Annual Report 2020

SUSTAINABLE CHANGE

AVR.

Rob de Fluiter Balledux, CFO and Yves Luca, CEO

Sustainable change

Yves Luca & Rob de Fluiter Balledux

Being a company in a vital sector meant that in 2020 AVR continued running at full speed. Although the corona crisis meant everything didn't always run smoothly, the figures under the 2020 finishing line are nice and black. That's how AVR wants to keep them in the future. Which, according to CEO Yves Luca and CFO Rob de Fluiter Balledux, means that a clear vision of sustainable change and continued investment in new opportunities are the guiding principles.

Corona: We cannot ignore it - how did AVR deal with it?

Rob: "Thanks to our shareholders in Hong Kong we were aware of the possible impact of COVID-19 before it reached the Netherlands. As the corona virus was – and remains – first and foremost a threat to peoples' health, the first thing we did was implement measures to protect our employees."

Yves: "AVR is a 24/7 company in a vital sector, so our sites have to keep operating. We are proud we were able to achieve this. Imagine the situation if waste couldn't be processed. But the advice was, and still is, be careful. There isn't just one single truth, that is reflected in the government's approach. Our measures were decided together and by consensus. They included split shifts and demarcated routes around the sites. And AVR was one of the first companies to introduce face covers. Everyone in our operation is used to wearing a helmet or safety glasses, so that wasn't really a big issue. We also led the way when it came to other measures, such

as rapid testing. When there was any doubt people went into quarantine and their work contacts were tested. We're still doing that."
Rob: "Carrying out the regular major plant maintenance activities was a challenge because it involves bringing in a lot of people from outside. This means our sites get very busy and the risk of infection goes up. We had intensive talks with our suppliers regarding their measures and made suggestions for scaling-up. Overall the number of infections remained very low."

Did the corona virus cause you any other problems?

Rob: "A large part of the Dutch economy was at a standstill and, as a result, the supply of commercial waste decreased by 20% to 25% and the food service sector waste disappeared. At the same time, the volume of household waste went up because a lot of people were working from home. In terms of total volumes, over time these developments more or less balanced each other out. However, the change in the supply mix did affect the incineration process and had to be paid extra attention."
Yves: "You really want to avoid downtime. We anticipated what could happen and when the supply of waste dropped at the start of the crisis we moved several maintenance stops forward. That worked out well."

Was anything else done to safeguard AVR's stability?

Rob: "Before the corona crisis we had already decided to start a project aimed at improving plant operational performance. We thought very hard about whether or not we should do it during the corona crisis, but eventually decided to go ahead. The Koploper *(Frontrunner)* project was started in June and has helped us get through the crisis in good shape. Koploper zooms in on our working methods and asks whether the way we have always done things is actually the right way. All our processes, consultation structures and roles have been critically reviewed in close consultation with the Works Council."
Yves: "It's important to mention that the aim was not to reduce the number of employees but rather to ascertain whether everyone was in the right place. We are going to increase our output with the same number of people. If there are areas where we have some space capacity we will look at whether some currently outsourced work can be brought in-house."
Rob: "We have also introduced other ways of working. It's logical that our employees' first reaction was: does this mean I'm not doing it right? It's an understandable reaction, but actually that's not what it's all about. Because if WE are not doing it right that doesn't mean a single individual, but all of us. What it's all about is all of us, together, looking at things that could be done better. Naturally a new approach takes getting used to. But now everyone is experiencing the benefits. That's energising. And it's been beneficial for our results."

How were the results for 2020?

Yves: "Thanks in particular to the second half we had a top-year. We achieved good growth figures, good throughput and an accident rate of 2.4 - the lowest rate ever. Thanks to the Koploper *(Frontrunner)* project the way we work is now safer and tidier. That deserves a compliment. The fact that we are making progress is also giving everyone a boost."
Rob: "Our customers also made a major contribution to our result. In a number of cases we worked with them to achieve a better waste mix, which made the incineration processes more efficient."

Which developments outside AVR played a role in 2020?

Rob: "The difficult recycling market. For example, we can separate plastic out of the waste, but we then struggle to shift it for recycling. As a result everything seizes up. The oil price was also low, and the import ban Asia introduced at the beginning of 2018 could still be felt. Many European countries do not have any recycling competence and still dump most of their waste into landfill sites, with major environmental damage as the result. We are waiting for European legislation that will make using recycled materials obligatory. The Netherlands can't do it alone."

How did AVR work on its strategic goals in 2020?

Yves: "We worked on AVR's operational excellence through the Koploper *(Frontrunner)* project. Our second strategic spearhead is guaranteeing the supply of waste through long-term contracts. In 2020 our contracts with Utrecht and Den Haag were extended, we are very happy about that, and we signed an amended contract with Renewi. This has given us stability for four to ten years. We also reduced our dependence on imported waste by decreased the volume from 450,000 to 150,000 tons a year. And we continued investing in sustainable technologies."
Rob: "In Rozenburg we are installing a new back pressure turbine, Turbine F. It will go into service in 2022 and will enable us to convert the steam we produce into heat and electricity even more efficiently. The Zuid-Holland heat network is expected to be extended further towards Den Haag and Leiden and Turbine F going into operation will make our supply of heat even more reliable. Flexibility is crucial when it comes to answering the demand for heat: who can supply heat when it is required? When this turbine goes into service AVR will have improved its position still further."
Yves: "We are also making great strides towards becoming CO_2 neutral. In 2020 we learned a lot from the CO_2 capture installation in Duiven. We're now planning a larger installation in Rozenburg. We want to use the captured CO_2 circularly as much as possible. In the long term being CO_2 neutral will give us our right to exist. It's vital. Thinking about the climate problems coming our way can, literally, keep me awake at night."

Is capturing CO_2 the only way AVR can reduce emissions?

Yves: "Yes. It's an unavoidable fact that one ton of waste causes one ton of CO_2 emissions. The only way AVR could reduce its CO_2 emissions is by reducing the amount of waste it processes. But processing waste is precisely what we are here to do."
Rob: "That's why we have questioned the logic of our sector being included in the CO_2 tax as of 1 January 2021. We prevent the unnecessary dumping of residual waste. Dumping is 10-times worse than incineration, so that's already an enormous environmental benefit. We also prevent CO_2 emissions by recovering energy and raw materials. The third gain is in CO_2 capture, which we do with our installation. However, the prime reason for the CO_2 tax is political and the politicians have decided our sector must participate. So that's what we will do."

How did the CO_2 capture go in 2020?

Yves: "Our plant captured 31,000 tons of CO_2. That's a good start, but we had teething problems which meant the CO_2 capture was not at the full design capacity. The technical issues have been solved, so we anticipate a substantial improvement in 2021. Innovation remains essential. That includes aftercare and that aftercare has once again taught us a lot."

In 2020 was the focus primarily on innovation aftercare or was there also something in the pipeline?

Rob: "Attention was also paid to improving and expanding the post-separation plant. And we made great strides on the digital front. We are investigating ways our organisation can make better use of our data. And we're going to use robotisation, especially in repetitive

administrative processes – that's not the most interesting work for our people and robotisation will reduce the chances of errors. Automation can also play a role in waste scanning and mixing."

The tax on imported waste went into effect at the beginning of 2020. What are the consequences?

Yves: "Waste we don't import is landfilled (in the country of origin), which emits 10 times as much CO_2. And CO_2 doesn't recognise national borders. AVR converts imported waste into energy, so we think the import tax is nonsensical. As a sector we are discussing this with the State Secretary for Infrastructure and Water Management."

Rob: "The waste sector is hit from several different directions: the waste import tax, the waste tax on Dutch waste and the CO_2 tax. Yet we are a crucial component of the circular economy. How seriously do the authorities take that if this is how they treat our industry? We would like to see some more nuance and understanding."

Yves: "If we can increase cost prices and can recycle more, fine. But fighting with different weapons in different arenas without a level playing field is not good management. The CO_2 tax stimulates everyone to do something for the environment, but the import tax doesn't make sense. All it does is make it more difficult for us to invest in sustainable technology."

Is further investment still feasible?

Yves: "Definitely. We are convinced of our capabilities and our right to exist. We will survive the short-term by sticking to our long-term strategy. We want to be able to look people in our surrounding area directly in the eye and contribute towards a good living environment. That is why we will go on submitting proposals for investment in the environment, people, safety and stable operations to our regulators. We are in a good position to do this. In the final analysis we have always been right, including from an environmental perspective."

Rob: "It does also present some dilemmas. For example, our post-separation of household waste makes us a gateway to recycling. We are currently investigating whether we can separate more streams. That will mean we incinerate less, but get more income from it. But, as we have said, AVR wants to be a full partner in the circular economy and our knowledge and skills are also valuable. We would invest more is there was a healthy recycling market. That is really a dilemma. In the meantime AVR will continue to be a pioneer and to invest in the long term."

So, a powerful vision of the future and good results means two satisfied Directors?

Yves: "Certainly. And that's mainly thanks to our people, of whom we have asked a lot. We are very grateful to them. They have been awarded a corona bonus for their efforts and dedication. We were also lucky that being in a vital sector meant we could continue working."

Rob: "That's why we also looked 'over the bridge' at others who were badly affected by the corona virus. AVR donated a goodly amount to Hotspot Hutspot in Rotterdam. This organisation delivers meals to the less fortunate and, at the same time, helps people find opportunities in the labour market. This is broader than our existing Perfect Days charitable activity. We want to continue this in 2021. It will show the social aspect that is a component of our sustainability side. We're enthusiastic about it and we hope the same applies for our employees."

Number of employees
(in fte's)

461

+6

2019: 455

Safety
(IF-rate)

2.4

-0.6

2019: 3

Sick leave
(percentage)

5.5

+0.1

2019: 5.4

EBITDA
(in € mln)

138.5

+5.7

2019: 132.8

Net result
(in € mln)

36.1

-1.8

2019: 37.9

Quantity of waste processed
(kton)

+115

Household waste	886
Commercial waste	561
Hazardous waste	92
Imported waste	155
Subtotal residual waste for energy plant	**1,694**
Biomass: waste wood	143
Biomass: paper pulp	152
Waste water	280
Total processed residual waste	**2,269**

2,269

2019: 2,154

Total energy output
(PJ)

8.3

+0.2

2019: 8.1

Converted into the number of household equivalents to which we supply energy
(households)

157,000

+6,000

2019: 151,000

CO_2 emissions
(kton)

2,266

-1

2019: 2,267

AVR's year in a nutshell

March 2020

AVR supports charities through Perfect Days

A Perfect Day is a day with no incidents or contraventions, a day on which work is carried out safely and the production units meet their targets. Every time we have a Perfect Day we put € 100 in the savings pot for donation to a charity. Charities are nominated by AVR colleagues who then hand over the donation if one of 'their' charities is chosen. At the beginning of the corona crisis four AVR Rozenburg colleagues handed over money they had collected to the Food Bank. They suggested this good cause for the Perfect Days. The initiative was also shared within AVR and employees gave very generously. The Management decided to double the Perfect Days-amount and in March the Food Banks in Rozenburg and Zevenaar (by Duiven) received € 6,275.

March 2020

Utrecht once again makes a long-term choice for AVR

AVR will continue processing the household residual waste from the municipalities in the province of Utrecht. AVR won the tender in collaboration with Attero in Wijster. The contract includes the storage and transhipment of residual waste at our Utrecht transfer station. A portion of this residual waste goes to our post-separation plant where the plastics and drinks cartons are extracted for recycling.

April 2020

Renovation of the Utrecht transfer station (OSSU)

The transfer station in Utrecht (OSSU) is where the waste from Utrecht is stored and transhipped. A new contract was signed for this in March. AVR is modernising the facility and working method: We are making transhipping simpler and faster and switching from containers (and compressors) to the shipping of loose waste. This will save time and maintenance and be less susceptible to malfunctions. As this has meant a refurbishment we decided that, while we were at it, we would also update the office, the washroom/changing room and the canteen. The renovated site will go into service in 2021.

April 2020

Tulip campaign

The corona pandemic measures meant mountains of flowers intended for export had to be thrown away. At the same time we were extra proud of the flexibility and commitment being shown by our AVR people. Because our company is a crucial component in the chain its activities could not stop. As a little extra 'thank you' for carrying on working all our employees and contractors received tulips. This also meant the grower's flowers weren't simply thrown away. A clear win-win situation.

May 2020

AVR contributes towards The Ocean Cleanup

A gigantic plastic soup containing around 1,800 billion pieces of rubbish is floating around in the Pacific Ocean. As an 18year old student Boyan Slat developed an enormous plastic scoop. Towards this end he founded The Ocean Cleanup. AVR has made its Rozenburg facility available to The Ocean Cleanup for the analysis of waste collected from the 'soup' before it goes to recycling companies and research institutions. The Ocean Cleanup has caused a global sensation due to its innovative and large-scale approach. We are delighted about this collaboration that dovetails perfectly with AVR's mission: to contribute towards a clean and sustainable world in which nothing is wasted.

April 2020

AVR processes hospital waste

A considerable increase in the volume of hospital waste was one consequence of the corona virus. AVR fulfilled its social role by processing dry corona waste from hospitals and thus preventing the disposal of this waste from stagnating. The waste concerned included aprons, face coverings, dry gloves, packaging and care materials. Before taking on this worthy task AVR carried out extensive investigations and consultations with hospitals, medical waste processor ZAVIN, the RIVM (*Ministry of Infrastructure and Water Management*), the Inspectorate for the Living Environment and Transport (IL&T) and the collectors, and then drew up, and followed, a stringent protocol to ensure the safety of AVR's employees was not jeopardised.

May 2020

From bottom ash to sports field

After residual waste has been incinerated what remains is bottom ash. When it has been cleansed this ash is used in various practical applications, such as the Duurzame Tegels (Sustainable Tiles) produced by Mineralz that have been laid in front of the entrance to our Building 2 in Duiven. A new application from Mineralz is a substitute for the lava stone used to underlay sports fields covered with artificial grass: FORZ®Fields. Bottom ash is also the main component of FORZ®Glaze – a glaze layer for ceramics. This glaze covers the tiles in the reception area of AVR's Rozenburg facility. AVR is always looking for more amazing applications.

AVR. ANNUAL REPORT 2020

June 2020

Project Koploper *(Frontrunner)*

The waste and energy markets are constantly changing. Consider, for example, legislation, international developments, the residual waste offering and customers' wishes and needs. This is reflected in our operational performance. AVR wants to remain a frontrunner and future-proof. Which is why we started the company-wide Koploper *(Frontrunner)* improvement project to enable us to be able to respond quickly to the constantly-changing market demand. AVR must be made future-proof. The starting point is the question: what can be improved? Experts have mapped out our working methods and advised us how we can do it better. We are drawing up a plan of approach covering virtually the entire AVR organisation: Koploper. This project will run until May 2021.

November 2020

Circular Economy Award for the Duiven facility

The InnoFase business park in Duiven, where one of the AVR facilities is located, has won the Circular Economy Award for the best circular work location in the Netherlands. This award is presented annually by the BT trade magazine. The jury was full of praise for the symbiosis between the heavy manufacturing industry, the perseverance of InnoFase, the sharing of knowledge and the importance of a straight administrative backbone. The other three nominees were Schiphol Trade Park at Schiphol Airport, the Laarberg business park in Groenlo and the Werkspoorkwartier business hub in Utrecht.

September 2020

Health Check

At AVR we want everyone to go to work every day with pleasure, with a positive dose of energy and in good health. In part due to corona, AVR offered all its employees a voluntary Health Check. The online questionnaire was filled-in by 230 AVR employees and over 180 colleagues completed the physical tests in the Simple Check health and safety service's bus. AVR was not shown any individual results, only general result reports pertaining to groups of at least 30 participants. A working group looked at which topics will be included in our 'Be Your Best' health policy.

December 2020

Hotspot Hutspot

The corona virus has put many people in dire straits and some cannot even afford a hot meal. AVR wants to make a social contribution, which is why we are supporting the Hotspot Hutspot Foundation. The Foundation provides Rotterdam residents who are in need with meals prepared from sustainable and regional seasonal products. Hotspot Hutspot is number 6 on the Duurzame 100 (Sustainable 100) list of green thinkers and doers. Delivering the meals creates an opportunity to break through social isolation. The enthusiastic initiator, Bob Richters, also wants to help people get their lives back on track. For example, one employee received driving lessons during the meal deliveries and as a result now has a driving license and a better chance of employment. AVR's donation of €25,000 has enabled Hotspot Hutspot to purchase a delivery van, catering fridges and the ingredients for 3,000 meals.

Profile, 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. AVR strives continuously to achieve the maximum recovery of energy, raw materials and other materials from this residual waste through effective, efficient and safe business operations. We ensure that plastics, drinks cartons, films and metals are recycled and minerals are used in (road) construction. And by incinerating the residue of the residue we supply sustainable 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 achievement of the Dutch and European goals related to climate and energy. And AVR does all this with residual waste that other people often think is worthless.

AVR has two facilities, in Duiven and Rozenburg, and four residual waste transfer stations in Den Haag, Utrecht and Rotterdam. The central location of these facilities is very advantageous for both the suppliers of residual 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 2020 AVR employed 466 people (461 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% sustainable. 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 the residual waste is still dumped as landfill instead of processed.

