



Taking the lead
at the
Delfzijl site.



Welcome to EEW Energy from Waste!

Energy is essential to everyday life. Since the availability of fossil fuels is limited, the use of energy from waste is becoming increasingly important. As Germany's leading company in the production of environmentally friendly energy from thermal waste recovery, it is our mission to take the lead: With ultra-modern energy from waste plants. With state-of-the-art technology that meets the latest environmental standards. With highly qualified, dedicated employees. With good and constructive relationships with citizens, municipalities and companies. And, of course, with environmentally friendly energy from waste.



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1 tonne of waste = 600 KWh of electricity

Electricity from waste is an important resource. The calorific value of the material is comparable to that of brown coal, making it virtually predestined for energy generation.

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EEW Energy from Waste Delfzijl. Built to serve the region.

Energy from waste plants are a special kind of high-quality power plant. They not only have to comply with very strict emission limits, they must also satisfy the highest technical demands, and are therefore continuously monitored and optimised. For around 30 years, the EEW Energy from Waste Group has been planning, building and operating thermal waste recovery plants that set standards across Europe. In the vicinity of our plants, which stand out for their low emissions, high efficiency and excellent workplace safety, new companies and thus new jobs are being created. At the same time, consumers and nearby industrial firms benefit from using the environmentally friendly energy that EEW generates.

The Wadden Sea National Parks area is a habitat deserving of special protection. It is therefore important that the factories located here in the Delfzijl industrial park, in the Dutch province of Groningen, have a suitable and environmentally compatible supply of energy. EEW's energy from waste plant has been performing this task since 2010. The plant currently generates 185,000 megawatt hours of electricity and 463,000 megawatt hours of process steam, thereby meeting the needs of nearby companies without requiring long transport routes. 576,000 tonnes of industrial and municipal waste as well as refuse derived fuels are delivered by sea, rail or road via existing infrastructure. Our site provides reliable waste management capacity for the surrounding districts and converts waste into energy in a safe, low-emission process. We are proud to take the lead – for even more energy in Delfzijl's Oosterhorn industrial park and for environmental protection.

An overview of how the EEW Delfzijl plant works.

1

During the week, up to 8,000 tonnes of waste are transported to the energy from waste plant.

2

The fuel is collected and temporarily stored in the waste bunker, which has a capacity of around 13,500 tonnes. The air pressure here is kept slightly negative so that no emissions or odours can escape. Environmental protection is therefore integral right from the start.

3

The waste is mixed and continuously transferred to the feed hopper. From there, the waste enters the grates of the two combustion lines (boilers).

4

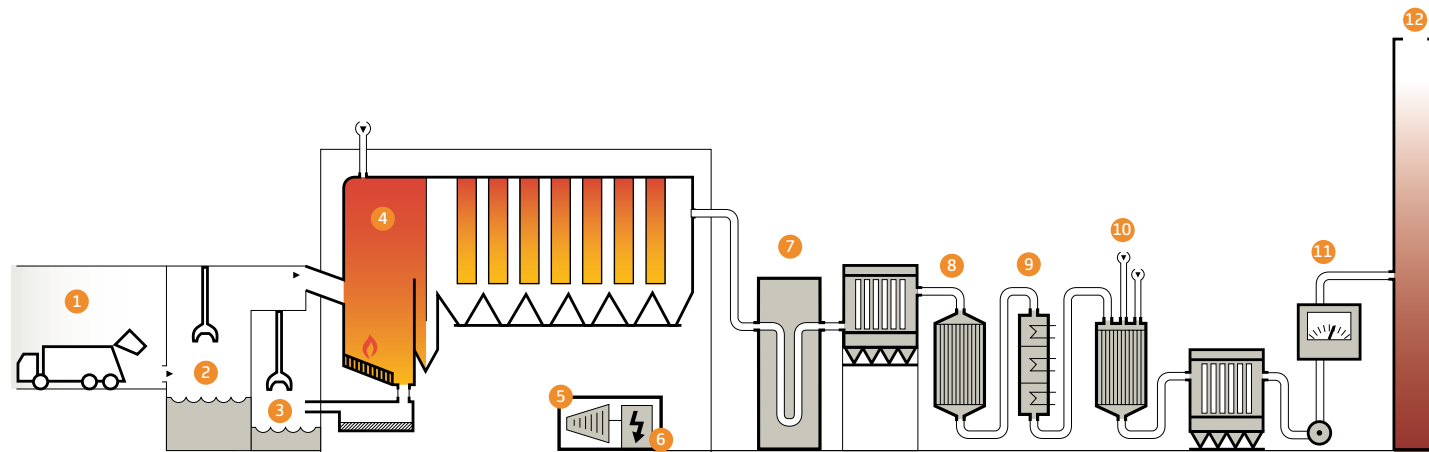
As waste self-combusts at the high temperatures in the boiler, no additional fossil fuels are required. Oil burners are only activated when the boiler is powered up or down in order to guarantee the minimum temperature of 850 °C. This high temperature is required by law. Pollutants are largely destroyed.

