For a clean society
The resulting clean society is still inspiring us now.

Waste is valuable
Now and in the future

You may not think about it much, but waste is of great value. Every day AEB receives over 600 trucks with Dutch waste as well as waste from abroad. Hundreds of people from Amsterdam take their bulky waste to waste collection points. Each year AEB processes 1.4 million tonnes of waste and converts it into renewable energy and raw materials. Raw materials that we can use again. And energy that residents and businesses in Amsterdam use to light and heat their homes and buildings... In short, AEB transforms waste into valuable products.

For our ancestors this was quite different. During the last century, waste was a serious threat to public health in this rapidly growing city. Since the completion of the ‘incinerator’ in Amsterdam North in 1918, waste no longer ends up in a canal or landfill. The resulting clean society is still inspiring us now.

An independent company

Since 2014, we are no longer part of the municipality of Amsterdam and have become an independent company. This gives us a great opportunity to develop even more innovative ideas. We are currently developing a sorting facility to recover plastics and beverage cartons from mixed municipal waste, and are increasing the production of renewable energy from biomass.

Our High Efficiency Power Plant was already developed in 2007. It has an energy efficiency of over 30%. A conventional EfW facility achieves an energy efficiency of 25% at the most.

To really resolve waste issues properly, we work closely with several partners who will also have their say in this brochure. Together, we are looking for the most effective solutions within the currently available technical possibilities. For example, with district heating the initial focus was on new construction, while we are now also looking where district heating can be applied in existing buildings.

When solving waste issues we are looking beyond the region. From the Netherlands to China, we are seeking cooperation with various parties to share our specific knowledge and expertise.

Amsterdam Metropolitan Area

AEB aims at becoming THE sustainable raw materials and energy company in the Amsterdam metropolitan area by 2018. Thereby contributing to a green metropolitan area, which is good for both the environment and the economy. This will stimulate sustainable enterprises to put down roots here and create new jobs in our region.
Bottom ash is our mineral and raw material, we extract the metals and convert the remainder into valuable building materials.

Bas Hemmen
Bottom Ash Manager
AEB

Loek van Poppel
Programme Manager
INASHCO
Together with our partners we bring a sustainable and clean society closer.

The Port of Amsterdam, Waternet and AEB work together on innovation projects in the field of raw materials, energy and water. A good example of this is the green gas filling station in Amsterdam Westpoort. The green gas is generated from the city’s waste water. AEB converts the biogas released in the Waternet sewage treatment plant into green gas and delivers it to the filling station.

AEB is also actively seeking cooperation with waste suppliers – public and private companies – to achieve the most efficient layout of their waste chain and to research where economies of scale could be achieved. Started as a link in the waste chain, AEB has an increasingly pivotal role in the (circular) network.

AEB is developing into the largest producer of renewable energy in the Amsterdam metropolitan area. We have been cooperating on the Westpoort Warmte (WPW) joint venture with Nuon for a long time. Through WPW we deliver district heating to 20,000 homes in Amsterdam and to about 85 companies in the western port area. WPW has high ambitions, which include the expansion of the heating distribution network to Amsterdam North. This contributes to the ambition of the metropolitan area to be carbon neutral by 2040.

After the combustion process and the recovery of energy, AEB recovers raw materials from waste in its separation plant. At the same time we are making our knowledge available via knowledge networks and advisory services. In solving waste issues we are looking beyond the region. We also manage the six waste collection points in Amsterdam, where individuals and companies can bring their bulky waste. This waste is recycled whenever possible.

Partner for Recovery of raw materials.

Production of renewable energy.
Sustainable district heating will more than double, the comfort for Amsterdam citizens will be even more prevalent.

Jannis van Zanten Heating project leader AEB

Martin Buijck Project Director Westpoort Warmte
How will we do that?

Maximum recycling
Together with our environment, taking care of a clean society means that we recycle as much as possible. That includes the waste brought to our waste collection points in the city of Amsterdam. Individuals and companies deliver their bulky waste, annually more than 70,000 tonnes, there. 40% of this is recycled. Processing the remaining part of this further yields green power and heating. From the remains after incineration we extract valuable metals, such as iron, aluminium, copper and zinc. That leaves only the bottom ashes; these are used as a foundation substrate for road construction. Employees of the Regional Sorting Centre implement sorting tasks and disassemble discarded electrical and electronic equipment: 80% of the materials are re-usable.