AVR makes an important contribution to 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 of 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 raw material efficiency and minimising the CO_2 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
- 2,269 ktonnes

People
- 466 people (461 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
- Licenses
- Legal framework

Our business activities

- Maximum value from residual waste in energy and raw materials
- Transhipment and transport via water of (household residual waste
- Conversion of waste into energy in the form of district heat, steam and electricity
- Reprocessing of incineration residues for recovery of metal and minerals
- Capture of harmful emissions
- Separation of plastics and drinks cartons
- CO_2 capture and supply to the greenhouse horticulture sector

Output

Energy
- Steam (1,3 PJ)
- Heat (5,4 PJ)
- Electricity (1,7 PJ)

Raw Materials
- Metals (2,5%)
- Minerals (22,8%)
- Plastics (26 kton)
- CO_2 (31 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 oppurtunities
- A safe and healthy working environment
- Promote sustainable employability

Material themes

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. We are a strong and solid company with economic relevance. We also make a significant social contribution by recovering raw materials for recycling and reuse from residual waste and thus forming a link in the circular economy. We convert the residual waste that would otherwise be dumped – the last residue of the residue – into energy and by so doing prevent the use of fossil fuels.

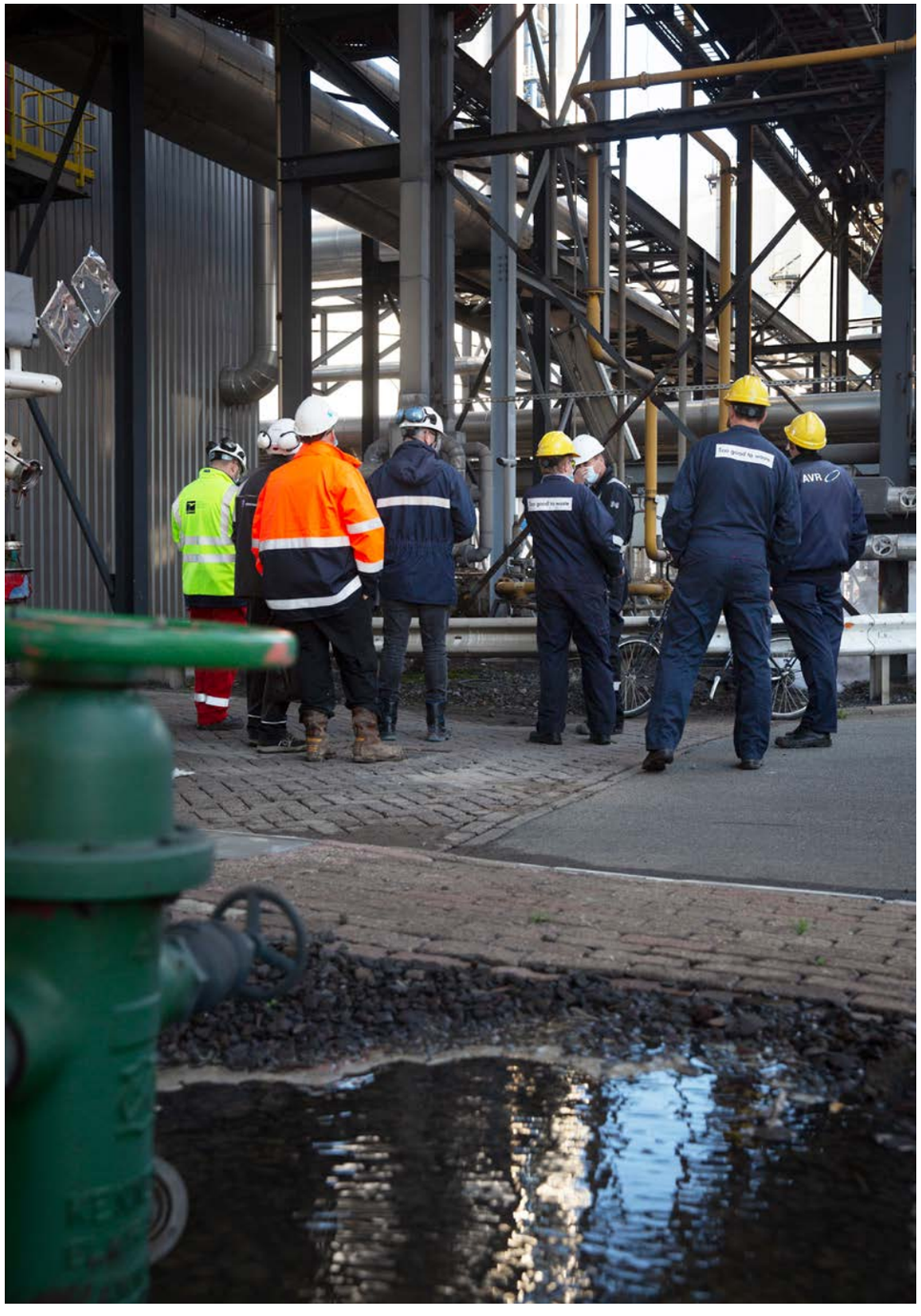
To provide more information about AVR's social results, since the end of 2016 we have been working on professionalising our reporting. In 2017 we took a first step towards an integrated Annual Report by gathering initial information via an internal stakeholders' dialogue. This information was used to determine our material themes and define important KPIs.

To enable us to carry out the stakeholder dialogue we identified and classified all the stakeholder groups. The five most important are:

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

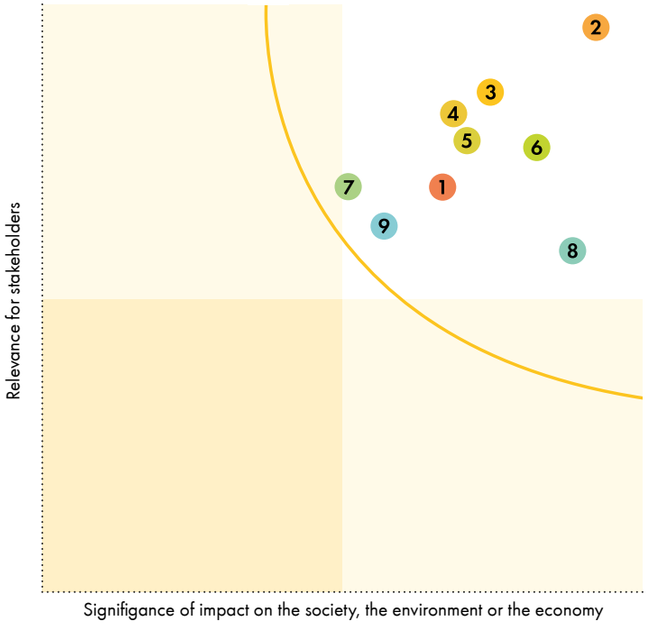
In 2019 we organised a stakeholders' day to also gather input from external stakeholders with which we could take the next step in our reporting. Delegations from all 10 of our stakeholder groups provided input regarding AVR's social contribution and impact and the themes they considered material. This information was used to determine new themes as was reported in AVR's Annual Report. Our Annual Report was also expanded to include Governance information.

Throughout 2020 our focus was on the internal processes under the material themes. As a component of the Koploper *(Frontrunner)* project (see section Sustainable employability, p. 76) we critically reviewed our reporting structure and KPIs. The aim was an improved embedding of the KPIs in our existing processes and the further professionalising of the management information regarding KPIs. This will be continued in 2021. AVR is reporting on the same material themes as in 2019. Our aim is to revalidate the material themes with our stakeholders in the near future.



Materiality matrix

Our material themes are shown in the materiality matrix. They are ranked in accordance with their relevance for the stakeholders and their importance for society, the environment and/or the economy.



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**

Material themes, goals and KPIs

The nine themes that are most material for our stakeholders have been linked to AVR's strategic goals. One or more KPIs have been specified per theme. The KPIs make AVR's impact on these themes measurable. Every year we assess whether these KPIs provide sufficient clarity regarding the effects or whether addition or adjustment is required. An adjustment has been made to the theme 'Other emissions'. In previous years we only reported qualitively, but in respect of 2020 we have also included the figures. The full overview is shown hereafter.

Material themes	Strategic goals	KPI
1. A safe working environment	• Continuation and improvement of our operational excellence • Promoting and guaranteeing a safe working environment	• IF rate • Number of Safety Observation Rounds (SOR)
2. CO_2 emissions	• Maximisation of energy and raw material efficiency and minimisation of our CO_2 footprint	• CO_2 emissions (in CO_2 equivalents) • Share of biogenic in CO_2 emissions • CO_2 emissions avoided through energy supply • CO_2 emissions avoided through recovery of raw materials
3. Innovations	• Long-term (residual) waste contracts • Maximisation of energy and raw material efficiency and minimisation of our CO_2 footprint • Continuation and improvement of our operational excellence • Growth	• Investments in innovation
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 CO_2 footprint	• Quantity / percentage of reclaimed separated raw materials
6. Renewable energy	• Maximisation of energy and raw material efficiency and minimisation of our CO_2 footprint	• Total volume of energy supplied – heat, electricity and steam • 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	• Nitrogen (NO_x) • Particulates
9. Financial stability	• Long-term (residual) waste contracts • Maximisation of energy and raw material efficiency and minimisation of our CO_2 footprint • Continuation and improvement of our operational excellence	• Revenue • EBITDA • EBIT • Net result • Cash flow • Cash position • Investments

A safe working environment

Safety first and foremost

AVR's sites operate 24/7. That means working in complex installations, which does at times involve risks. When all our employees and contractors know how to act in possibly dangerous situations we can work safely with the goal of everyone arriving back home safe and healthy after a day (or night) at work. This is why we put a lot of effort into safety and into doing our utmost to ensure everyone on our sites understands the importance of working safely.

IF-rate*

2.4 -0.6

2020: 2.4
2019: 3.0
2018: 1.6

Number of Safety Observation Rounds (SOR)

1,167 +91

2020: 1,167
2019: 1,076
2018: 1,160

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

AVR and corona

Operating in a vital sector meant that during the lock-downs in 2020 AVR carried on working, though not quite 'as usual'. To safeguard our continuity we reacted very quickly. One reason we could do this was that we were informed about the virus at a very early stage by our shareholder in Hong Kong.

When implementing measure our first concern was the health of our employees. Anyone who could work from home began to do so. But keeping our installations running 24/7 means people have to be physically present, so our people kept working on site but were provided with extra protective equipment: on the one hand to minimise the risk of them being infected by other people and, on the other hand, to minimise the risk of them infecting other people.

Shift work made it complex. One infection within a team meant the team before it and after it could also become infected and that jeopardised the continuity. We were ultra careful and decided to isolate groups of people who had to be in contact. The teams were split and the employees in these teams were not interchangeable. Interaction with external parties was reduced to the absolutely essential and our sites were only accessible to the people who worked there or who needed access for an urgent reason.

Our IT department had already rolled-out the Teams online communication tool in 2019. This allowed us to set up working from home very quickly. On our sites too Teams very quickly started being used for consultations, such as the start of the day meeting and other meetings.

KPI: Accidents

In 2020 the IF-rate fell to 2.4 (2019: 3.0). In 2020 there were three (2019: four) accidents that necessitated the employees involved taking one or more days sick leave to recover. In one accident hot flue ash got between an employee's glove and fire-resistant overalls. In another case a contractor missed the tread of a ladder and fell and broke his leg. The third accident involved an AVR employee getting salt water in his eyes when a valve squirted. These incidents were, naturally, investigated so measures could be implemented to prevent the same thing happening again.

KPI: Number of Safety Observation Rounds

Our target of a minimum of 900 Safety Observation Rounds (SOR) was amply exceeded - in 2020 1,167 SORs were completed (2019: 1,076). Extra attention was paid to the workplace because of the corona situation. Completing this large number of SORs was a great achievement in the year in which significantly fewer people were on-site due to working from home.

Safety leadership

In 2020 we reinforced AVR's safety culture still further by working on the safety leadership component of

our safety culture programme. One component of the Lean projects we have started in this context is the 5S-working method: sorteren, schikken, schoonmaken, standaardiseren en standhouden *(sort, arrange, clean, standardise and maintain)*. This has taken off in various departments at both facilities and has resulted in an improved overview of the working areas and a safer working environment being the norm.

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 there were 347 Toolbox meetings. This amply exceeded the target of 300. The Toolbox meetings are led by team leaders, shift foremen and department heads.

Dialogue

The safety dialogue is not limited to the Toolbox meetings. Maintaining the focus is especially important in this corona period. 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 safe working methods. These personal discussions increase employees' awareness of the need to work safely – for their own benefit and that of their colleagues – and of the importance of the corona measures. Through this dialogue we demonstrate that we, as AVR, 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. Since 2019 we have given every incident notification in the risk matrix a colour that indicates the urgency of taking action. Since this system was introduced the quality of the notifications has improved dramatically. This is due to the extra attention being paid to notification and in particular to the follow-up. Thanks to the implementation of corrective and preventative measures the number of repeated reports has fallen sharply.

Major Accident Hazards Decree

Our safety efforts are bearing fruit. Every year Inspectorate SZW *(Ministry of Social Affairs and Employment)*, DCMR *(regional environmental protection agency)* and the Veiligheidsregio *(Regional Safety)* inspect our facilities to ensure they are not causing any hazards to the surrounding area. This takes place in accordance with the guidelines of the Major Accident Hazards Decree (BRZO). Three topics are examined every year: fire safety, our efforts to prevent incidents and the risk studies we carry out. In previous years AVR has received written notifications of contraventions that we had to remedy, but in 2020 no contraventions were found. This result has been achieved by providing more training courses and additional attention from Production, Maintenance and the Safety, Health, Environment & Quality (SHEQ) department.

"Our employees want to understand our corona policy"

Patrick Vanrolleghem, Safety Coordinator, Rozenburg

"Corona is not actually a safety issue, it's a health issue. But as the Safety Coordinator I am the first point of contact. Keeping the virus outside our gates isn't easy. Our measures are agreed with our Legal department, with enforcement and certification bodies, and with our employees, suppliers and contractors. AVR must comply with the RIVM *(National Institute for Public Health and the Environment)* guidelines, but the measures must also fit AVR. There are some areas of conflict. For example, we have kept our canteen – which doesn't come under the catering industry – open. This means we can still offer our employees some refreshments – with the confidence that they respect social distancing. It's a case of balancing interests, but also of rolling with weekly changes and new insights. I'm frequently in contact with the RIVM to check things. And if anyone has symptoms all their contacts are checked. All in all it consumes energy, especially as it's on top of all the other safety issues we have to deal with. Corona is elusive and much is still unknown. That has to be translated to the organisation and then to the workplace. And there's more emotion there. The policy must be credible, people want to understand it. You have to include them in your considerations and ensure they understand why we have made certain choices. Employees can be critical and steadfast in their beliefs. That's normal in unsettled times like this. So I am proud and pleased when I see colleagues are coming up with their own initiatives and ideas and wanting to follow the rules as closely as possible within a policy that is so subject to change."

"As a vital company we really must prevent infections"

Fatma Durmaz, Receptionist Security, Rozenburg

"As well as answering the telephone I also greet people coming to the reception desk. Until March last year it was very busy. Now it is still busy, but in a different way. Fewer people come, but now they can only come in one at a time and we follow stringent corona measures. From the beginning in March 2020 everyone who has come in has had to disinfect their hands and wear a face covering. And, because we are a vital sector company and really must prevent infections, we also take everyone's temperature. Fortunately we have seen very few people with a raised temperature. I used to take the temperature on the forehead or wrist. But because that meant I had to get too near people we now have a camera that you have to stand in front of so it can take your temperature. Naturally in accordance with the applicable privacy rules.
I work behind a screen so I feel safe. I wash my hands frequently and clean the desk regularly. And I wear a face covering. That can sometimes feel a bit constricted and stuffy, but as Receptionist I'm the 'representative' of AVR, so I must set a good example. In the beginning I often had to remind people about the face covering. The reaction was always: 'O, sorry, of course!' We've never had a problem with it. And if someone doesn't have a face covering with them we have some ready on the desk.
It's important that everyone protects themselves and other people. I have a husband and three children at home – enough reasons to be careful."

CO_2 emissions

On the way to being energy neutral

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. That means this energy does not have to be generated by burning fossil fuels, so this is a sustainable way to produce energy: we prevent fossil CO_2 emissions. We capture as much of our own CO_2 as possible. Our goal is carbon neutral operation in 2050.

Total CO_2 emissions* (in CO_2 equivalents)
(kton)

2,266 -1

2020: 2,266
2019: 2,267
2018: 2,231

Share of biogenic in CO_2 emissions
(percentage)

58% -2

2020: 58%
2019: 60%
2018: 60%

CO_2 emissions avoided through supply of energy
(kton)

611 +27

2020: 611 kton
2019: 584 kton
2018: 608 kton

CO_2 emissions avoided through recovery of raw materials
(kton)

228 +42

2020: 228 kton
2019: 186 kton

* The reported CO_2 emissions are based on AVR's own process records for which, to date, there are no formalised guidelines or protocols per 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. From 2021 we will report in accordance with the new reporting and monitoring obligations.

Targets

In 2030 AVR wants to add no additional CO_2 to the atmosphere through the processing residual waste. By this we mean the following. A portion of the CO_2 released as a result of our processing is of fossil origin (long-cycle) and a portion is green (short-cycle). The processing of the green portion does not add new CO_2 to the atmosphere, but processing the fossil-based portion does. Elsewhere in the chain AVR prevents CO_2 emissions by supplying energy and raw materials, and we also capture CO_2 for reuse or storage. When the CO_2 emissions we prevent in the chain plus the CO_2 we capture adds up to more than the amount we release in the form of fossil-based CO_2, we are not emitting any additional CO_2.

