Working for a better world is satisfying. Searching for solutions together also brings people together. That is an added value."

Governance

Corporate governance

AVR stands for good Corporate Governance, proper supervision and transparent accountability to all its stakeholders, also in respect of the social role AVR wants to play.

Legal structure

The ultimate holding company of AVR, Dutch Enviro Energy Holdings B.V. (DEEH), is a private company incorporated under Dutch law to which the (partially exempt) structure regime is applicable. Under this regime in 2017 a Supervisory Board was appointed. AVR applies the Anglo-Saxon model of a one-tier board in which the Supervisory Board members (or the Non-executive Directors) and the Directors (the Executive Directors) work together in a single Board. The Executive Directors are responsible for the day-to-day management of the company and the Non-executive Directors supervise the Executive Directors.

One-tier Board structure

The one-tier Board comprises of eight Directors: four Non-executive and four Executive. The Board meets at least six times a year. The Board has formed three sub-committees within which there is scope for a more in-depth appraisal of specific topics: the Remuneration Committee, the Audit & Treasury Committee and the Commercial & Operations Committee.

The members of the one-tier Board are CEO Yves Luca, CFO Rob de Fluiter Balledux, five representatives of the shareholders and a Non-executive member nominated by the AVR Works Council.

Shareholders

Since 2013 all the shares in AVR's capital are held by a consortium from Hong Kong led by stock-exchange listed Hong Kong company, Cheung Kong Infrastructure (CKI). CKI, with over 130,000 employees spread across participations in Hong Kong, China, Europe, Canada, Australia and New Zealand, is a world player in the field of infrastructure.

Biographical information

Currently the one-tier Board of DEEH comprises of the following members:

Neil McGee, Chairman and Non-executive Director

Neil McGee (68), Australian nationality, has a long track record within the CK Hutchison Group. Neil's other functions include Executive Director of Power Assets (the energy company in Hong Kong). He holds a Bachelor of Arts degree and a Bachelor of Laws degree.

Hing Lam Kam, Non-executive Director

Hing Lam Kam (73), Chinese nationality, has been the Group Managing Director of Cheung Kong Infrastructure since it was established in 1996. He holds a Bachelor of Science degree in Engineering and a Master's degree in Business Administration.

Duncan Macrae, Non-executive Director

Duncan Macrae (49), British nationality, is Head of International Business at Cheung Kong Infrastructure. He holds Bachelor's and Master's degrees in Philosophy and Politics & Economics.

Ed Nijpels, Non-executive Director

Ed Nijpels (69), Dutch nationality, is Chairman of the Progress Consultation Climate Accord Committee and Crown-appointed member of the Dutch Social and Economic Council (SER). Ed holds a Master's degree in Law.

Andrew Hunter, Executive Director

Andrew Hunter (61), British nationality, is Executive Director of Cheung Kong Infrastructure and Executive Director of Power Assets. He holds a Master of Arts degree and a Master's degree in Business Administration.

Charles Tsai, Executive Director

Charles Tsai (62), Canadian nationality, is the CEO of Power Assets with responsibility for all foreign participations. Charles holds a Bachelor of Applied Science Degree in Mechanical Engineering.

Yves Luca, Executive Director

Yves Luca (54), Belgian nationality, is the CEO of AVR. The positions he has held during his 24 years' experience in the waste sector include COO at Van Gansewinkel. Yves holds a Master's degree in Applied Economic Science.

Rob de Fluiter Balledux, Executive Director

Rob de Fluiter Balledux (56), Dutch nationality, CFO of AVR. Rob's positions prior to joining AVR include Financial Director of Martinair and CFO of Van Gansewinkel. Rob holds a Master's degree in Business Economics.

General Counsel-Company Secretary **Bram Witsenburg** (48) acts as the Secretary of the one-tier Board. Previously he changed from attorney-at-law to Company Lawyer and back. Bram holds a Master's degree in Law.

Message from the Board

2019 proved to be a challenging year for AVR. The Company was confronted with operational challenges, which were in part due to the composition of the waste to be processed having changed. On top of that AVR had to deal with the import ban that was the result of operational problems at AEB Amsterdam. Despite these difficulties AVR was able to achieve its financial targets – an exceptional performance for which all the employees who made it possible deserve a huge compliment.

AVR believes its responsibilities extend further than just processing waste and achieving financial targets. The Company strives to make a worthwhile contribution towards a sustainable environment and a circular economy by facilitating the continuous reuse of raw material resources.

In this environment AVR wants to play an increasingly relevant role. The Company will continue its efforts to contribute towards keeping streets and cities clean by processing waste that cannot be recycled. AVR constantly searches for environmental value in waste and strives to make its activities CO_2-neutral. AVR's mission is the creation of a clean world in which nothing is wasted.