As much energy as possible
Through maximum use of the facilities, we achieve the highest possible energy output. We consider it our social duty to process waste responsibly and to produce energy from waste. We are talking about 1 million MWh of electricity per year, or about 1% of the total energy requirements in the Netherlands. We generate not only electricity, but also a lot of heat: more than 650,000 gigajoules per year. This is used to provide heating for 20,000 homes in Amsterdam. We aim for 34,000 connections by 2020.

As efficiently as possible
AEB is constantly improving itself by organising its processes to be ever more effective and efficient. This is important because we keep sustainability affordable with these improvements. All processes are therefore given a lot of attention, whether it concerns project management or technical, financial and administrative processes. AEB has a sound financial base, which guarantees our partners the continuity of our work.

Why AEB?

With our sustainable facility, we deliver the highest energy efficiency in the world (over 30 percent). The technology for our High Efficiency Power Plant has been developed by AEB and is patented.

Thanks to a large number of regular partners and long-term contracts for the processing of waste, AEB has a solid foundation.

AEB is known worldwide for the innovative technology of its High Efficiency Power Plant. In our comprehensive innovation programme we work with a wide range of national and international partners.

Our contribution to society is and remains an important objective. For AEB not only the financial results, but also social impact is important. Through our cooperation with the Regional Sorting Centre we offer new opportunities to people with a distance to the labour market.

Our location in the western port of Amsterdam is centrally located and easily accessible by different modes of transport. This means low transportation costs.
We will be producing 15 million m³ of biogas per year from residual waste, which can be converted into liquid gas as a new clean vehicle fuel.

Bart Berkhout
Business Manager Development AEB

Micha Hes
Business Developer Port of Amsterdam
At our depot for hazardous waste we collect hazardous waste. We determine the best treatment method for each waste type or stream.

AEB manages six waste collection points in the municipality of Amsterdam. Here we promote the separation of waste by residents and already perform a lot of material recovery.

The copper shredder extracts valuable copper from cables and wires.

We are able to arrange transportation of hazardous waste.

Maximum reuse
We see the maximum reuse of resources as the most important step towards the smart and responsible handling of waste. For the coming years generating energy from waste will remain part of the solution.

In the Regional Sorting Centre we dismantle waste electrical and electronic equipment, and sort raw materials before they are moved to the final processor.

In the image, a truck is seen transporting hazardous waste, while workers are working on dismantling waste electrical and electronic equipment and sorting raw materials.
Innovation in all areas

Strengthening a circular economy
Innovation is the engine behind strengthening a circular economy for AEB. Innovation is needed in all areas, including social (like changes in behaviour), technical, and in business and revenue models, for this transformation to a circular economy.

Further sustainable waste management
Innovations to further develop sustainable waste management is implemented by AEB through a wide range of national and international partners, such as research institutions, businesses and governments.

Retaining raw materials
Raw materials are retained in the production and consumption chain as we ensure closed loop recycling. We explore new possibilities to separate and recycle raw materials from waste. With our partners we are also looking into new manufacturing processes that allow us to extract more energy from biomass. Even today, the innovative technology of our High Efficiency Power Plant offers the most sustainable potential for energy recovery from waste.

Our innovation agenda

Energy from biomass.

Raw materials from biomass.

Collecting, separating, sorting.

Processing and reprocessing of waste materials.

Closed loop recycling.

CO₂ capture and recovery.

Research into innovative technologies for treatment of sludge and digestate.

Research into innovative technologies for production of raw materials from biomass.

Developing innovative collection and separation techniques.

Research into innovative technologies for producing raw materials from separated waste streams such as plastics, electronic waste, glass.

Pilot initiatives to close local recycling loops, including reprocessing of biomass streams at the Amsterdam Zoo.

Research on the recovery of pure CO₂ from flue gases of the waste incineration plant to achieve an even higher environmental yield.
Recover more raw materials
In the coming years we are taking specific steps to recover significantly more raw materials and generate more renewable energy.