Based on the volume of residual waste AVR currently processes, our target is to reduce our annual emissions by around 800 kton by 2030. For preference we want to achieve this by capturing CO_2 and applying it effectively, and by avoiding CO_2 emissions from our customers (chain emissions) by supplying them with energy and raw materials from our processes.

KPI: Total CO_2 emissions in 2020

Our CO_2 emission depends primarily on the quantity of residual waste we process. In 2020 our CO_2 equivalent emission amounted to a total of 2,266,000 tons (2019: 2,267,000 tons).

KPI: Share of biogenic in CO_2 emissions

A large portion of the residual waste AVR processes comes from biomass and comprises 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. We call the portion of this CO_2 that comes from biomass, biogenic CO_2. In 2020 the share of biogenic CO_2 was 58% (2019: 60%).

KPI: CO_2 emissions avoided through the supply of energy

We supply our surrounding area with process steam, district heat and electricity. We generate this by incinerating residual waste and waste biomass. This energy no longer has to be generated by burning fossil fuels, so we are preventing fossil fuel CO_2 emissions from our energy customers. We call this CO_2 emissions avoided in the chain. In 2020 AVR's supply of energy avoided the emission of 611,000 tons of CO_2 (2019: 584,000 tons).

KPI: CO_2 emissions avoided through the recovery of raw materials

AVR also avoids CO_2 emissions by recovering raw materials. We recover metals and minerals from the bottom ashes. We make TopCrete from the residue of paper sludge incineration. In our separation plant we sort plastics, metal and drinks cartons. We also extract CO_2 from our flue gasses. Read more about this in the Recycling (p. 62) section. The recovery of raw materials reduces the use of fossil resources that would otherwise be used. In 2020 AVR's recovery of raw materials prevented the emission of 228,060 tons of CO_2 (2019: 186,486 tons).

CO_2 equivalent avoided through the recycling of materials

		2020		2019	
Recycled material	**Replaces**	**Recycled volume (tons)**	**CO_2 equivalent (tons)**	**Recycled volume (tons)**	**CO_2 equivalent (tons)**
Metal Molybdenum	Ore	163	1,022	137	858
Minerals	Gravel	387,000	1,548	362,000	1,303
CO_2 applications	Natural gas (horticulture)	31,000	29,450	10,000	9,500
(Post collection) Separated plastics and drinks cartons	Oil	26,000	22,620	19,000	24,928
TopCrete	Cement	31,000	25,420	31,000	28,737
Ferrous metals	Ore	35,000	56,000	32,000	52,160
Non-ferrous metals	Ore	8,000	92,000	6,000	69,000
Contribution of recycling materials		**518,163**	**228,060**	**460,137**	**186,486**

Unplanned maintenance

Damage to a turbine at the Duiven facility meant several months of unplanned maintenance. As a result we could not always generate electricity in the most efficient way and this led to slightly higher CO_2 emissions.

Recovering even more

AVR is going to recover even more raw materials and generate even more energy. Concrete actions in this regard started in 2020 were the expansion of the turbine capacity in Rozenburg (see the section Innovation, p. 46) and the supply of steam to a neighbouring recycling company in Duiven (see the section Sustainable energy, p. 70). Gradually scaling-down the processing of (hazardous) waste water flows with high fossil CO_2 emissions is also being considered. One advantage is that AVR could use the released CO_2 capacity as an alternative to the forecast reduction due to the import tax on energy from waste plants. The Dutch government introduced this tax as part of its measures to implement the Urgenda ruling.

CO_2 capture in Duiven

2020 was the first full year of operation of our CO_2 capture plant in Duiven that went into service in September 2019. The CO_2 captured by this plant is re-used for practical applications, including in the greenhouse horticulture sector where it has meant gas-fired generators are no longer needed to produce CO_2 in the greenhouses. Some 'teething problems' resulted in our capture plant not achieving the production target. However, because the demands for CO_2 from its customers in the greenhouse horticulture sector were high during the growing season, and AVR wanted to answer these demands as far as possible, we waited until the winter to implement improvements in the production process.

Preparations for CO_2 capture in Rozenburg

The technical preparations for the large-scale capture and reuse of around 500,000 tons of CO_2 a year in Rozenburg did not stand still in 2020. However, the investment decision was delayed due to developments that were largely beyond AVR's sphere of influence. These developments included the introduction of a national CO_2 tax for our industry that specified the imposing of a fairly rigid reduction target on Energy-from-Waste plants. The CO_2 storage capacity (Porthos I) was also already fully booked. Finally, there was still no SDE++ subsidy for CO_2 re-use (*carbon capture and utilisation*, CCU).

We expect 2021 to bring more clarity in the situation and the (policy) scope to realise our ambitions. Towards this end AVR has established various external partnerships in the CO_2 storage and utilisation technology and transport field and is also working with industry peers. Support from the SDE++ is needed. Achieving such a project takes at least three years.

AVR and the CO_2 tax

The Climate Agreement signed in 2019 stipulates that by 2030 our sector – the waste processing industry – must have reduced its (fossil) CO_2 emissions by around 1.1 Mton. This means that, as a sector, we must reduce our total CO_2 emissions by 35% compared to the reference period of 2014-2018. In 2020 this target was included in the (tax) legislation with the levying of a CO_2 tax as of 1 January 2021. In 2020 AVR, together with its branch peers, provided considerable input in respect of this new legislation, including via consultations regarding its feasibility. AVR is in favour of a CO_2 tax and wants to make a contribution in this area. But, in our view and despite our efforts, the legislation has been set up in a way that limits our sector's action perspective.

The legislation in respect of our industry does not recognise either the reuse of CO_2 (CCU) in the greenhouse horticulture sector nor CO_2 savings in the chain through the supply of recovered energy and raw materials as CO_2 reduction: It only recognises storage (*carbon capture and storage*, CCS) and reduced incineration. But limiting our primary activities could lead to the leakage of CO_2 emissions to other countries, or to less efficient processing routes not covered by the tax.

We think it's a shame that CO_2 re-use is not seen as a reduction measure and that, as a result, there will be a focus on the permanent storage of CO_2. AVR does see good possibilities for the Rozenburg facility in storage in depleted offshore gas fields, but then misses the recognition of the negative emissions. When an energy-from-waste plant captures and stores 1 ton of CO_2 this comprises 1/3 fossil-based CO_2 and 2/3 biogenic CO_2. Currently the biogenic portion does not count as a reduction in respect of the industry levy. In other words: for the Dutch waste incineration sector to reduce CO_2 emissions by 1.1 Mton a total of around 3 Mton must be stored or avoided.

The government has delayed the impact of the measure in the early years by means of a raised free foot (dispensation right). The Dutch Emissions Authority (NEA) is responsible for the implementation. Companies that come under the obligatory CO_2 emission trade (EU-ETS) can utilise the existing monitoring and reporting. A new monitoring and reporting obligation is applicable for the energy-from-waste plants. This increases the administrative pressure for our sector. The CO_2 emission will be determined on the basis of a standard CO_2 emission factor and share of the biogenic per waste stream. We expect that as of 2021 our reported CO_2 emissions will also deviate from the figures we currently report, which are based on measured chimney emissions.

Collaborations

In 2020 AVR worked very closely with TNO, TPI and AirLiquide on optimising the CO_2 capture process. We are also collaborating with various parties to enable us to install a large-scale capture installation at the Rozenburg facility in the near future. One of our cooperation partners is OCAP – a company that supplies CO_2 to growers in the horticulture sector.

In addition, a number of confidential investigations into the use of CO_2 as a raw material in products are on-going, including our fly ash pilot (see the section Recycling, p. 62).

From the CO_2 Performance Ladder to ISO 50001

Until a short while ago AVR used the CO_2 Performance Ladder to monitor and reduce its CO_2 emissions. This ladder is aimed primarily at emissions from offices and vehicles. Because this was not sufficiently in line with our activities we have switched to ISO 50001. This also fits within the application of other ISO standards on the basis of which we monitor and report (ISO 14001 for the environment, ISO 9001 for quality and ISO 45001 for safety).

With ISO 50001 we want to systematically monitor, improve and maintain our energy housekeeping. ISO 50001 takes account of the latest insights, such as the BREF Waste Treatment. AVR voluntarily manages, assesses and evaluates the progress of its energy management in accordance with this ISO standard. This also makes our energy management transparent for stakeholders, such as customers and environmental services.

The application of ISO 50001 is helping us achieve two strategic goals – improving our operational excellence and minimising our CO_2 footprint and negative environmental impact by maximising our energy and raw material efficiency.

"It is utopian to think you press a button and it happens"

Rients Gercama, Process Operator, and Anne Galama, LCO_2 Construction Manager, Duiven

Rients: "The CO_2 capture plant in Duiven went into service in 2019 and we then used 2020 to make the installation AVR's own and reliable. On paper CO_2 capture looks like a simple process – we capture the CO_2 from flue gasses then cool it so it becomes liquid. For AVR that's like turning the world upside down because what we do is produce heat and steam. This is a new technology for us. And the practice proved rather more 'unruly' than the theory. It's utopian to think you buy an installation and then just press a button and it works. In fact production lagged behind and the cooling water became contaminated. So we started looking for practical solutions to make the installation more robust."

Anne: "As the Construction Manager I was involved in the building of the installation, so I understood the principle. When you scrub the flue gasses from incineration you bind the captured CO_2 to chemicals. CO_2 starts as a gas and has to be cooled to -30 degrees Celcius so it becomes a liquid that is transported to the horticulturalists in trucks. As they only need the liquid CO_2 in the spring and summer the capture plant is switched off during the autumn and winter. During the season we collected and examined a lot of data: this is what we saw, what caused it? We investigated what the installation actually should have done, when a signal did not come through, for example. We set to work like detectives."

Rients: "We also transfer our knowledge of the plant to the 45 operators who work with it."

Anne: "Yes, and they are used to solving a problem within a single shift. But when it comes to the capture plant they have to let the automation get on and do its job. We train them so they understand that they must not interfere with the cooling process but must leave the installation to switch itself."

Anne: "Working with Rients is great – we are an extension of each other. He is a very experienced operator and makes good observations. Between us we have been able to explain the theory. In March 2021 the installation will be switched on again and we can pass on more knowledge and tricks to the operators."

Rients: "Everyone at AVR is convinced that this installation gives us a future. The teething problems have been dealt with. I think 2021 is going to be a good year."

"Getting such a licence organised in a short time is a nice challenge"

Hans Wassenaar, Senior Project Manager Energy & Residues, Duiven

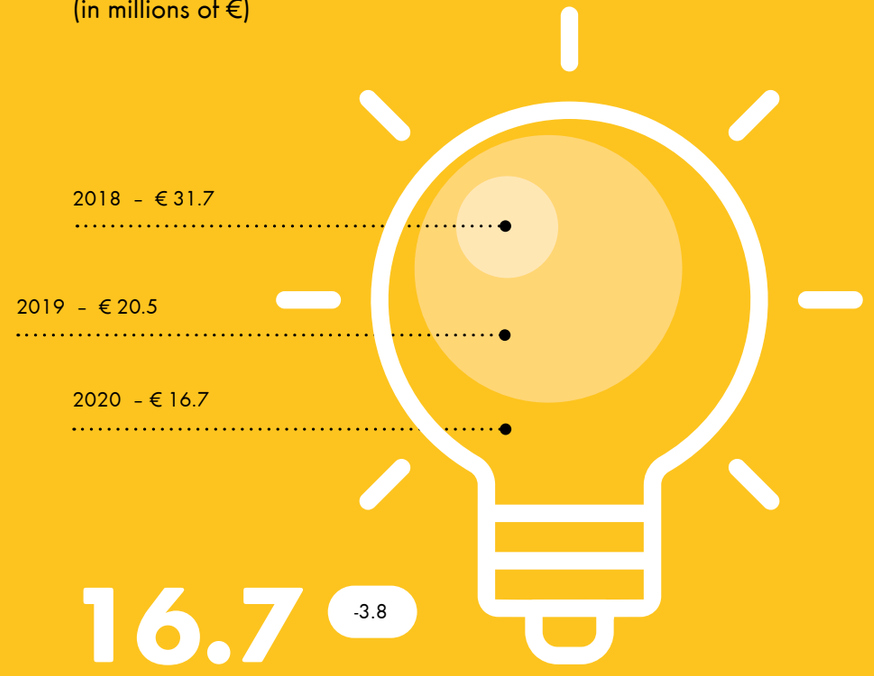
"In May the Dutch Emissions Authority asked us to apply, before 1 August 2020, for a licence to be covered by the European Emissions Trading Act. For us this was something totally new, previously it only applied to the large chemical industry companies and electricity plants. You are not granted that licence as a matter of course, but we achieved it. And this has also given us a basis for the CO_2 levy for the sector that went into force at the beginning of 2021. Previously our facilities were seen as one entity, but when the Environmental Act goes into force, the installations will be looked at individually. The biomass energy plant in Rozenburg and the thermal-conversion installation in Duiven come under this Act and we worked closely together on this puzzle. We had to demonstrate everything, and that led to more new questions. Then there was a mountain of European legislation and regulations to plough through. We handed that task over to a good external party.
The licence also gives us something. You have to buy emission rights for CO_2 emissions. But the emissions from our plants contain hardly any fossil CO_2 –they are mainly green CO_2 emissions which don't count in the emission trading. And because we supply heat and steam we get free rights. Getting something like this done so quickly is very satisfying. I enjoy switching between regulations, technology and finance. There are times when it is like a waterbed: press one bit down and another bit somewhere else goes up. Then you have to keep the overall picture in sight. A nice challenge."

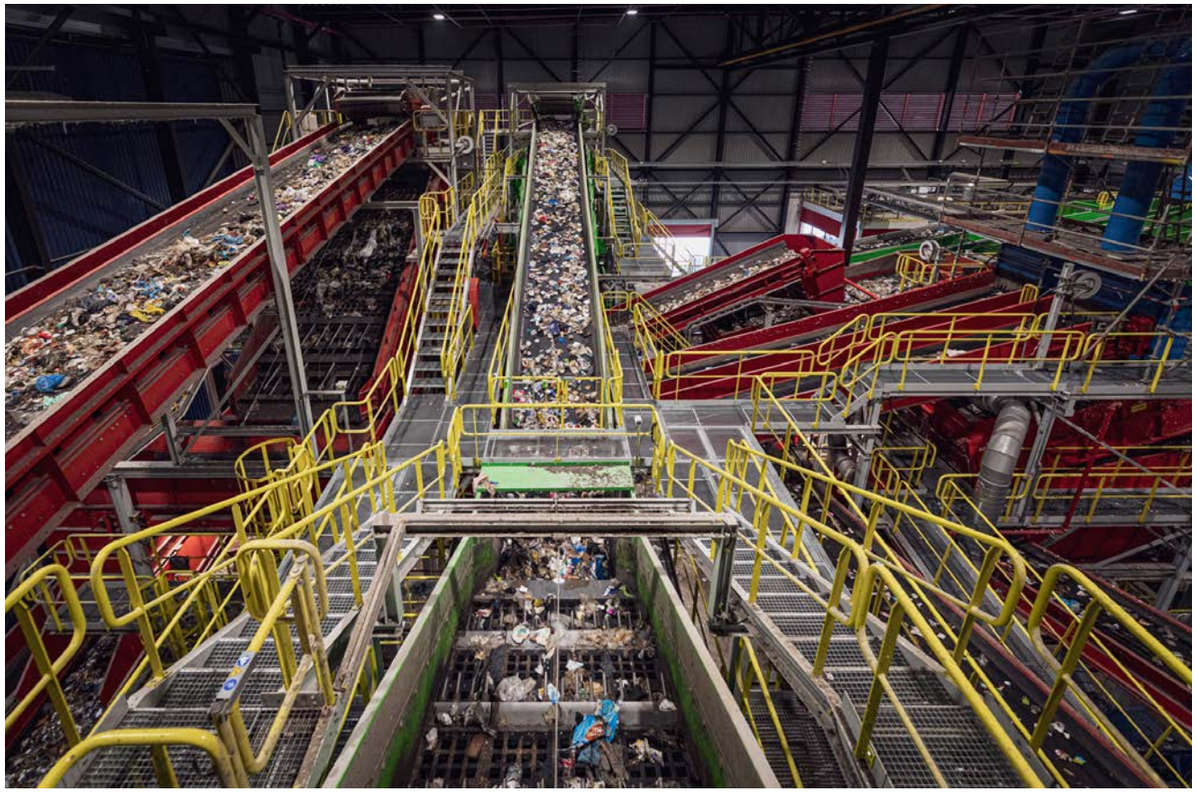
Innovation

With the future in mind

AVR's goal is to recover as much raw material as possible from residual waste and to generate as much sustainable energy as possible by processing what remains: the residue of the residue. If we want to do this properly we must maintain a constant focus on innovation. That means investing in plant and equipment to make them more sustainable and more efficient as well as investing in the application of digital technologies in order to raise our processes to a higher level.

Investments in innovation (strategic projects and ICT)
(in millions of €)





The results of investments in innovation

By innovation we mean our work on new projects and activities that help us achieve our goals. In our view innovation also includes the optimisation and improvement of existing technologies and processes. In 2019 and the preceding years we made large investments in new plant and innovative technologies. In 2020 AVR did not make any new large investments in innovative factories but instead focused on fine-tuning earlier investments and/or improving their performance. This enabled us to increase the efficiency of and the returns from the plastics and drinks cartons separation plant as well as the plant that captures CO_2 from our flue gasses.