AVR is a strong player in the field of renewable energy and endorses the Dutch targets for further CO_2 reduction in the coming years. In 2019 a plant that enables the CO_2 released during waste incineration to be captured and reused in the greenhouse horticulture sector went into service at AVR's facility in Duiven. This project is contributing towards a better environment.

Another important milestone in 2019 was the opening of the separation plant in Rozenburg that removes plastics and drinks cartons from the residual waste for municipalities such as Rotterdam, Den Haag and Utrecht. The plant is a powerful alternative for separation at source and contributes towards the ambitious recycling targets for the Dutch packaging industry.

I would like to thank all our employees for their efforts during the past year which, despite operational circumstances sometimes being challenging, were unremitting. I would also like to thank the shareholders for their support and AVR's customers for the enduring relationships that have enabled AVR to expand its activities further.

Neil McGee, *Chairman DEEH*

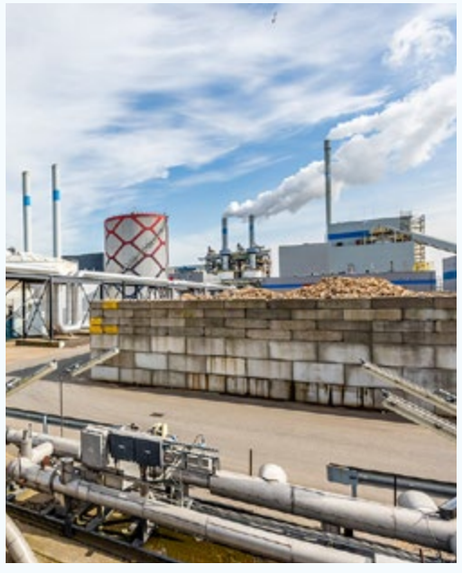
Compliance

AVR's Directors and shareholders set great store by the proper adherence to the applicable legislation and regulations. To safeguard this compliance the organisation has drawn-up internal policies and procedures for its operating processes. Compliance is a continuous improvement process, certainly in view of the increasing regulatory burden and regulatory complexity.

A number of spearheads in the area of compliance are applicable for AVR: compliance with environmental law (licenses), public procurement law, accounting law, energy law, consumer law, financial law and privacy law – the last mentioned also in view of the introduction of the General Data Protection Regulation (GDPR) in 2018.

Compliance with the legislative fields mentioned above has direct consequences for AVR's 'licence to operate'. Preventing fines and other enforcement measures is also essential to maintain the Company's good reputation. The SHEQ, IT and HR departments and the General Counsel support the organisation and its operations with solicited and unsolicited advice and expertise.

In May 2019 AVR successfully completed the audit for the CO_2 Performance Ladder and received a certificate for three years. All our ISO and OHSAS certificates (ISO 14001, ISO 9001 and the OHSAS 180001) were also assessed. In October 2019 the BRZO audit resulted in eight points of attention, which have been dealt with quickly. The tightening of the Commodities Act Decree Pressure Equipment in 2019 had an immediate effect on the inspections of pipes and pressure vessels with a high temperature, pressure and volume. Finally, a team of employees made a start on the amendments arising from the new European BREF legislation. This will become more intensive during 2020.



Risk management

Operational risks

Since its acquisition by Cheung Kong Infrastructure (CKI) in 2013 AVR has deepened the annual assessment of the Company's operational risks. The 25 risk areas that, on the basis of its strategy, are most important for AVR have been identified. Each year the risks related to these areas and the functioning of the measures to limit these risks are evaluated.

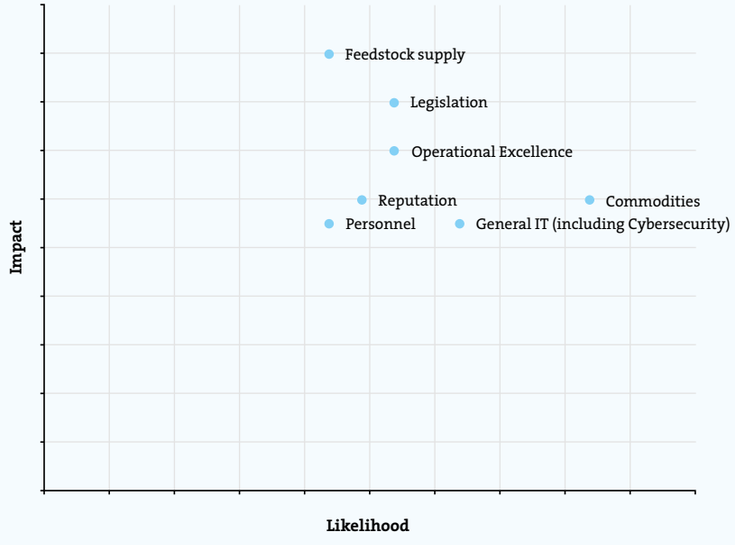
In this 2019 Annual Report the most important (changes) related to seven operational risks faced by AVR are explained along with the measures that have been implemented to mitigate these risks.