5

The thermal energy of the two boilers produces as much as 148 tonnes of steam every hour. At a pressure of 40 bar and a temperature of around 400 °C, the steam drives a turbine connected to a generator.

6

Approximately 185,000 megawatt hours of electrical energy as well as 463,000 megawatt hours of process steam are generated in this way.



7

The flue gases leave the boiler at a temperature of approximately 230 °C and then undergo several stages of flue gas cleaning. First, sodium bicarbonate is injected to bind the acids present in the flue gas. The resulting salts are deposited in the fabric filter.

8

In the catalytic converter, the addition of ammonia solution creates a chemical reaction that converts nitrogen oxides into environmentally neutral nitrogen and water.

9

Lime hydrate and active carbon are then used in the entrained flow reactor to bind other heavy metals as well as gaseous substances and dust. The deposits are collected in the second fabric filter.

10

The cleansed flue gas then leaves the 70 m high stack. What remains is bottom ash, fly ash and filter dust. The bottom ash is recovered and used for the construction of roads and landfills. Fly ash and filter dust are used as backfilling material in mines.

11

The plant easily complies with the strict statutory emission limits and in most cases is substantially below them. A measuring station at the stack continuously analyses and monitors the emissions. The results are transmitted to the responsible supervisory authority.



Jan Henze, E&I Engineer, EEW Energy from Waste Delfzijl B.V.

Technical data

Commissioning	2010/2019
Total investment	€ 230 million
Capacity	576,000 tonnes/year
Number of combustion lines	3
Waste bunker capacity	15,000 cubic metres ≈ 13,500 tonnes
Calorific range of waste	8 - 16 megajoules/kilogram
Electricity generation	185,000 megawatt hours/year ≈ 53,000 households
Process steam generation	463,000 megawatt hours/year



**Taking the lead
to ensure
clean air.**

We shrink the carbon footprint.

A benefit for the environment.

As waste contains 50 per cent biogenic substances on average, it is recognised that energy from waste plants produce energy from renewable sources pursuant to the Germany's Renewable Energy Sources Act (EEG) and thus contribute to reaching the climate targets in Germany and Europe.

Another area where we take the lead: The emissions from our waste recovery plant reliably comply with – and are sometimes substantially below – the strict limits established by the German Federal Immission Control Act.

This is documented by constant emissions monitoring and controlled by the supervisory authority.

Ideally, come and see for yourself during a tour of our plant. You will discover that at EEW Energy from Waste, we put waste to work for climate protection.



Our annual contribution to environmental protection:



Up to 576,000 tonnes
of waste recovered



185,000 megawatt hours of
electricity generated in an
environmentally friendly manner



Electricity produced in an
environmentally friendly manner
for 53,000 households



463,000 megawatt hours
of steam produced with
resource-conserving technology



We tackle the future. And assume responsibility.

For more than 145 years, our expertise has been built on progress. Founded in 1873 as the coal mining firm Braunschweigische Kohlen-Bergwerke (BKB), the company soon also became an electricity producer and has evolved steadily to the present day. Having entered the waste treatment business in 1990, EEW Energy from Waste now has a great wealth of experience and expertise in environmentally friendly energy generation from thermal waste recovery. As the market leader in Germany, with our 18 plants here and in neighbouring countries we make a substantial contribution to conserving resources and reducing greenhouse gas emissions.

Our figures speak for themselves:

Our plants have an annual energy recovery capacity of more than 5 million tonnes of waste. We can thus produce around 2.5 million megawatt hours of electricity, more than 2.6 million megawatt hours of process steam and around 800,000 megawatt hours of district heating. EEW's electricity output alone corresponds to the power required by around 700,000 households.**

Our team of around 1,150 highly qualified, dedicated employees takes the lead by producing energy that benefits not only numerous companies but also hundreds of thousands of households and, most importantly, the environment.

References:

* Electricity, district heating and steam volume produced by our 18 EEW Energy from Waste plants in 2018

** Assumed annual average consumption per household: 3,500 kWh



Rather than resting on our laurels, we continuously improve the processes and efficiency of our plants. Ultimately, we offer municipalities and companies pioneering waste recovery services that encompass everything from customised waste management concepts to waste acceptance and compliance with the statutory waste transfer documentation. We deliver outstanding performance and achieve a high level of acceptance among the general population and local residents.

This is how we take the lead. Together. For our future.



Would you like to find out more,
or visit the EEW site in Delfzijl?
Please get in touch!
You can reach us at:

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