Our investment in the CO_2 capture plant in Duiven may be followed by a larger version in Rozenburg. During 2020 we worked hard on the preparations and this work will be completed in 2021. In parallel to this AVR has been involved in studies of new, practical, ways to utilise CO_2 and to store it. See the section CO_2-emissions, p. 36.

Thanks to process optimisation the output of the post-separation plant has been improved and a second vibrating screen has been added. This has improved post separation because the plant can screen out more organic material. More information about the separation plant can be found under the theme Recycling, p. 62.

New back-pressure steam turbine

In 2020 AVR took the definite decision to install a new back-pressure steam turbine (TG-F) at its Rozenburg facility. This investment will make our electricity, process steam and district heating generation more flexible and more efficient. By enabling us to extract even more energy out of the residual waste it will also enable us to reduce our CO_2 footprint even further. At full power the new turbine will be able to meet the annual electricity demand of 60,000 households while, at the same time, supplying heat to 100,000 households. In the event of a calamity the plant can also operate in 'island mode'. This increases reliability.

Research into the use of fly ash

In 2020 we investigated the binding of fly ash and CO_2 to create 'gravel granules' that can be used in concrete (see what Simon Frans de Vries says about this, p. 52).

Hydrogen research

AVR, together with Deltalinqs, TNO and Tronox, has carried out a study into the feasibility of producing 'green' hydrogen by electrolysis – splitting water molecules into hydrogen and oxygen. For AVR green hydrogen could serve as a storage medium for reclaimed energy or as a transport fuel. We see possibilities for hydrogen-fuelled lorries to transport the waste. In addition, the (by) products – oxygen and residual heat – can be usefully applied in existing processes. The decision regarding building an installation will depend on whether the unprofitable top – the difference in the cost price of green hydrogen versus a fossil alternative – can be reduced.

Investments in digitalisation and ICT upgrading

In 2020 AVR took major steps in digital transformation. New ICT applications have taken us far further.

Working from home with Teams

AVR was digitally totally prepared for the challenges of the COVID-19 pandemic. Employees whose function allowed it switched to working from home without any disruption. The fact that we were already using Office 365 meant that in March 2020 we could immediately start working together via Teams. The AVR network had also been renewed and a safe environment created.

Data centre

Our data centre's infrastructure has been replaced with new hyper-converged hardware (a system that links and visualises different components) This has

made management much easier and more efficient. The upgrade incorporated a solution that, in the event of the total failure of a facility, switches over to a fallback location with minimal disruption and without loss of data.

Robotic Process Automation
Transactions can be processed faster and cheaper by using Robotic Process Automation (RPA) to automate actions across different applications. A 'digital robot' takes over repetitive tasks, such as inputting data, and can keep doing it 24/7. This allows our employees to work more efficiently and on more interesting tasks. It also shortens the throughput time of standard procedures.

Ultimo mobile
In previous years AVR implemented the basis of Ultimo to support the maintenance processes and provide insight into the cost development. In 2020 Ultimo was extended with extra functionality, including for issuing work permits and updating the logbook. Now there is also support for inspections via a mobile device. New assignments can be created immediately and on the spot. Photos for documentation can also be input digitally.

Waste acceptance
A mobile solution that digitally supports the waste acceptance process has been constructed in cooperation with the Logistics department. This has made filling-in lists by hand and consulting with customers via the telephone things of the past. Contractual agreements are included as clear criteria and deviations can be documented and reported on the spot. This must lead to an improved quality of the product we incinerate and, therefore, to fewer disruptions to our primary process.

Telemetry
Reading-out the status and metered values of our plants and equipment via a wired solution is financially not feasible. The LoRaWan wireless communication technology enables us to read more devices and acquire more information automatically. We have implemented LoRaWan on a small scale and are investigating the further roll-out.

Human resources (HR)
The HR processes for National Wage Increases, Evaluation & Employability and E-HR Mutations have been digitised with good results. Productivity, quality and service levels have all improved and the personal availability of HR employees has increased. In addition, throughput time has shortened and the administrative burden for the entire organisation has decreased. Finally, costs and waste have been reduced.

"Making a new product from fly ash is exciting"

Simon Frans de Vries, Manager Residues & Project Manager

"Incineration produces flue gasses, which we scrub. We also capture fly ash – a contaminated substance that is dumped. Even if this material only comprises around 1% or 2% of our throughput, we would still like to put it to good use. In 2000 or thereabouts the Carbon8 company based in Kent in the UK found a way to use CO_2 to bind the harmful substances in fly ash. With sand, cement and water you can make it into granules that have the same properties as gravel. Together with a concrete specialist we have tested whether these granules can replace the gravel in concrete. Here at AVR we spent eight weeks producing tens of tons of material using different 'recipes' for granules. Our concrete expert partner is now examining the properties of all these samples and researching which concrete products could be manufactured using them. It's exciting. The material must be long-lasting and the salts and metals must not leak out. If the experiment succeeds we will kill three birds with one stone: we will prevent dumping, we will store CO_2 and we will prevent the excavation of new gravel.
I am AVR's link between the technical implementation and the commercial result. That fits nicely with my industrial design background. I work intensively with many different parties and with colleagues within AVR. That is very enjoyable and challenging. Both technically and socially it all revolves around finding the right mix. Just like the product we are making."

Reliability

Long-term continuity
AVR must be a reliable partner for its customers. They want to be able to count on being able to deliver waste to us or receive energy from us with the minimum possible disruptions. AVR's reliability is dependant on two factors: the availability of our plant and the reliability of our supply of steam, heat and electricity. The quality of our service also plays a major role as does the way we communicate with our customers.

Availability of the incinerators (AVR-wide)

91.2% +0.5%

2020: 91.2%
2019: 90.7%
2018: 92.3%

Reliability of the heat and steam supply

99.6% +1.9%

2020: 99.6%
2019: 97.7%
2018: 97.2%

Definition

The reliability of our energy provision is closely related to the availability of our plant and equipment. These are themes we work on every day with the aim of achieving long-term continuity. Investment is one of the paths we take to achieve future-proof waste processing and a very reliable energy and raw material supply.

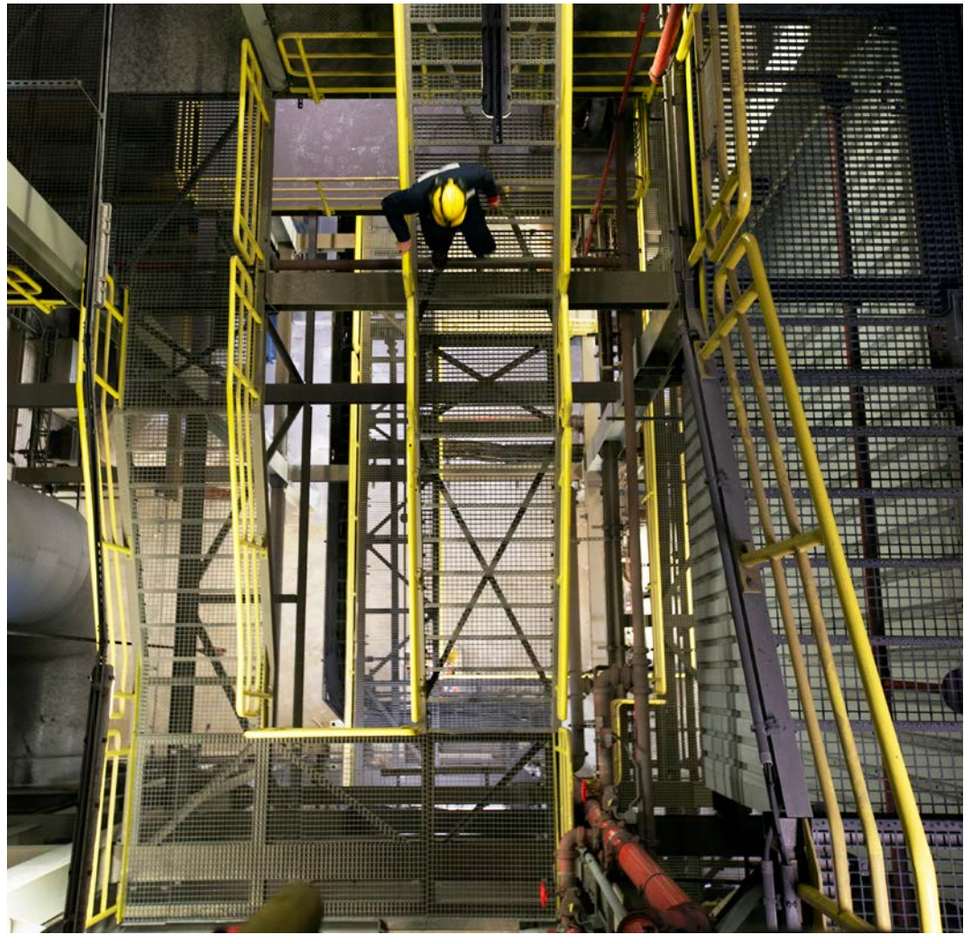
Availability of the incinerators

AVR strives to maintain as high an availability of its factories as possible, taking into account carrying out scheduled maintenance. We plan maintenance in such a way that not too many incinerators are out of action at the same time. We also prevent processing disruptions by ensuring we keep a reasonable stock of residual waste on site. In 2020 we achieved 91.2% plant availability.

Employee availability also plays a key role in our ability to keep our facilities running. The corona situation made this an especially important topic in 2020. The implementation of stringent measures enabled us to minimise the risk of employee absenteeism (see the theme A safe working environment, p. 26).

In 2020, as in 2019, the continuity of waste processing was an important theme, but this time for different reasons. The corona virus situation caused a shift in our portfolio: more household waste and less commercial waste. The composition of the waste forced us to make adjustments to the process. It took a lot of work to adapt the incinerators to this offering and thus minimise downtime. Slag formation was one of the problems we faced. AVR worked in various ways to maximise incinerator availability. In Rozenburg we improved the production organisation, optimised the incineration processes and worked through a programme to tackle the top six culprits that lead to lower reliability. In 2021 we will continue increasing the throughput and availability of our facilities.

Despite the challenges, in Rozenburg the incinerator availability was above target and the throughput of residual waste was far higher than in the preceding years. These achievements were the result of an improvement programme we started in 2019 and that will continue until 2023. Our processes and organisation now work in accordance with the Lean method. In 2020 we also began reaping the benefits of the Koploper



(Frontrunner) project (see the theme Sustainable employability, p. 76), especially in respect of the collaboration and consultation structure. One result of this is that we were able to match the record throughput we achieved in 2016.

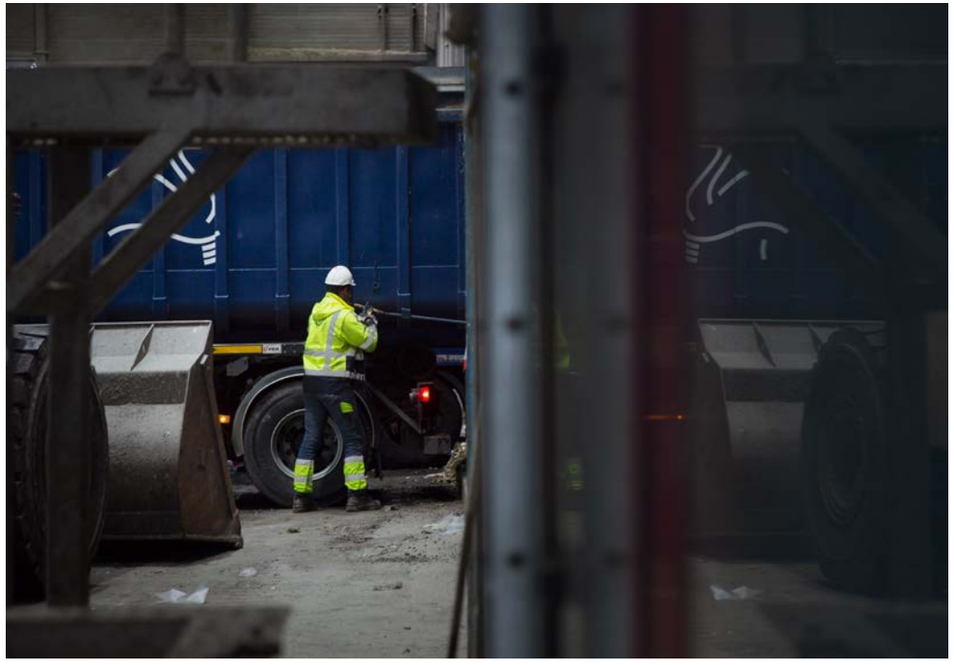
The availability in Duiven was lower in 2020. In 2019 we decided to lengthen the interval between major maintenance stops from one year to two years. In 2020 it became apparent that a number of systems in Duiven could not bridge this interval with sufficient

reliability. This resulted in unscheduled downtime. Good problem analysis and adjustments enabled the causes to be removed so the systems can now remain in operation for longer.

In 2020 the post-separation plant in Rozenburg, in which we had invested heavily, proved less reliable than expected due to a number of 'teething problems' that became apparent when it went into service. In 2020 we worked hard to improve the performance further. Operating processes and consultation were also improved and maintenance was intensified. In December 2020 we saw the first positive results of these efforts. We anticipate achieving good results in 2021.

In the thermal conversion plant in Duiven we process the residues that remain after paper recycling. In 2020 the availability of the plant was high, but the offering of pulp was erratic due to the corona situation. This made regular adjustment of the production schedule necessary. The production of TopCrete, which serves as a replacement for cement (see the theme Recycling, p. 62), fell due to the change in pulp composition as a result of the pandemic: packaging cardboard took the place of glossy paper.

In most cases the maintenance stops at both facilities went well and were completed within the budgeted time, with due observance of the prescribed corona measures. That did involve extra coordination for the hundreds of employees of outside companies. To enable compliance with the 1.5 metre social distance rule AVR organised additional catering, washing and changing room facilities. There was also more supervision, we had rapid test kits available in case of symptoms and the temperature of everyone was taken at the gate before they were allowed on site.



KPI: Reliability of the heat and steam supply

In 2020 the reliability of the heat and steam supply to our energy customers was a high 99.6%.

In 2020 AVR was able to meet customer demand for district heating effectively from Duiven: there were no interruptions to the supply of heat to the city. As the new CO_2 plant has limited storage capacity, coordinating the plant's production with our customer's demands required attention. Although in 2020 AVR was able to meet most of the demand for CO_2, keeping the plant producing at maximum capacity continuously was still not possible and on several occasions our customer had to find alternative sources.

Contracts

Long-term contracts give AVR assurance regarding the supply of residual waste and give the municipalities and companies a guarantee that we will continue to process their residual waste for a number of years. At the same time, long-term contracts for the supply of heat and steam are important for both AVR and for customers who want to be able to rely on their energy supply. Contracts, therefore, have a major impact on our availability and reliability figures.

In 2020 we concluded various contracts for the processing of residual waste including a new contract for the processing of the household waste from all the municipalities in the province of Utrecht. This contract will start in 2021 and will run for six to ten years.

AVR also signed new energy supply contracts in 2020. One of these contracts is for the supply of steam to a neighbouring recycling company.

Communications

We keep in contact with our customers regarding the energy production via our 24/7 Energy Desk. In 2020 we made this Energy Desk even more professional. Firstly by changing its place within our organisation. Previously the Deck was staffed by one employee per shift. Now the Energy Desk comes under Production and the working method has been streamlined so there are more direct lines to the customers. In 2021 we will amend the Energy Desk staffing: it will still be available to our customers 24/7, but some of the activities will be transferred to the day shift.

"The world is not turned upside down"

Vincent de Bruin, Maintenance Technician, Rozenburg

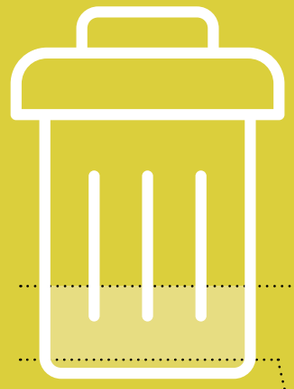
"I joined AVR three years ago as a Maintenance Technician in the Mechanical department. I like it here. I work in a shift and the outbreak of the COVID-19 pandemic in March last year has meant a lot of changes. As a company we have had to keep operating, so the teams have had to be protected as much as possible. That's why the all the shift teams have been split into two halves which never come in contact with each other. At the end of the shift my half of the team goes out of the gate first so we never come in contact with the other half team. This ensures that if someone does become infected the entire shift doesn't drop out. I am now the leader of my half of the team.

For the rest it's pretty much business as usual. Our job involves contact with others, we cannot keep our distance in the workplace, but everything that doesn't have to be 'live' happens via Teams. The start of shift meeting, for example, now takes place online. That took a bit of getting used to, but it works well. And now we don't enter the Production department – we do everything by telephone.
It's more boring, because now there is far less contact with each other. Sometime you can have a socially distanced chat in the airpark. But apart from that it's fine. The world is not turned upside down and we are all getting along well with each other. We will get through this."

Recycling

Recovering and re-using

Residual waste is very valuable -it contains raw materials that can be re-used. That prevents new raw materials having to be extracted and it eliminates the emission of harmful greenhouse gasses. By recovering or separating the maximum possible re-usable materials from the residual waste AVR forms an important link in the transition to a circular economy.