Risk matrix

The risk matrix below shows the seven risk factors mentioned above as identified by AVR in the assessment for 2019. The risk matrix indicates the likelihood of the risk occurring versus the impact of the risk, without taking into account the internal control measures implemented by AVR. The control measures are then described.

Risk matrix

The likelihood of the risk occurring versus the impact of the risk.



Commodities
This is the risk that AVR will suffer losses as a result of the volatility of commodity prices (electricity, gas, diesel and metals). This risk applies particularly to the prices of the energy and residual materials supplied by AVR. We follow an active hedge policy the objective of which is to cover at least 80% of the raw material price risk for one year ahead through hedge contracts and cover 40% for at least two years ahead. This policy is included in the financing conditions AVR has agreed with its banks and investors.

Feedstock supply/Waste offering
This is the risk of volatility in the volume and quality of the residual waste offered by waste processing customers in both the short-term and the long-term. We regularly check the balance between our contract portfolio and our medium/long-term capacity. We aim to achieve an optimum mix of different streams (domestic residual household waste, domestic commercial waste and imported waste) in order to limit, as far as possible, the volume and quality of residual waste being dependant on individual streams. Because of the introduction as of 1 January 2020 of a tax on imported waste AVR is reconsidering this mix.

Legislation and regulations
This is the risk that the introduction or extension of regulations will have a negative effect on the stability and development opportunities of AVR's activities. We are represented in various branch organisations and also maintain contacts with regulatory bodies and policy makers so we can defend our interests. In our communications strategy we strive to make the outside world aware of the leading role AVR can play in respect of themes such as the circular economy and energy transition.

General IT including Cyber security
This is the risk that disruptions in the IT sphere as a result of general IT disruptions or cybercrime could lead to outages of primary operating processes. AVR has outsourced the majority of the technical and functional IT support for the process automation and office automation to external specialists. In recent years a considerable amount has been invested in further improving security. In the field of cybersecurity we work with security software that is always up-to-date and we implement an active awareness-building programme among our employees. We also maintain a cyber security insurance.

Personnel
This is the risk of AVR being unable to recruit or retain sufficient competent, motivated and professional employees to enable it to carry out its activities. We endeavour to ensure we retain existing employees and attract potential new employees through our 'Be your best' programme. This programme is described in the section Theme Sustainable employability.

Operational excellence
This is the risk that, due to process and plant inefficiencies, AVR is incapable of operating at competitive (cost) prices or is unable to process the agreed volume of residual waste or to supply the agreed quantity of energy. The activities in the area of operational excellence are dealt with in this Annual Report under

the Themes A safe working environment, Reliability and Innovation. A focus on operational excellence is a priority for 2020.

Reputation
This is the risk that the external communication about AVR's goals and developments are insufficiently effective as a result of which the concept of, or the support for, AVR's goals and developments is undermined. Our communication strategy is aimed at making the trend-setting role we can play in the circular economy and the energy transition visible to the outside world.

Financial risks

AVR's business activities mean it is exposed to financial risks the most important of which are:

Price risk
This is the risk of price fluctuations in respect of energy and waste. For commodity prices a hedge policy is applicable as is also described above under the operational risk Commodities. The risk related to waste prices is limited because AVR has many long-term contracts with fixed price agreements and indexing.

Interest rate risk
This is the risk of interest-rate fluctuations. At the end of 2019 AVR had over € 360 million in outstanding financing. As only € 10 million has a variable interest rate and € 350 million has a fixed interest rate, the interest rate risk, after mitigating measures, is very low.

Credit and counterparty risk
This is the risk that counterparties cannot meet their financial obligations towards AVR. AVR works with creditworthy parties (D&B reports of credit ratings) and avoids the concentration of major credit with individual counterparties.

Liquidity risk
This is the risk of a shortage of liquidity that results in AVR being unable to meet its (immediate) long-term and short term payment obligations. The risk is obviated by AVR's current financing structure, which in the short-term gives AVR access to sufficient unused credit facilities and in the long term limit the risk of refinancing by splitting the total financing requirement into separate parts each with a different term.