Separate collection
We are exploring ways to resolve waste management issues, whereby we take the convenience for residents into account. So we are working on a pilot case for the separate collection of household waste, where the residents can easily separate their waste into different streams through differently coloured bags.

Materials recovery
We are working on a Materials Recovery Facility that can increase the recycling rate in Amsterdam from 20% to 50%.

Together with Inashco we are working on reclaiming more metals from bottom ash. We are also exploring ways to convert the mineral fraction of the bottom ash into valuable building materials. We are successfully working with various innovative techniques aimed at a clean society.

Household waste contains valuable raw materials which can be recovered for recycling. For example, with the separation plant we can separate plastics from the remaining fraction so they can be reused.

The biogas released during the digestion of the separated organic fraction of the waste can be further upgraded to natural gas quality. This creates a sustainable variant of natural gas: green gas. This product can be distributed via the regular natural gas network. In addition, high-grade liquid CO$_2$ is produced.

From our existing plants it is possible to supply surrounding businesses with steam from AEB. This steam is more sustainable and cost effective than natural gas for the industry which surrounds our facility.

The municipality of Amsterdam, our partner municipalities in the region, Waternet, the Port of Amsterdam and Inashco are our partners in these projects.
We work together on the circular economy...

Marieke van Nood
Strategic advisor
AEB

...by extracting raw materials from liquid and solid waste.

André Struker
Strategic advisor
Waternet
International cooperation

The capacity of the Waste Fired Power Plant and High Efficiency Power Plant is 1.4 million tonnes per year.

The High Efficiency Power Plant is more than 30% efficient.

Of the annual throughput of 1.4 million tonnes of waste, 99% is converted into sustainable energy and raw materials.

Every year 61,400 tonnes of material is recycled. This includes 30,000 tonnes of metals recovered from bottom ash, 28,400 tonnes of various materials from the six waste collection points, 2,400 tonnes from the Regional Sorting Centre and 600 tonnes of hazardous waste.

Our facility avoids the emission of 172,500 tonnes of CO₂ per year.

1 million MWh of electricity is produced, which is enough for 320,000 households.

650,000 gigajoules of heat are produced each year. District heating will be provided to 230,000 homes by 2040.

Sharing knowledge, expertise, technologies

AEB internationally shares its knowledge, expertise and technologies in the area of consulting and joint development.

High Efficiency Power Plant Technology

The technology of the High Efficiency Power Plant enjoys growing interest from abroad. In particular, talks are conducted in China about a possible collaboration aiming to build the best Energy from Waste facilities in the world. AEB is thereby sharing its expertise in this field, for example through feasibility studies and by providing second opinions.

Sustainable solutions

Because of its central and convenient location, AEB can also offer sustainable solutions for the treatment of household and commercial and industrial waste from the Dutch and international markets.

Large environmental benefit

Waste from the United Kingdom is delivered to our facilities for treatment. Despite the longer transport distance this has a better environmental performance than landfilling this waste locally.

The power of AEB

1,400,000 tonnes

30%

99%

61,400 tonnes

172,500 tonnes

320,000

230,000

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By partnering with the Regional Sorting Centre, we offer employees new opportunities,

Linda Groot
HR Advisor
AEB

thanks to the Regional Sorting Centre they integrate back into the labour process.

Carlo van der Hilst
Director
Environment Work / Regional Sorting Centre
The waste is deposited on the tipping floor. We randomly inspect the contents of the trucks for substances that should not be in the waste.

Every day over 600 trucks with household and commercial and industrial waste from municipalities and businesses arrive at the weighbridge. Each incoming delivery is weighed a first time and a second time upon departure in order to establish the net delivered weight.

The control room controls the whole treatment process 24 hours a day and adjust this when required.

Through steam we convert energy into electricity and heat.

After combustion bottom ash remains, from which we recover around 30,000 tonnes of ferrous (magnetic) and non ferrous metals (non-magnetic metals and stainless steel).

The waste is mixed and stored in the bunker until it is fed into the boiler for combustion. We keep sufficient stock in the bunker to ensure the facility can operate 24/7 throughout the night and weekends.