Quantity of recovered or separated raw materials

Minerals
(as a % of the quantity of waste)

22.8 =

2020: 22.8%
2019: 22.8%
2018: 22.9%

TopCrete
(kton)

31 =

2020: 31 kton
2019: 31 kton
2018: 40 kton

Metals
(as a % of the quantity of waste)

2,5 +0.1%

2020: 2.5%
2019: 2.4%*
2018: 2.4%

Bottom ash
(as a % of the quantity of waste)

27,7 =

2020: 27.7%
2019: 27.7%
2018: 26.8%

Molybdenum
(ton)

163 +26

2020: 163 ton
2019: 137 ton
2018: 171 ton

Plastics
(kton)

26 +7

2020: 26 kton
2019: 19 kton
2018: 1 kton

CO_2 applications
(ton)

31 +21

2020: 31 ton
2019: 10 ton
2018: n.a.

* The figure for the percentage of metals in 2019 was not known until mid 2020. The figure has been adjusted in this Annual Report.

Preventing emissions

Recycling raw materials and other materials means sustainability gains in a number of areas. It prevents the use of (fossil) raw materials for extraction or production and it avoids CO_2 emissions. 2019 was the first year AVR measured the quantity of CO_2 emissions thus avoided. It added up to 186,486 tons. In 2020 it was 228,060 tons. For more information see the section CO_2 emission, p. 36.

Separation plant

KPIs separation	2020	2019
Volume of throughput (kton)	415	304
Volume of output (kton)	25.5	19.2

Our separation plant sorts plastics, foils and drinks cartons from residual household waste supplied by municipal customers. The mechanical separation of residual waste results in streams that can actually be recycled. Because there are fewer contaminants than when the waste is separated at source, the quality of the separated streams is higher and more stable. The separation plant also enables the separation of residual waste from residential areas in which separation at source is impossible, for example due to a lack of space.

In 2019 a second separation line went into service. This increased the throughput and separated stream volumes: AVR separated a total of 415 kton of residual household waste. This led to nearly 25.5 kton of separated plastics, and up to 1 September 2020 also drinks cartons.

The corona crisis has had a significant impact on the plastic recycling market. The lockdown from March 2020 in particular led to a stagnating chain because an increasing offering of plastic waste from households was coupled with a declining demand for plastic recyclate. The result was insufficient recycling capacity for both at source and separated plastics. AVR was forced to store temporarily some of the separated plastics and drinks cartons and incinerate a limited quantity. The Ministry of Infrastructure and the Environment had introduced a national disaster scheme for this purpose. After this ended on 1 September there was still no recycling capacity available for drinks cartons. This is why between that date and the beginning of 2021 we stopped separating these cartons.

Previously all the 3D-plastics (hard plastics, primarily PET, HDPE and PP) went to a German sorter, but in 2020 we transported a portion to a Dutch company that sorts this mix into high-quality mono-streams. The separation takes place with the help of an innovative technology (magnetic sedimentation) that results in a higher recycling percentage of the 3D fraction. Our goal is to have the entire volume of 3D plastics sorted and recycled in the Netherlands from 2021.

Operational improvements to the separation plant were also a dominant focus in 2020. The processes, systems and organisation were reviewed. We also organised the cleaning stops and short maintenance stops more efficiently and improved and expanded the process management. One of the results was the recovery of more foils. In November 2020 a second vibrating screen was added to the first separation line. The structure of the two lines is now identical and the separation plant can now remove more organic material. This has improved the volume and purity of the recovered plastics and drinks cartons. We expect the positive effect on the separation percentage to become apparent in 2021.

On 1 January 2020 AVR welcomed a number of new separation plant customers: several member municipalities of the Public Body Waste Removal Zeeland *(Openbaar Lichaam Afvalstoffenverwijdering Zeeland - OLAZ)*, the municipality of Den Bosch and the municipalities in the Inter-municipal Cooperation Association Goeree Overflakkee *(Intergemeentelijk Samenwerkingsverband Goeree-Overflakkee - ISGO)*. In addition, the volume of Servicepunt71 (municipality of Leiden and environs) was expanded with the municipalities of Leiderdorp and Oegstgeest. As of 2021 the separation plant is also processing the household waste from the municipalities of Utrecht and Nieuwegein.

AVR has also concluded new agreements with cooperation partner Afvalfonds Verpakkingen and its operating organisation, Nedvang BV. Since 1 January 2020 this organisation has been responsible for the sale of the plastics and drinks cartons recovered by AVR's separation plant.

Recycling bottom ash

After residual waste is incinerated around 28% remains as bottom ash. This consists of minerals, such as shards of cups, but also contains sandy materials and metals. AVR recovers these streams for recycling together with specialised partners and with the help of advanced technology in a chain of physical, chemical, magnetic and thermal processes. The residual mineral granulates and sand 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 as of 2020 100% of the mineral granules must qualify as freely applicable building material. This means that Isolation, Control and Maintenance (ICM) of the materials to prevent the leakage of hazardous materials is no longer required. AVR has achieved this together with partners Mineralz and Heros.

In 2020 AVR needed to wash less bottom ash for the re-use of minerals. As a result, more volume was recycled and less sifted sludge was dumped. Due to the long processing and re-use chain the exact figures related to this will not become available until mid 2021.

Recovered metals can be reused one-to-one: The quality cannot be higher. So it pays to recover over 95% of the last granules. In 2020 more metals were recovered, especially in Rozenburg, in part due to more household residual waste being processed in this facility than in 2019. In Duiven relatively more commercial waste was processed and the decrease compared to 2019 was noticeable. On balance more metals were recovered.

In 2020 the production process feedback cycle for bottom ash quality control was shortened. This was achieved by taking more samples and carrying out analyses shortly after processing, prior to the reprocessing which doesn't take place until several weeks after the bottom ash is released.

TopCrete from paper residue

Paper can be recycled seven to eight times before the fibres become too short for further recycling. AVR uses this residual material as biomass for the generation of sustainable electricity and heat in its thermal conversion plant. What then remains is the paper fillers that can be recycled into a chalk-rich product, TopCrete, that can be uses as an alternative to cement and, due to its binding and absorption properties, as a sorbent. At AVR we use this material directly in other boilers to de-acidify the flue gasses. This extends the life of our incinerators and increases their thermal efficiency.

AVR is in talks with Water Boards regarding a possible new application for TopCrete. If the laboratory phase is successful a pilot plant for using TopCrete as milk of lime will be developed. This will enable increasingly-scarce phosphate to be recovered from the sludge that is formed during sewage treatment. Investigations into binding applications are also ongoing with other parties in the circular economy. Thanks to its end-of-waste status TopCrete is a versatile product.

Fly ash and mineralisation

Fly ash is a powdery residual product of residual waste incineration. AVR captures this ash so that the air emitted after incineration is clean. It is our smallest dry residual product that is still dumped. British company, Carbon8, has developed a technology for binding fly ash with CO_2 to produce light mineral granules that can be used in concrete products instead of gravel. These granules are already being used on a large scale in the UK and in 2020 a successful pilot trial was carried out in Duiven (see Simon Frans de Vries tells us, p. 52). The market parties involved are investigating how the granules can be used in their products and major parties in the Port of Rotterdam are also interested in the storage of CO_2 in minerals. AVR wants to play a role in this growing market for CO_2 recycling through permanent storage.

Captured CO_2

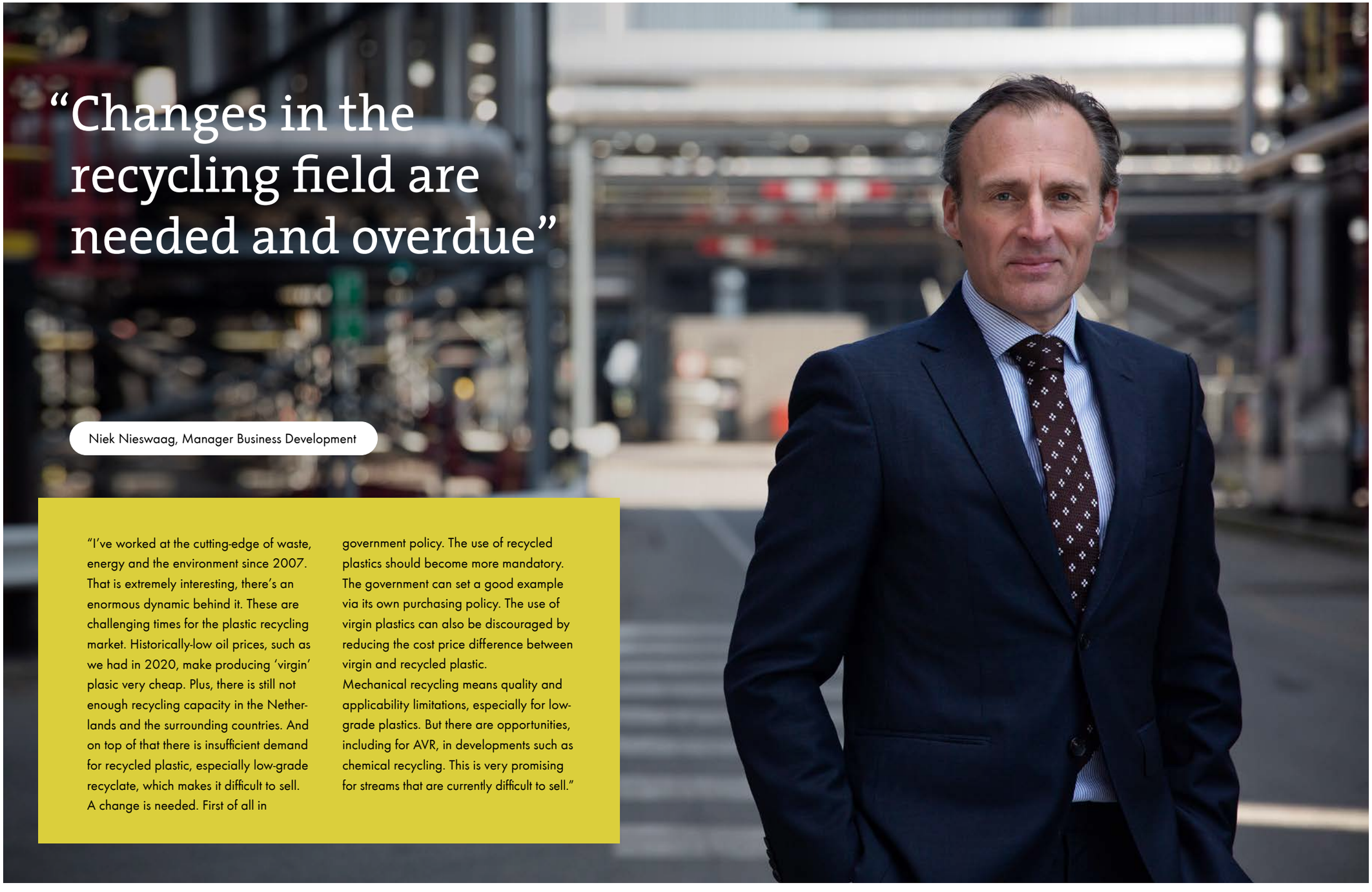
The CO_2 capture plant in Duiven was switched on again in March 2020. It ran until October after which we made major improvements to the installation that will enable us to capture more CO_2 in 2021. For more information see the theme CO_2 emissions, p. 36.

In 2020 all the CO_2 captured by AVR was purchased by partner company, Air Liquide. Most of this CO_2 was used in the greenhouse horticulture sector.

The interest in the carbonation of minerals, or the storage of CO_2 in mineral products, increased. In 2021 will continue working on this with a number of market parties.

Molybdenum reclamation

In Rozenburg AVR processes the waste water from a chemical company in the port. We reclaim molybdenum – a rare heavy metal that can be reused in the steel industry – from this waste water. The residue of this process is clean water. We use the residual heat that is released for the supply of district heat. Our customer had announced that it would start doing the molybdenum reclamation in-house in 2020, but this has been post-poned until 2021.



"Changes in the recycling field are needed and overdue"

Niek Nieswaag, Manager Business Development

"I've worked at the cutting-edge of waste, energy and the environment since 2007. That is extremely interesting, there's an enormous dynamic behind it. These are challenging times for the plastic recycling market. Historically-low oil prices, such as we had in 2020, make producing 'virgin' plasic very cheap. Plus, there is still not enough recycling capacity in the Netherlands and the surrounding countries. And on top of that there is insufficient demand for recycled plastic, especially low-grade recyclate, which makes it difficult to sell. A change is needed. First of all in government policy. The use of recycled plastics should become more mandatory. The government can set a good example via its own purchasing policy. The use of virgin plastics can also be discouraged by reducing the cost price difference between virgin and recycled plastic.
Mechanical recycling means quality and applicability limitations, especially for low-grade plastics. But there are opportunities, including for AVR, in developments such as chemical recycling. This is very promising for streams that are currently difficult to sell."

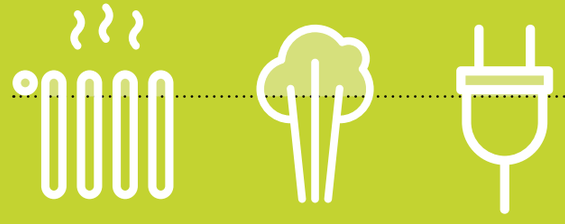
Renewable energy

Renewable energy through incineration
Tons of residual waste are delivered to AVR every year. The first thing we do is take out everything that can be recycled or re-used. What remains is the residue. A very valuable residue that we convert into electricity, steam and heat through incineration. We then supply this energy to our surrounding area. There isn't a more sustainable way to handle this residue of the residue.

Total energy output
(PJ)

8.3 +0.2

2020: 8.3
2019: 8.1
2018: 8.5



Heat
(PJ)

5.4 +0.1

2020: 5.4 PJ
2019: 5.3 PJ
2018: 5.4 PJ

Steam
(PJ)

1.3 +0.1

2020: 1.3 PJ
2019: 1.2 PJ
2018: 1.3 PJ

Electricity
(PJ)

1.7 =

2020: 1.7 PJ
2019: 1.7 PJ
2018: 1.8 PJ

Share of biogenic in energy supply
(percentage)

58% +1%

2020: 58%
2019: 57%
2018: 54%

Division into heat, electricity and steam			
	2020	2019	2018
Heat (in PJ)	5.4	5.3	5.4
Electricity (in PJ)	1.7	1.7	1.8
Steam (in PJ)	1.3	1.2	1.3

The definition of sustainable 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 sustainable/renewable energy are biomass, hydro power, solar energy and geothermal energy.

Every year the government determines the energy percentage that is fixed in the biodegradable fraction, the so-called fixed part. In 2020 this was 52%, which means that 52% 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 thermal conversion plant in Duiven and the biomass energy plant in Rozenburg is 100% renewable.

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 are not renewable energy, but they do reduce the use of fossil resources.

By processing industrial waste water we reclaim industrial residual heat that we then supply in the form of district heat.

Targets

Every year AVR specifies the expected generation and supply of energy. The quantity of district heat and process steam AVR supplies depends on the demand from customers. For example, the demand for district heat is, to a great extent, dependent of the outdoor temperature. The quantity of process steam needed by industrial customers can also vary. This is why our targets are not 'written in stone'.

Results

In 2020 AVR supplied 8.3 PJ of energy, an increase of 3% compared to 2019. The increase was partly due to there having been a scheduled maintenance Total Plant Shutdown of the Rozenburg facility in 2019. This was not the case in 2020. The share of renewable energy in the total supplied amounted to 58% - a slight increased compared to 2019 (57%). Although the energy percentage fixed in the renewable fraction was 52% in 2020, AVR was able to continue the renewable share of the energy supply by supplying more process steam from the biomass energy plant in Rozenburg.

The figures deserve some explanation. Damage to one of the turbines (TG-2) at the Duiven facility at the beginning of 2020 resulted in an unscheduled six-month stoppage for repairs. As a result electricity generation was not optimal.

The consequences of corona

The corona crisis put pressure on all the world's energy markets. In the Netherlands one of the consequences was extremely low prices on the spot market for electricity and natural gas. Several times during the year the Dutch national system operator, TenneT, asked AVR to adjust its electricity generation in order to maintain the balance in the Dutch high-voltage grid. The extremely low, sometimes even negative, spot market prices for electricity (due to surpluses) led to AVR having to adjust its operations (heat/power). Ultimately this also led to slightly lower electricity generation.

The influence of the Koploper *(Frontrunner)* programme on the results

Our Koploper *(Frontrunner)* programme has had a positive influence on our renewable energy generation (see the theme Sustainable employability, p. 76): it has resulted in our continuous energy generation process being planned and monitored more efficiently. AVR has drawn-up clear KPIs for the daily nomination of electricity generation that serve as clear guidelines for employees. Standardised ways of working mean that ad hoc deviations are now dealt with and recorded in a structured way. This forms the basis for improvement.