Currency risk
AVR has received financing in British pounds and American dollars. The currency risk on these loans in foreign currency is fully covered by means of cross currency swaps. Apart from these loans AVR is not involved in any transactions in foreign currency.

Summarised financial statements

This is the first time an abridged financial overview is published in the Annual Report. These financial statements have not been audited. An audited version of these financial statements has been deposited with and can be inspected at the Chamber of Commerce.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2019 BEFORE APPROPRIATION OF RESULT (x € 1,000)

	31 December 2019	31 December 2018
ASSETS		
Non-current assets		
Property, plant and equipment	513,924	494,779
Right-of-use assets	18,318	-
Goodwill	316,417	316,417
Other intangible assets	53,901	55,569
Deferred tax assets	48,442	60,508
Derivative financial instruments	5,898	1,613
Other non-current financial assets	14,477	12,203
Total non-current assets	**971,377**	**941,089**
Current assets		
Inventories	7,018	5,193
Trade and other receivables	42,368	28,255
Derivative financial instruments	471	38
Prepayments	641	1,187
Cash and cash equivalents	20,536	28,726
Total current assets	**71,034**	**63,399**
Total assets	**1,042,411**	**1,004,488**

CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2019 BEFORE APPROPRIATION OF RESULT (x € 1,000)

	31 December 2019	31 December 2018
EQUITY AND LIABILITIES		
Capital and reserves		
Issued capital	100	100
Share premium	262,895	264,966
Cash flow hedge reserve	3,217	(6,367)
Retained earnings	(2,702)	-
Unappropriated result	17,911	17,929
Equity attributable to the parent	**281,420**	**276,628**
Non-current liabilities		
Borrowings	607,891	587,555
Derivative financial instruments	1,679	4,468
Deferred tax liabilities	32,464	29,656
Provision for jubilees	1,397	1,393
Other provisions	14,774	12,047
Total non-current liabilities	**658,205**	**635,119**
Current liabilities		
Trade and other payables	37,616	36,916
Borrowings	12,022	119
Current tax liabilities	15,607	9,776
Derivative financial instruments	251	6,253
Amounts payable to shareholders	3,520	3,520
Other provisions	3,048	7,337
Other liabilities	30,722	28,820
Total current liabilities	**102,786**	**92,741**
Total liabilities	**760,991**	**727,860**
Total equity and liabilities	**1,042,411**	**1,004,488**

CONSOLIDATED INCOME STATEMENT AND OTHER COMPREHENSIVE INCOME FOR THE YEAR 2019 (x € 1,000)

	2019	2018
Revenue	242,087	222,805
Other income	25,171	24,522
Raw materials, supplies and energy	(17,721)	(19,306)
Third-party processing	(26,781)	(26,197)
Third-party maintenance	(20,876)	(15,945)
Employee benefit expenses	(41,418)	(38,675)
Depreciation and amortization	(51,948)	(42,060)
Impairment loss on financial assets	(5,494)	(2,208)
Other operating expenses	(22,193)	(22,961)
Operating result	**80,827**	**79,975**
Financial income and expenses	(30,302)	(29,873)
Result before tax	**50,525**	**50,102**
Taxes on result	(12,581)	(12,390)
Profit / (loss) for the year	**37,944**	**37,712**
Attributable to shareholders of the company	**37,944**	**37,712**
Other comprehensive income:		
Gain on cash flow hedges taken to equity	12,778	(1,012)
Income tax direct through equity	(3,195)	253
Total attributable to shareholders of the company	**47,528**	**36,953**

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE YEAR 2019 (x € 1,000)

	2019	2018
Result before tax	**50,525**	**50,102**
Adjustments for:		
– Depreciation, amortization and impairment	51,948	42,060
– Change in provision for other schemes	4	(8)
– Change in other provisions	(1,931)	343
– Financial expenses	30,302	29,873
– Change in other financial assets	(2,274)	(1,948)
– Changes in working capital	(7,134)	(6,452)
Cash flow from operating activities	**121,440**	**113,970**
Investments in:		
– Property, Plant & Equipment	(65,705)	(64,311)
Divestments of:		
– Property, Plant & Equipment	552	150
Cash flow from investment activities	**(65,153)**	**(64,161)**
Repayment lease liabilities	(4,875)	(101)
Interest paid	(29,569)	(29,583)
Repayment borrowings	-	(80,000)
New borrowings received	-	50,000
Drawing credit facilities	10,000	-
Dividend paid	(40,033)	(39,533)
Cash flow from financing activities	**(64,477)**	**(99,217)**
Net increase in cash and cash equivalents	**(8,190)**	**(49,408)**
Cash and cash equivalents at 1 January	28,726	78,134
Cash and cash equivalents at 31 December	**20,536**	**28,726**

In conclusion

Looking forward to 2020

Once again we foresee a year in which the climate will play an important role. The climate will, therefore, be a focus of our investments, aligned with our strategic choices. In 2020 we will, for example, implement the agreements contained in the Rotterdam Climate Agreement, further extend the Steam Pipeline and work on capturing even more CO_2.