District heat

The National Climate Agreement published by the Dutch Cabinet in June 2019 stipulates that in 2030 CO_2 emissions must be 49% lower than they were in 1990. One of the agreements is that 30 energy regions in the Netherlands investigate where and how sustainable onshore electricity (wind and solar) can best be generated and which (residual) heat sources can be used to enable districts and buildings to stop using natural gas. AVR has provided input for the drawing-up of the strategies around the plants in Rozenburg (Rotterdam/Den Haag region) and Duiven (Arnhem/Nijmegen region). AVR supplies a total of 5.5 PJ of district heat, which already makes it one of the largest district heat generators in the Netherlands.[1]

As the largest producer of district heat in the Rotterdam region, AVR follows developments in regional heat transport very closely. Together with its contract partners, Warmtebedrijf Rotterdam and Eneco, AVR is thinking about the development of (residual) heat transport towards Delft, Den Haag and Leiden (WarmtelinQ). One possibility is that AVR makes additional heat capacity available.

Biomass

A social discussion is ongoing regarding the longer-term desirability of using biomass for generating renewable energy. This discussion focuses primarily on three issues: the question of whether there is a more valuable way to use woody biomass, the harmful emissions, and the question of whether the large-scale import of wood primarily for use as a fuel should continue to be subsidised.

The (waste) biomass streams AVR processes and converts into renewable energy stem from cascading. This means that biomass is used first for the application with the highest quality and then step-by-step for lower and lower value applications. AVR uses low-quality biomass streams that contain harmful environmental pollutants. We know how to prevent these contaminants from being released into the environment by capturing them using our extensive flue gas scrubbing plant.

AVR uses:

- the biodegradable part of the household and industrial residual waste that goes into an Energy-from-Waste plant;
- specific contaminated 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.

Steam

In 2020 AVR further improved the reliability and sustainability of the process steam supply in Rozenburg. We use different sources to supply steam to customers connected to the Botlek-Stoompijp: AVR supplies steam from its waste incineration plant and biomass energy plant and steam is also supplied by chemical company Cabot. We also supply process steam to two neighbouring chemical companies.

In Duiven in 2020 an agreement was reached to supply process steam to a neighbouring recycling company. As a result this company no longer needs to produce heat using a propane gas-fired plant. Installation of the infrastructure was almost completed by the end of 2020 with the first delivery scheduled for March 2021.

Discussions are ongoing in the Botlek regarding the further expansion of AVR's process steam supply. All the stakeholders see the advantage of reducing their own fossil steam production and switching to external steam from non-fossil sources including AVR's sources. However, there are a few barriers. Firstly, there is the unprofitable heavy investment required for the construction of the necessary steam infrastructure. Second the uncertainty caused by the industry levy on CO_2 forms a (new) barrier to a transparent business case. But the potential for reducing CO_2 emissions is high and the measure is cost-effective compared to other technologies, such as a new local biomass energy plant or an electric steam boiler. This is why AVR and the other involved parties are endeavouring to find a way out of this impasse.

Solar panels on the roof

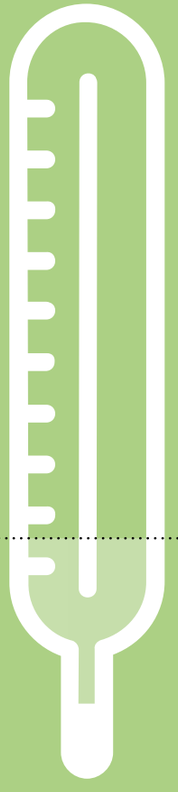
In 2020 AVR received a subsidy commitment (SDE+) for the installation of solar panels on the roofs of the Rozenburg facility. A peak capacity of 1.4 MW of sustainable electricity is foreseen. This is comparable to the annual electricity consumption of 400 Dutch households. AVR will use the electricity to power its own processes. We are currently investigating which structural modifications and safety provisions will be required.

[1] *According to the Warmtemonitor 2019 (Heat monitor 2019) published by TNO and CBS, in 2018 a total of around 22.8 PJ of district heat was supplied in the Netherlands.*

Sustainable employability

Energetic, healthy and fit-for-the-job

Our mission to create a clean world in which nothing is wasted does, of course, also extend to include the employability of our employees. We do as much as we can to help them develop their potential and acquire the knowledge they need to work with up-to-date expertise and with pleasure. Their health is an inextricable component of this. Which is why AVR pays a lot of attention to health and development, for example by offering training courses and other ways to keep up-to-date or to progress. We also offer a generation scheme for older employees and extensive maternity/paternity leave.



Sick leave

5.5% +0.1%

2020: 5.5%
2019: 5.4%
2018: 6.4%

AVR in corona time

We implemented stringent measures to protect our employees' health even before the corona crisis reached the Netherlands. (for more information see the theme A safe working environment, p. 26.)

Because AVR considers the connection with and between employees important we facilitated ways for them to stay in touch, such as through online meetings. Our employees are inventive and also took initiatives themselves to reinforce contact with each other. For example, when the canteen was closed colleagues brought in home-made soup and bread so they could lunch together.

In April 2020 we showed our appreciation for the efforts of our employees who were still working on-site by handing out bunches of flowers. By doing this we also gave a helping hand to flower growers who were struggling due to the crisis. We sent the AVR employees who were working from home chocolates.

KPI: Sick leave

In 2019 AVR's sick leave figure fell significantly to 5.4%. Our aim was to reduce sick leave still further. Although the corona crisis meant this target was not achieved – the figure for 2020 was 5.5% - we are proud of the fact that in such a difficult year the sick leave figure rose by such a small amount.

Although the government measures are aimed at physical distancing, within AVR the circumstances have reinforced the solidarity. Internally we have always paid extra attention to positive aspects, including new ways of working, that have also increased the effectiveness of our distancing measures.

In previous years AVR consistently invested heavily in sustainable employability. The dialogue between management and employees is an essential component of this and we give Managers the training and tools they need to carry out difficult discussions with employees. Even before the corona outbreak we reviewed and updated all our resources aimed at sustainable employability and also restructured the intranet so it is more logical. We have established that all the available absenteeism tools are being used properly and, as a result, have concluded that our 'Be your best' policy is now fully embedded and will, therefore, no longer be seen as a separate programme. Thanks to these efforts employees who become sick now return to work faster. And, most important of all: where there is a risk of dropping-out, adjustment are made in good time and in consultation with the manager to prevent the situation leading to incapacity for work. In 2020 internal promotion was increased further by improving the match between the career choices and the employee's aptitude and ability.

We want to give our managers and leaders even more help with (absenteeism) management, including by making 'grey absenteeism' easier to discuss. This is absenteeism based on a medical illness or condition that may not make the employee 100% unable to work. The training for this, Continuous Dialogue, that is provided by occupational therapists and behavioural psychologists, emphasises the importance of personal contact. The training course was planned for spring 2020, but had to be postponed until 2021. One component of the training is the formation of peer groups so that intervention becomes more embedded. This platform is important for enabling the investigation of employment possibilities outside an employee's own department.

When the corona outbreak began we set-up an additional health and safety service with a 24/7 helpline our employees could go to with questions and uncertainties. Our employees were very appreciative.

Koploper *(Frontrunner)*

In May 2020 AVR started the Koploper *(Frontrunner)* improvement project aimed at positioning ourselves well for the future and for seizing opportunities. We started by having our working methods mapped out by specialists. This exercise showed that our operating processes could be improved and, based on the findings, we drew up the Koploper plan of action, which covers virtually the entire AVR organisation. We want to have the right people with the right skills in the right place and sharing best practices. In practice it means employees investigate, learn and implement other ways of working. We also looked critically at the organisational structure. The departments compiled an inventory of their activities. After analysing the inventories we designed the business structure in a number of places to make processes run better and make the company more future-proof.

Koploper comprises five phases and will run until mid 2021. Phase three was completed at the end of 2020. Koploper (Frontrunner) is an organisation-wide project.

We have included the general description under this theme because a large part of the project is related to changing behaviour. But Koploper also affects other themes. To limit repetition in this Annual Report, in the other theme sections we refer readers to this section for further information.

Koploper had already delivered good results. A new system of KPIs, meetings and reviews has been set up. Employees in the shift teams have a clear insight into performance deviations. Based on the deviations they can find out why the performance is better or worse and take immediate remedial action. With this structure and in-project support we are working towards a change in working methods and behaviour aimed at continuous improvement (operational excellence). AVR has also optimised the six most important processes and employees are being trained in their execution. All the process steps are being tested and actions to bring about improvements are being implemented.

New ways of holding meetings have also been introduced and we have employed meeting coaches to give team leaders more tools for work consultations. As a result actions are followed-up better and improvements are shared more widely. More intensive monitoring on the process side has also led to good results (see the sections Renewable energy, p. 70 and Recycling, p. 62).

Koploper has created more ownership among the managers and leaders at every level of the organisation. Employees are also more connected to each other: a particularly striking result in the context of corona. More efficient working methods have also made us less dependent on hired-in employees, which has also safeguarded our knowledge.

As AVR we are aware that the Koploper programme combined with the corona measures has asked a lot of our employees. We are proud of their agility and rewarded it with a one-off bonus payment at the end of the year.

Training

In March we gave dispensation until September for the training courses and education necessary for obtaining certificates. Some of our partners switched to digital education. AVR embraced this because it was something we had been eager to do for some time. Physical training courses related to safety and in-house emergency services continued in an adapted form, which included using personal protection equipment and social distancing. These measures meant we were still able to provide 75% of these training courses.

Colleagues from a number of departments followed technical training courses that will enable them to be promoted to a higher position. This will continue in 2021. We have offered opportunities to follow a specialist training course, for example in various welding techniques and training on hydraulic systems. Managers at all levels within AVR have received specific training in management and dealing with

resistance and changes. This will also be followed-up in 2021. In conjunction with Koploper we are, therefore, looking at which additional training courses are needed, for example in the areas of Lean and situational leadership.

Regular medical check-ups

In 2020 AVR offered all its employees a health check. We wanted to do this specifically during the corona crisis to give our employees a sense of security and self-confidence. The examination was voluntary and free. We offered the most extensive check-up. The vitality section comprised of questionnaires. The Health Check comprised checks of cholesterol, blood sugar, weight, height, BMI, hand-grip strength and blood pressure, a lifestyle inventory, an eye test, a hearing test and a lung function test. The check-up was carried out in a corona-proof manner. We received enthusiastic responses from many participants. The individual results are anonymous; we are using the combined overall results to define further policies related to our sustainable employability programme.

Strategic personnel planning

For several years now AVR has conducted regular, at least once a year, assessments of whether all its employees are still in the right place and what they need to enable them to do their job well. We want to do better justice to talents within out workforce. One way we do this is through leadership training which improves Managers' ability to evaluate how talent within their team can be used optimally. In 2020 we expanded this further together with the Managers. The results were amplified because the corona situation reinforced the bonds within the teams and between Managers and employees. In 2020 we began analysing what further broadening and deepening training was desirable and necessary so that in 2021 we could offer a full Academy with its own AVR classes. Unfortunately the corona situation meant these plans had to be suspended in 2020.

Another factor that contributed towards our results was the accelerated promotion of young potentials to positions when vacancies arose. This was in part made possible due to the generation scheme that allows older employees to take a step back if they so desire. AVR uses Personal Development Plans to draw-up made-to-measure career plans that include 360 degree feedback and assessments. This was in high demand in 2020 and we facilitated our employees in this respect.

Diversity

Our aim is to have more women in the workplace, but finding women to fill technical positions remains difficult. In 2020 the number of female Operators rose from four to five. Although proportionally that isn't many, we are proud of the achievement and have put it more in the spotlight, for example in our recruitment videos, to encourage other female candidates to apply for jobs at AVR.

Social participation

In 2020 we submitted our best practices to qualify us for the Prestatieladder Socialer Ondernemen (PSO) *(social enterprise performance ladder)*. AVR implemented this on 1 January 2021. The PSO is a hallmark for companies with an above average performance in providing employment for vulnerable groups on the labour market.

The pilot trial we started in 2019 with Syrian refugees was successful: in 2020 AVR extended appointments in trial placements and permanent positions with additional coaching. The employees have been well received by their colleagues. What this has taught us about guidance and integration we can now use more widely.

Digitalisation of Human Resources (HR)

Until recently a lot of HR's work was done by hand. But more internal promotion meant a substantial increase in the number of mutations to be processed and, as a consequence, our HR staff's availability for the business was no longer sufficient. This is why, in 2020 we implemented a major improvement by digitising processes (see the theme Innovation, p. 46). These steps demanded a considerable investment from all users, but were more than worth it. In the long-term digitisation will save everyone involved a lot of time and will reduce the susceptibility to errors. We will continue the process in the coming years.

Employee self-service

The expansion of our HR Employee self-service has continued. In 2020 we achieved a personal employment conditions budget. This allows employees to have a number of employment conditions paid out flexibly and gives AVR more payment options. This is another way we are reinforcing our employees' control over their own careers.

"If there's something wrong it's better to know about it sooner rather than later."

Jan van Ginneken, General Operator, Rozenburg

"Last autumn AVR offered all its employees a periodic medical check-up. I took advantage of the offer because I thought it was important to know that everything was OK. Certainly at my age: I am 62 and I have to keep going for a while yet.
I work in the logistics part of the company. I operate all the vehicles, such as the mobile crane, the container crane and the shovel. And I'm on the weighbridge. Most of my work is on the platforms where the waste is delivered. I've been coming in contact with all kinds of waste for 34 years. For me that was an extra reason for a check-up. The check-up is anonymous, so if there is something wrong AVR will not know about it. AVR does see a general result, for example what percentage of employees in a particular age group has high blood pressure.
I wasn't worried that there was something wrong with me. Anyway, if it turned out there was something it's better to know about it sooner rather than later. But everything was fine. My hearing is good, my hand grip is above average and at 97% my lung capacity is high. The only thing is, I have a sweet tooth, so I have to watch my sugar. Not buy too many chocolate bars and biscuits. That's my good resolution for 2021."

Other emissions

Minimising our emissions
AVR generates energy by incinerating residual waste. That is one of the main goals. This process also releases harmful substances. We use the latest technologies to clean our flue gasses in such a way that the release of these substances is minimised. A large portion of our investments is aimed at achieving this. We also do our utmost to minimise the smell, noise and litter nuisance experienced by the surrounding area.

Rozenburg

NO_x Emissions
(kg/ton waste)

0.31 -0.02

2020: 0.31
2019: 0.33

Fine particulate emissions
(kg/ton waste)

0.0035 -0.0001

2020: 0.0035
2019: 0.0036

Duiven

NO_x Emissions
(kg/ton waste)

0.23 -0.04

2020: 0.23
2019: 0.27

Fine particulate emissions
(kg/ton waste)

0.0019 +0.0001

2020: 0.0019
2019: 0.0018

Definition of other emissions

Our processes result in the release not only of CO_2 but also of other harmful substances, such as nitrogen (NO_x) and fine particulate (PM10). We must also take into account the so-called Zeer Zorgwekkende Stoffen (ZZS) *(Substances of Very High Concern (SVHC))*, that occur in the residual waste we are supplied. We group these substances under the general heading 'other emissions'. Under this heading we also include the smell from the residual waste we process, the noise made by our activities and litter.

Reporting and notification

AVR submits regular reports regarding these other emissions to various regulatory authorities including, Rijkswaterstaat *(Ministry of Infrastructure and Water Management)*, DCMR Milieudienst Rijnmond *(regional joint environmental protection agency)*, water companies and Omgevingsdienst Regio Arnhem (ODRA) *(Arnhem region Environmental Agency)* and the Central Statistics Office (CBS). We also report on this in our Elektronisch-milieujaarverslag (E-MJV) *(Electronic Annual Environment Report)*. We monitor and manage our processes very closely. AVR reports any deviations or excesses to the competent authority (ODRA, Rijkswaterstaat and DCMR). An investigation into the cause is then carried out on the basis of which corrective measures are implemented.

AVR complies with legislation and regulations

In terms of both techniques and emissions – both relative and in freight - AVR complies with the legislation and regulations, including future legislation such as the BREF, in respect of the following substances (ZZS, nitrogen and fine particulate). We report on the absolute annual loads.

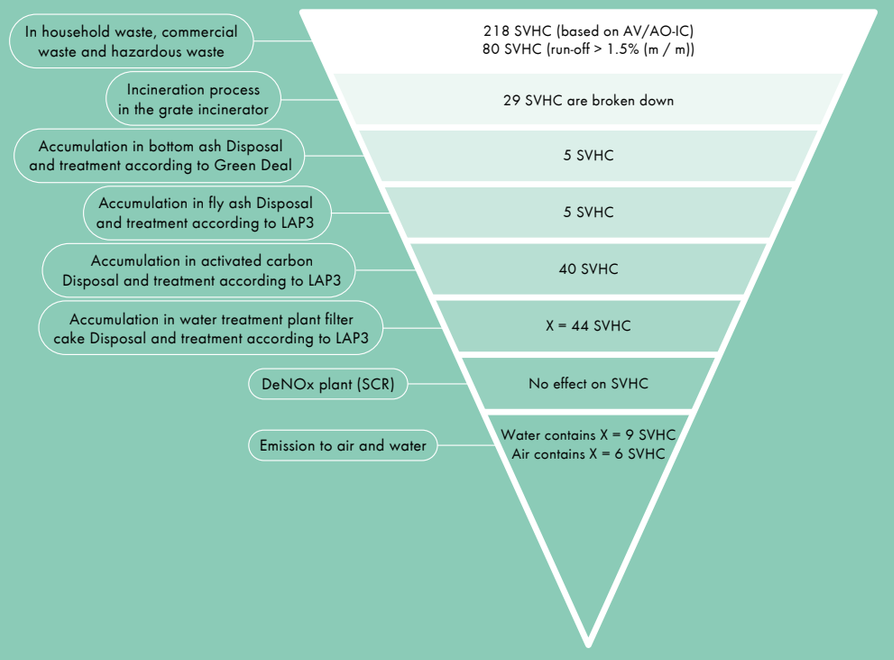
Substances of very High Concern

Many of the waste streams AVR processes contain substances classified as Substances of Very High Concern (SVHC). These are substances that are damaging to health, such as PFAS. Residual household waste, commercial waste, separately-collected green waste and litter contain low concentrations of SVHC. AVR wants to be able to process all the waste that is offered and that meets the acceptance criteria in such a way that the SVHC are broken down during incineration, or are captured during flue gas cleaning and water purification, so they can be processed further.

In 2020 a very extensive inventory was carried out at AVR. It determined the types of SVHC in four areas: the incoming waste, our emissions (into air and water), in the auxiliary materials and in the residue streams. The inventories were compiled for the biomass energy plant, the thermal conversion plant, the water treatment plant and the waste incineration plants in Duiven and Rozenburg. The investigation included the quantities of emitted SVHC and the technologies with which we can prevent or limit SVHC emissions.

The investigation showed that incineration at 1,000 degrees breaks-down most organic SVHC. Only substances that are not, or are only partially, broken-down during incineration, or that can arise during incineration, can still be released. These include (heavy) metals, dioxins/furans (PCDD/F) and polycyclic aromatic hydrocarbons (PAH) from, for example, construction materials. The quantities of these substances are very minimal compared with the quantities in the waste before it is processed. These residual quantities are a subject for future investigation in the form of an avoidance and reduction plan. Royal HaskoningDHV, in cooperation with AVR, has already compiled a report related to SVHC. DCMR has evaluated this report and considers it sufficient at the present time. The authorities are satisfied with our analysis. However, every five years AVR, like every other company in the Netherlands, must compile a progress report in the context of the

SVHC through the incineration process



Inventory based on the SGS-Intron report SVHC *in waste*, physical-chemical properties of substances and monitoring results. The number of SVHC per level cannot be added together; some SVHC are spread over several levels.

X = contaminants in the waste streams that are not always listed in the Material Safety Data Sheet (MSDS) of waste streams. These are measured when the monitoring protocol or the measurement obligations are implemented. It concerns the following connections: PAH, PCDD/F, and compounds of mercury, lead, nickel, arsenic, cadmium and cobalt.

Conclusions:

- The inventory listed the SVHC that accumulate in residual streams and/or can be emitted. These are primarily dioxins/furans, PAH, PFAS, mercury, lead, nickel, arsenic, cadmium and cobalt.
- The SVHC that are not broken-down during thermal processing accumulate in one or more residual streams and are then disposed of and treated in accordance with legislation and regulations.
- The emissions meet the requirements of the BREF, the WABO (General Provisions for Environmental Law) licence and the Water licence.

avoidance and reduction plan. The outcome of this research is also important for the processors of the post incineration residues, such as bottom ashes, because they can include it in their processes.

Nitrogen (NO_x) and fine particulate

Once every 10 years the European Commission lays down the Best Available Technologies (BAT) for waste incineration in regulations for all the member states. In 2019 the BREF Waste Incineration was once again confirmed as applicable for AVR. It stipulates limits for emissions to predominantly air and water during incineration on which the licensing requirements for our power plants are based. As the technologies become more advanced the requirements shift and become stricter. As we invest very heavily in these technologies we want to get as far ahead of regulations as possible so we can continue meeting the requirements for a long time. And the stricter we are on ourselves, the better we can achieve our sustainability goals.

Nitrogen (NO_x)

We limit our nitrogen emissions as much as possible. AVR has fitted every incineration line with DeNOx catalytic converters that filter the exhaust gases and reduce the nitrogen emissions. The table shows the emissions from our chimneys.

NO_x emissions	**2020**	**2019**	**Emission per ton of processed waste**
Rozenburg	0,31	0,33	kg/ton
Duiven	0,23	0,27	kg/ton

We also reduce our nitrogen emissions by transporting around 30% of the waste for processing to AVR in bulk amounts by boat: Shipping emits less nitrogen than transport by road.

Fine particulate

Cleaning the flue gases created by incineration captures most of the particulate matter and converts it into fly ash. AVR also endeavours to find useful applications for that residual product (see theme Innovation, p. 46).
A further step in the cleaning process filters out the last residues of fine particulate.

Fine particulate	**2020**	**2019**	**Emission per ton of processed waste**
Rozenburg	0,0035	0,0036	kg/ton
Duiven	0,0019	0,0018	kg/ton

Smell, noise and litter

Our surrounding should remain as unaware of the activities on and around our facilities as possible. That is our obligation. So we must keep the nuisance from smells, noise and litter to the minimum. The waste is delivered to AVR in closed trucks, containers and ships and is not unloaded until it is inside the transfer terminal.

Despite all our best efforts inconvenience can sometimes be caused. This was the case in the summer of 2020 when AVR had to process large quantities of plastic. After being sorted in the post-separation plant the material was still not completely clean. For example, cartons and containers still held some dairy residues. After the residual waste has been separated it is compressed into bales and transported to the processors for recycling. In the summer of 2020 the capacity of our customers was too small (see the theme Recycling, p. 62), which meant the bales remained on our sites for too long and caused a smell nuisance, primarily due to the extremely high summer temperatures. We received several complaints about this.

In 2020 our Rozenburg facility received a noise

nuisance complaint related to a sonorous noise from our cooling water pump housing. This was investigated and a recording device that continuously measured noise levels was installed. This investigation has not yet yielded any data from which conclusions can be drawn.

In close cooperation with DCMR Environmental Service Rijnmond and the Ministry of Infrastructure and Water Management we also watch out for windblown litter. AVR has started a project to reduce the amount of (wind blown) litter from the Rozenburg facility. This is a complex problem because there is no one-size-fits-all solution. 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 so it can be resolved quickly.

Our environment

Although there is a reasonably large distance between AVR's facilities and the inhabited world, we want to maintain good contact with local residents. This is why we participate in residents' associations in Rozenburg and Duiven. We want to hear about their experiences and also think it is important that they know what goes on behind the gates of our facilities. Explaining our goals and showing exactly what AVR does leads to our work being understood, and often also appreciated. This is why we organise open days with guided tours. It's not only local residents who come along, we also welcome schools and representatives of the municipalities from which we receive waste. Unfortunately in 2020 the corona crisis meant this happened far less frequently.

AVR is a participant in the Burengesprek Botlek Europoort *(Botlek Europoort Neighbourhood Conversation)* – an initiative of the companies in the Botlek-Europoort area, the municipality of Rotterdam, DCMR and the Safety Region Rotterdam- Rijnmond. The Neighbourhood Conversation originally derived from the Rozenburg Sounding Board Group, but now covers all the municipalities in this region. It is an open and constructive dialogue between the companies, the authorities and the residents aimed at promoting the quality of life in this area. Experiences, questions and news items are shared via the website https://botlekeuropoort.nl/ and the Facebook page.

"AVR isn't a biscuit factory, we work with hazardous substances"

Rob de Rade, Safety Engineer, Rozenburg

"In the 28 years I've been working at AVR I've held various positions. When I saw a gap in the organisation related to process safety I jumped straight in. It's the AVR culture that when you see such an opportunity you are given support.

As a Safety Engineer I focus on the safety of our processes. I check that plant and equipment is safe; that no hazardous substances can escape. The guideline for this is the BRZO – the Major Accidents (Risks) Decree. This directive was established after the disaster in the small Italian city of Seveso in 1976, where dioxin escaped from a factory. On the basis of the BRZO the safety of all plant must be continuously assessed. That is a lot of work. AVR alone has 570 containment systems, such as tanks or reactors, so figure it out.

Hazardous substance awareness is important for everyone on our sites. If you walk past a tank of ammonia you have to realise that this is dangerous stuff. We have a lot of hazardous substances at our facilities – AVR isn't a biscuit factory. We want to raise everyone's awareness with an animated film. It will be shown to all our employees. At the end there is a control question to check whether or not the content of the film has been understood. Employees will be shown the film once every two years. It's also shown to other people, like contractors, the first time they visit one of the facilities. That ensures safety awareness is in everyone's mind."

Financial stability

Investing for continuity
AVR's financial stability is important for its continuity and, as a result, for its stakeholders. Financial stability enables us to invest in new and existing plant and in innovative projects. By continuing to do this we can not only achieve our short-term goals, but also keep moving forward with our vision for the future.

EBITDA
(in millions of €)

138.5 +5.7

2020: € 138.5 mln
2019: € 132.8 mln
2018: € 122.0 mln

Net result
(in millions of €)

36.1 -1.8

2020: € 36.1 mln
2019: € 37.9 mln
2018: € 37.7 mln

Revenue
(in millions of €)

281.6 +14.3

2020: € 281.6 mln
2019: € 267.3 mln
2018: € 247.3 mln

EBIT
(in millions of €)

75.5 -5.3

2020: € 75.5 mln
2019: € 80.8 mln
2018: € 80.0 mln

Investments
(in millions of €)

51.5 -15.0

2020: € 51.5 mln
2019: € 66.5 mln
2018: € 64.3 mln

Cash flow
(in millions of €)

9.3 +17.5

2020: € 9.3 mln
2019: € -8.2 mln
2018: € -49.4 mln

Cash position
(in millions of €)

29.8 +9.3

2020: € 29.8 mln
2019: € 20.5 mln
2018: € 28.7 mln

What is 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.

Our financial stability in corona time

The CORVID-19 pandemic has had only a limited effect on AVR's financial stability.
The greatest risks were, and still are, the plant having to be shut down due to too little waste being delivered of there being too few employees available to process the waste. Luckily neither of these situations has arisen.

The concrete impact of the corona virus has been:

- Lower energy prices on the energy market due to the impact of corona (see the theme Sustainable energy, p. 70).
- Changes in the composition of the waste due to the reduced offering of commercial waste and the increased offering of household waste, in combination with a lower quality of the waste. As a result, keeping the incineration process stable has necessitated additional attention to be paid and extra costs to be incurred. (See the theme Reliability, p. 54).
- The effect on the paper industry: a lower offering of paper pulp with, as a result, a temporary shut down of the thermal conversion plant in Duiven.
- Limited extension of maintenance stops due to corona restrictions and risks: extra testing of our own and our contractors' employees was necessary and employees had to go into quarantine.

Due to the limited impact of the pandemic, in 2020 AVR did not utilise the Dutch government's (financial) support and recovery package.

Results

AVR's closing financial result for 2020 was satisfactory: net result amounted to € 36.1 million - € 1.8 million lower that for 2019. Operating result (EBIT) was € 5.3 million lower than for 2019 due to a combination of higher revenue and higher costs, plus a number of one-time effects. The lower operating profit was partially offset by a lower tax burden.

KPI: Revenue

Revenue (including other income) rose from € 267.3 million in 2019 to € 281.6 million in 2020. Both the waste volumes and the energy volumes were higher than in 2019. This was due to a combination of good production volumes in 2020 and the one-time reduction of volumes in 2019 as a consequence of the Total Plant Shutdown (planned major maintenance stop). Waste and energy price developments also contributed towards the higher revenue, despite the negative effects of the corona virus on the energy market. The revenue also includes the first full year of operation of the CO_2 capture plant in Duiven and a one-time payment for the Water Treatment plant.

KPI: EBITDA and EBIT

At € 138.5 million EBITDA was € 6 million higher than for 2019 due to a combination of a € 14 million increase in revenue and a € 8 million increase in costs. Most of the cost increase was related to higher personnel costs, higher maintenance costs and a number of one-time costs for the formation of provisions. Operating result (EBIT) amounted to € 75.5 million – a decrease of over € 5 million compared to 2019. This decrease was due to write-offs increasing by € 11 million. The higher write-offs were related to the investments in 2019 and 2020 and also included the negative effects of a number of updates to lifetimes and asset values (based on strategic initiatives).

KPI: cash flow

In 2020 AVR achieved a positive cash flow of € 9 million primarily due to the operating cash flow being higher than anticipated. The positive cash flow comprised a cash flow from operating activities amounting to € 138 million, of which € 51 million was used for investments and € 77 million for financing activities. The cash flow from financing activities comprised interest payments (€ 29 million), dividend pay-outs (€ 35 million), a repayment on the credit facility (€ 10 million) and lease payments (€ 3 million).

KPI: cash position

The cash position rose to the level of nearly € 30 million.

KPI: investments

In 2020 AVR's investments amounted to € 51.5 million (2019: € 66.5 million) and were related to both existing plant and innovation, such as the new Turbine F being built in Rozenburg.

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 2020 no loans or credit facilities expired and no new financing was arranged. Existing loans amounting to € 50 million will expire at the end of 2021. AVR intends to refinance these loans in the course of 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, AVR was advanced a so-called Green syndicate loan by five banks. We have linked sustainable targets to this loan and 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. We intend a further 'greening' of our financing in future financing rounds.

"Municipalities take great risks with co-ownership"

Jasper de Jong, Commercial Director

"As Commercial Director I talk to municipalities that supply us with waste and also to the authorities about regulations.
Municipalities can organise the processing of the household waste they collect in different ways. One option is via a tender in the private market. The conditions they want to specify are then included in the contract signed with the party that wins the tender. An alternative option is to hand the processing over to another government party. This takes place on the basis of a bilateral agreement and without tendering. The municipality is required to become a co-owner – a shareholder – of the government party, which is often a public waste processor. This shareholding brings with it control rights and a dividend entitlement, but it also brings risks, including financial risks.

Remember AEB – the public waste processor that ran into major problems in 2019 and had to be bailed-out by the municipality using community funds.
For preference AVR would like municipalities to opt for the tendering model. On the one hand we have economic reasons for this: for example, enabling our investment in sustainability to continue unabated. On the other hand we believe there must be competition between companies and public waste processors so a municipality can negotiate the best safety and sustainability conditions and market prices on behalf of its residents. We believe it is better to leave the processing to the market because this is far more likely to lead to a balanced and reasonable price for the most sustainable possible processing of the waste."

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. On the grounds of 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

The one-tier Board comprises eight Directors: four Non-executive and four Executive. The Board meets at least six times a year. The Board has formed three sub-committees of its members within which there is scope for a more in-depth appraisal of specific topics: the Remuneration Committee, the Audit & Treasury Committee and the Sales & 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 the capital of AVR have been held by a consortium in Hong Kong led by the listed Hong Kong company Cheung Kong Infrastructure (CKI). CKI, with over 130,000 employees spread across participations in Hong Kong, China, Europe (including the UK), Canada, Australia and New Zealand, is a world player in the field of infrastructure.

Personalia

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

Neil McGee, Chairman and Non-executive Director

Neil McGee (69), 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 is also Managing Director of Hutchison Whampoa Europe Investments S.à r.l. and a member of the Board of Husky Energy – a stock exchange listed Canadian energy company. Neil has a Bachelor of Arts degree and studied Law.

Hing Lam Kam, Non-executive Director

Hing Lam Kam (74), Chinese nationality, has been the Group Managing Director of Cheung Kong Infrastructure since it was established in 1996. He is also Deputy Managing Director of CK Hutchison Holdings Limited and Deputy Managing Director and Executive Committee Member of CK Asset Holdings Limited. He studied construction and business administration.

Duncan Macrae, Non-executive Director

Duncan Macrae (50), British nationality, is Head of International Business at Cheung Kong Infrastructure. He has over 26 years of experience in the field of infrastructure investments. Duncan is a member of the Institute of Directors in the United Kingdom. He studied philosophy, politics and economics.

Ed Nijpels, Non-executive Director

Ed Nijpels (70), Dutch nationality, is a former Minister of the Environment and Queen's Commissioner in Friesland. Ed is the Chairman of the Progress Consultation Climate Accord and Crown appointed member of the Dutch Social and Economic Council (SER). He studied Law.

Andrew Hunter, Executive Director

Andrew Hunter (62), British nationality, is Executive Director of Cheung Kong Infrastructure and Executive Director of Power Assets. Andrew is also a member of the Scottish Institute of Chartered Accountants and the Hong Kong Institute of Certified Public Accountants. He has over 38 years of experience in accountancy and financial management. Andrew has a Master of Arts degree and studied business administration.

Charles Tsai, Executive Director

Charles Tsai (63), Canadian nationality, has worked for Power Assets since 1987, since 2014 as CEO with responsibility for all foreign participations. Charles is a Registered Professional Engineer and Chartered Engineer. He studied mechanical engineering.

Yves Luca, Executive Director

Yves Luca (55), Belgian nationality, is the CEO of AVR and a member of the Board of the Dutch Waste Management Association. Yves has 25 years of experience in the waste sector. His previous positions included COO of Van Gansewinkel. Yves studied economics.

Rob de Fluiter Balledux, Executive Director

Rob de Fluiter Balledux (57), Dutch nationality, CFO of AVR. Rob's positions prior to joining AVR included Financial Director of Martinair and CFO of Van Gansewinkel. He studied business economics.

General Counsel-Company Secretary **Bram Witsenburg** (49) acts as the Secretary of the one-tier Board. Previously he was attorney-at-law and Company Lawyer for companies including ARCADIS and McGregor Fashion Group. Bram studied Law.

Message from the board

2020 turned out to be a year of unprecedented challenge. In March 2020 the corona pandemic brought society and the global economy to a sudden standstill. Then, after a relatively normal summer period, the world was confronted with new outbreaks of the virus, which led to even more restrictions for society and the global economy.