We will continue implementing agreements laid-down in the Rotterdam Climate Agreement signed in November 2019. AVR worked on this Agreement together with the Port of Rotterdam, energy companies, the Province of South-Holland, Rotterdam municipality and other (local) authorities, companies in Rotterdam's Port Industrial Complex, energy (infrastructure) companies, knowledge institutes, social organisations, the South-Holland Nature and Environment Federation and the Environmental Protection Service DCMR. By doing so we will build on the joint plan developed in the National Climate Agreement which contains 49 climate deals in a variety of domains.

AVR is also a signatory of the Gelders Energieakkoord *(Gelderland provincial Energy Agreement)*, in short the GEA. The GEA network was set-up in 2015 and has five programmes: built-up areas, mobility, companies, institutions & industry, renewable energy generation and agriculture & land usage. The network develops initiatives and supports the regions. Every programme has its own measurable goals and action plans aimed at CO_2 reduction. The target is a 55% reduction in 2030 and a reduction to 0 in 2050. In this context we will also be involved in projects in 2020 and beyond.

AVR continuously converses with various stakeholders the further extension of the Botlek Steam Pipeline. More customers opting to take process steam from this central steam pipeline will reduce the CO_2 emissions still further. At the same time, the certainty of the steam supply will increase due to the increased number of sources. We also want to extend our supply of heat still further. In 2020 we will look at how we can achieve this from our Duiven and Rozenburg facilities. Where these projects are concerned we are dependent on our surrounding area and partners. A major replacement and expansion investment for our turbine park in Rozenburg that will enable us to supply heat more efficiently is also on the agenda.

Another item high on our agenda is the construction of a CO_2 capture plant in Rozenburg with a greater capacity than the plant in Duiven. For preference we will use the CO_2 as a raw material, for example as a growth-accelerator for the greenhouse horticulture sector or as a raw material in cement production or the chemical industry. We will then be talking about Carbon Capture Utilisation, or CCU. We foresee an increasing market demand for this. In the transition to a CO_2-neutral waste processing, CCS, or Carbon Capture Storage will also enable captured CO_2 to

be stored – temporarily or permanently – in old gas fields. In 2020 AVR will investigate further whether CCS in combination with CCU will enable further progress to be made with achieving the Climate Agreement reduction targets plus the related AVR reduction targets. Subsidies for CCU and CCS are essential for increasing sustainability and further reducing CO_2 emissions.

A number of important investments are included in the 2020 budget. Accepting our responsibility for promoting a more sustainable world means investing in more complex technological facilities and knowledge. To enable us to commit to these investments we need long-term assurances and certainties. We would also like a dialogue in respect of this with the government. As of 2020 our sector is being taxed for importing waste from abroad. Currently we have no clear view of the effects this tax will have, although we do already see this primarily as a decision that will have a negative effect on our investments and that will not benefit the climate. AVR will closely monitor the reactions to this tax. In mid 2020 we will also gain more insight into the content of the draft law in respect of the tax on CO_2 emissions. The definition of this measure for the energy-from-waste sector will affect our future investments in CO_2 capture plants.

A tender success in 2019 means that on 1 March 2020 the new contract with the Den Haag municipality takes effect. For the longer term AVR will transfer the residual waste at the dedicated transfer station in Den Haag. The residual waste will be transported to the AVR facility by water and then (partially) separated and processed. This contract gives AVR a measure of assurance and continuity for the coming years. In early 2020 we have signed a similar important contract with all the municipalities in the Province of Utrecht.

Although in financial terms 2019 was a good year for AVR, we know that maintaining our result at this level will take a lot of effort. This is why we are going to make our operating processes more efficient and focus on their continuous improvement. This focus on operational excellence is a spearhead for the whole of 2020.

While we were finalising this Annual Report the Covid-19 virus (corona) also spread its grip to include the Netherlands. The waste sector has been designated a so-called 'vital sector'. This means our Company must be staffed continuously so we can keep society running, even during the corona crisis. In accordance with the guidelines issued by the government and the RIVM *(the National Institute for Public Health and the Environmental)*, AVR has implemented various measures to prevent employees being infected. What the effect and impact of the virus will ultimately mean for AVR is not yet clear.

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