When the pandemic broke out in March 2020 AVR set-up a crisis team. This team immediately implemented health measures in order to prevent the virus from spreading through the factories and threatening day-to-day operations. Staff were encouraged to work from home whenever possible and the members of the operational teams working on the plants at our sites were kept as isolated from their colleagues as possible. During the year the number of AVR employees who were infected with the virus remained limited. Visiting contractors from abroad could be tested for the virus and the result known within 48 hours.

From a business perspective the pandemic led to decreasing amounts of commercial waste. The impact of this was largely offset by an increasing supply of household waste, re-scheduling planned maintenance stops and the acquisition of additional volumes of waste from abroad.

Despite the pandemic, 2020 was a year in which AVR achieved not only its financial targets but also most of its health and safety KPIs.

At the beginning of 2020 AVR won the tender for processing the household waste from Utrecht and the surrounding area for a maximum term of 10 years. After the introduction of the import tax on waste in 2020 AVR began working on replacing a significant portion of the volumes of British waste with Dutch commercial waste. This will help maintain the volumes of contracted waste in the coming years.

Since the CO_2 capture plant went into operation in Duiven in 2019 AVR has continued to investigate possibilities for storing and using the CO_2 emissions from its plants. AVR is striving to reduce its CO_2 footprint and to contribute towards the targets set by the Dutch government for the further reduction of CO_2 in the coming years.

AVR has continued to play a role in the circular economy – an economic system that advocates the recycling of products and resources. The decision to continue working on AVR's mission – to create of a clean world in which nothing is wasted – remains unchanged.

I would like to thank all AVR's employees for their continued commitment during the past year. The corona virus restrictions often led to difficult working conditions. I would also like to thank our shareholders for their support and our customers for the long-term relationships that enable AVR to continue expanding its activities.

On behalf of the Board,
Neil McGee, *Chairman*

Compliance

AVR's Directors and shareholders set great store by the correct 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 complexity.

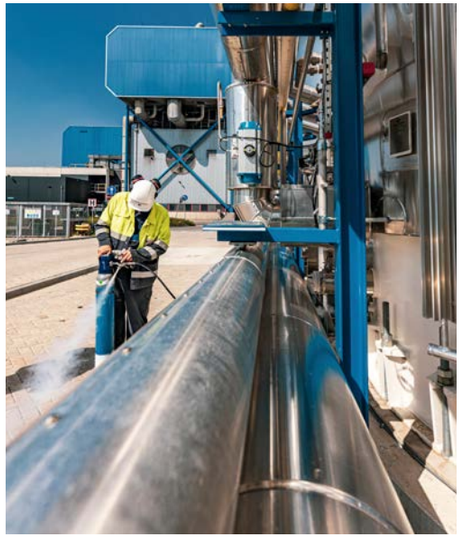
A number of spearheads in the area of compliance are applicable for AVR: compliance with environmental law (licences), public procurement law, accounting law, energy law, consumer law, financial law and privacy law – the last mentioned also in view of the introduction of the General Data Protection Regulation (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 Council support the organisation and its operations with solicited and unsolicited advice and, when necessary, the required knowledge.

Safety, Health, Environment and Quality (SHEQ)

In June 2020 AVR successfully completed the audit in the context of recertification. Certification for three years was granted for ISO 9001 (quality), ISO 14001 (the environment) and ISO 45001 (safety). In October 2020 the BRZO audit (major accident risks) did not find any contraventions. We are very pleased about this, especially in view of the hard work that has been carried out to ensure we continue improving our performance in the field of process safety.

The corona crisis had a substantial impact in 2020. As a company in a vital sector AVR had to do everything possible to keep the virus outside the gates and safeguard business operations. Thanks to all the implemented measures – such as segregating the teams, establishing one and a half metre social distancing on AVR sites, and taking the temperatures of our own and contractors' employees – this was achieved. The regional safety agency has tested and approved our business operations.



Risk management

Operating risks

AVR carries out an assessment of the Company's operating risks each year. The risk areas that are the most important for AVR on the basis of its strategy have been identified. Each year the risks related to these areas and the functioning of the measures to limit these risks are evaluated.

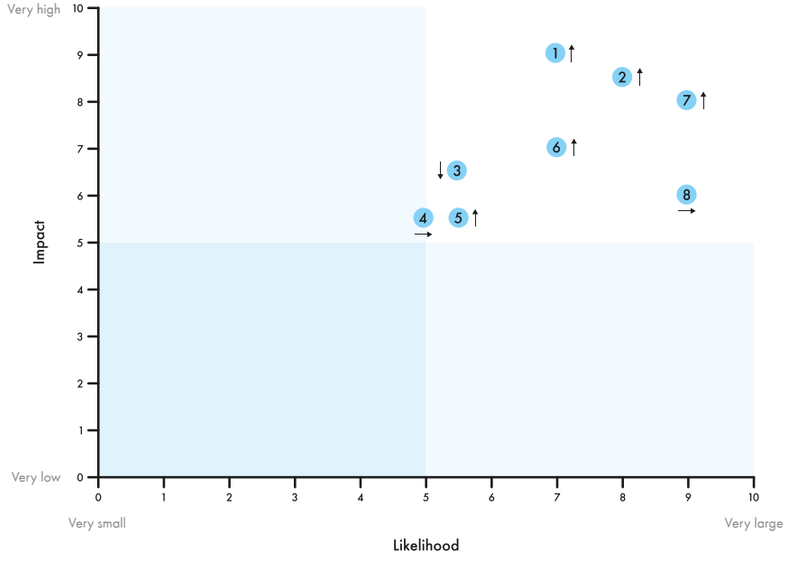
In this 2020 Annual Report the most important (changes in) eight operating risks faced by AVR are explained along with the measures that have been implemented to mitigate these risks.

Risk matrix

The risk matrix includes the eight most important risks identified by AVR in the assessment for 2020. The matrix indicates the likelihood of preventing the risk versus the impact of the risk, without taking into account the internal control measures implemented by AVR. This is followed by descriptions of the control measures.

Risk matrix

The likelihood of preventing the risk versus the impact of the risk without taking management measures into account.



1. Feedstock supply
2. Legislation
3. Operational Excellence
4. Reputation
5. Personnel
6. Competition
7. General IT (including Cybersecurity)
8. Commodities

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.

During the first half of 2020 commodity prices were under pressure, in part due to the corona pandemic. However, as the high volatility of the commodity markets had already been included in our risk assessments in preceding years, the inherent risk for AVR has not changed.

Waste offering
This is the risk of volatility in the volume and quality of the residual waste offered by waste 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.

The corona pandemic led to a decrease in the offering of commercial waste. That was to an extent offset by increased volumes of household waste. Besides that, the tax on imported residual waste (as of 2021) and Brexit (as of 2021) led to higher costs for the import of waste from the UK. Both developments have increased the risk of an inadequate supply of waste.

Legislation and regulations
This is the risk that the introduction or extension of legislation or 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.

In 2020 a waste materials tax on imported residual waste was introduced in the Netherlands. As of 1 January 2021 the CO_2 tax also went into force in Dutch Law. Both taxes could have a negative impact on our financial stability and, therefore, have led to a higher risk assessment.

General IT including cyber security
This is the risk that disruptions in the IT sphere as a result of general IT disruptions or cyber crime 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 cyber security we work with security software that is always up-to-date and we implement an active awareness-building programme among our employees. AVR has taken out cyber risk insurance.

IT is becoming increasingly important for us. In addition, we are seeing cyber crime becoming more and more prevalent and far-reaching all over the world. Based on these developments the risk assessment has been raised.

Personnel
This is the risk of AVR being unable to recruit of retain sufficient competent, motivated and professional employees to enable it to carry out its activities. Employee health is also covered by this risk. We endeavour to ensure we retain existing employees and attract potential new employees through our 'Be your best' programme.

The corona pandemic has increased the risk of our having insufficient deployable personnel to keep business operations running 24/7. AVR has responded to this by introducing an extensive package of measures and procedures in-line with the guidelines of the RIVM. These measures are described in more detail in the section A safe working environment, p. 26.

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 supply the agreed quantity of energy.

A focus on operational excellence has been a spearhead for 2020/2021 through the Koploper (Frontrunner) project (see the theme Sustainable employability, p. 76). The first positive results of the project became visible at the end of 2020 and have led to a lower risk assessment. We hope to continue this trend in 2021.

Competition
This is the risk that AVR's competitiveness will deteriorate.

The introduction of a waste tax on the import of residual waste to the Netherlands has adversely affected our competitive position. In the medium-tem this could lead to the current stream of waste from the UK to the Netherlands drying up and, as a consequence, increased competition for domestic waste volumes. For this reason we have raised our risk estimate compared to 2019.

To limit its dependence on individual waste streams as far as possible, AVR strives for an optimum mix of several streams (domestic residual household waste,

domestic commercial waste and imported waste). In this context, in 2020 we were able to replace a portion of the imported volumes with domestic volumes. We also strive to gain a competitive advantage in the provision of services to municipal waste customers through the post-separation of waste (since 2018) and the (partial) capture of CO_2 emissions from the incineration process (since 2019).

Reputation
This is the risk that the external communications 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 of which the most important are.

Price risk
This is the risk of price fluctuations in respect of both energy and waste. For commodity prices a hedge policy is applicable as is also described above under the operating 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 2020 AVR had over € 350 million in outstanding financing. As only € 10 million has a variable interest rate and € 340 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 make good their financial obligations to 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 limits the refinancing risk 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.

Condensed financial statements

This is a condensed financial overview. These statements have not been audited. Audited financial statements have been filed with the Chamber of Commerce in Rotterdam.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2020 BEFORE APPROPRIATION OF RESULT (x € 1.000)

	31 December 2020	31 December 2019
ASSETS		
Non-current assets		
Property, plant and equipment	510,751	513,924
Right-of-use assets	17,530	18,318
Goodwill	316,417	316,417
Other intangible assets	48,248	53,901
Deferred tax assets	44,812	48,442
Derivative financial instruments	2,399	5,898
Other non-current financial assets	16,834	14,477
Total non-current assets	**956,991**	**971,378**
Current assets		
Inventories	7,397	7,018
Trade and other receivables	51,171	42,368
Derivative financial instruments	-	471
Prepayments	795	641
Cash and cash equivalents	29,815	20,536
Total current assets	**89,178**	**71,034**
Total assets	**1,046,170**	**1,042,412**

CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2020 BEFORE APPROPRIATION OF RESULT (x € 1.000)

	31 December 2020	31 December 2019
EQUITY AND LIABILITIES		
Capital and reserves		
Issued capital	100	100
Share premium	260,364	262,895
Cash flow hedge reserve	(2,959)	3,217
Retained earnings	(17,740)	(22,736)
Unappropriated result	36,100	37,944
Equity attributed to the parent	**275,864**	**281,420**
Non-current liabilities		
Borrowings	538,957	588,739
Lease liabilities	18,495	19,152
Derivative financial instruments	1,565	1,679
Deferred tax liabilities	36,152	32,464
Provision for jubilees	1,355	1,397
Other provisions	14,491	13,986
Total non-current liabilities	**611,015**	**657,417**
Current liabilities		
Trade and other payables	34,441	37,102
Borrowings	49,782	9,372
Lease liabilities	2,332	2,650
Current tax liabilities	21,675	16,121
Derivative financial instruments	4,423	251
Amounts payable to shareholders	3,520	3,520
Other provisions	7,836	3,836
Other liabilities	35,282	30,723
Total current liabilities	**159,291**	**103,575**
Total liabilities	**770,306**	**760,992**
Total equity and liabilities	**1,046,170**	**1,042,412**

CONSOLIDATED INCOME STATEMENT AND OTHER COMPREHENSIVE INCOME FOR THE YEAR 2020 (x € 1.000)

	2020	2019
Revenue	252,982	242,086
Other income	28,618	25,171
Raw materials, supplies and energy	(18,134)	(17,721)
Third-party processing	(23,304)	(26,781)
Third-party maintenance	(23,654)	(20,876)
Employee benefit expenses	(44,732)	(41,418)
Depreciation and amortization	(63,021)	(51,948)
Impairment loss on financial assets	(880)	(5,494)
Other operating expenses	(32,430)	(22,193)
Operating result	**75,445**	**80,827**
Financial income and expenses	(29,945)	(30,302)
Result before tax	**45,500**	**50,525**
Taxes on result	(9,401)	(12,581)
Profit/(loss) for the year	**36,100**	**37,944**
Attributable to shareholders of the company	**36,100**	**37,944**
Other comprehensive income:		
Gain/(loss) on cash flow hedges taken to equity	8,235	12,778
Income tax direct through equity	(2,059)	(3,195)
Total attributable to the Owners of the Company	**29,924**	**47,528**

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE YEAR 2020 (x € 1.000)

	2020	2019
Result before tax	**45,500**	**50,525**
Adjustments for:		
– Depreciation, amortization and impairment	63,021	51,948
– Change in provision for jubilees	(42)	4
– Change in other provisions	4,121	(1,934)
– Financial expenses	29,945	30,302
– Change in other financial assets	(2,357)	(2,275)
– Changes in working capital	(2,153)	(7,132)
Cash flow from operating activities	**138,035**	**121,439**
Investments in:		
– Property, Plant & Equipment	(51,534)	(66,370)
Divestments of:		
– Property, Plant & Equipment	-	552
Cash flow from investment activities	**(51,534)**	**(65,818)**
Repayment of lease liabilities	(2,945)	(4,875)
Interest paid	(28,796)	(29,569)
Drawing/(Repayment) of credit facilities	(10,000)	10,000
Cash received from government grants	-	665
Dividend paid	(35,480)	(40,033)
Cash flow from financing activities	**(77,221)**	**(63,812)**
Net increase in cash and cash equivalents	**(9,280)**	**(8,191)**
Cash and cash equivalents at 1 January	20,536	28,726
Cash and cash equivalents at 31 december	**29,815**	**20,536**

In conclusion

Looking forward to 2021

In 2021 and the years thereafter our foremost attention points will be the further reduction of our CO2 emissions, and those of our customers, and the circular application of CO2. We will also focus on supplying energy in the most efficient and sustainable way possible and we will continue increasing the efficiency of our plant and improving our operational excellence in order to achieve better results. In this way we will achieve sustainable changes for AVR and for society.

The corona pandemic has affected our working methods and our processes, but not AVR's end results. Responding decisively to the crisis in early 2020 enabled us to minimise its effects. We foresee this virus being in our midst for some time, but have faith in our approach and flexibility and, first and foremost, in the commitment of our employees. This is why we do not anticipate any additional problems due to corona in 2021 and possibly in subsequent years.

Minimising our CO_2 emissions is one of our spearheads and capturing CO_2 from our flue gases is one way to achieve this. Our experience with the CO_2 capture plant in Duiven will be a tremendous help when it comes to our preparations for a larger plant in Rozenburg. We want this plant to capture around 500,000 tons of CO_2 a year from our flue gases. This is a significant portion of the 800,000 tons a year reduction in emissions AVR wants to achieve by 2030. AVR hopes to be able to take the investment decision for the capture plant in Rozenburg during 2021. Prior to this we are investigating the sales potential and the logistics: CO_2 capture must dovetail seamlessly with delivery to customers. The financing is also being looked at very carefully. The amount of the investments depends on the business case, the raw materials prices and the subsidies.

We are continuing to investigate ways to maximise the utilisation of captured CO_2 as a useful raw material. This is in-line with AVR's mission: to create a clean world in which nothing is wasted. The greenhouse horticulture sector is a key customer. We are also continuing our research into applications in the chemical sector and into long-term storage in products, for example in the form of gravel-like granules for the concrete industry. And we are participating in the research into possibilities for storing CO_2 underground. This is an important development.

Our motivation to explore storage is driven primarily by the view that AVR has a responsibility in CO_2 reduction in general, but is also inspired by the CO_2 tax levied on companies from 1 January 2021. As AVR

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cannot reduce the CO_2 emissions – it is a simple and irrefutable fact that every ton of waste goes hand-in-hand with one 1 ton of CO_2 emissions, whether or not the waste is processed – finding alternatives is even more important. In this quest we are working with several experts.

To ensure we can offer a reliable and efficient energy supply, in 2021 work will continue on the construction of Turbine F – the new, highly efficient back-pressure steam turbine with which AVR is going to generate electricity, process steam and district heat. Our goal is for the new turbine to go into operation in late 2021 or early 2022.

The Koploper *(Frontrunner)* programme through which we are improving our operational excellence in order to maintain the level of our results will run until mid 2021. In 2020 Koploper already achieved good results and we expect this project will bear even more fruit in the coming year and the years that follow.

In the coming years we are going to focus even more on the reliability of our plant and towards this end we are recruiting qualified personnel. The age of our plant means that there are components for which better alternatives have become available over the years and we invest continuously in order to keep our installations *fit for purpose*.

In the coming period AVR will also focus on growth. Together with our shareholders we are investigating taking over companies so we can expand. Not only in the Netherlands but also abroad.

Our antennas remain alert for new technologies, which AVR also tests in its own laboratory. Proven technologies are applied if they help us achieve progress and make our company greener. Many of these investigations demand a lot of patience. For example, hydrogen is on our wish list. AVR is already working on this on a small scale, but we realise that expanding this would be very comprehensive and expensive. Nevertheless carrying out more work on this in the future has not been ruled out.

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