



Taking the lead  
at the  
Stapelfeld site.



**eew**

Energy from Waste

## 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 Stapelfeld.** 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.

Stapelfeld, situated near Hamburg and Ahrensburg in Schleswig-Holstein, is at once a very popular residential area, an attractive business location and a beautiful recreational area with many nature reserves. The brief here, therefore, is to pay particular attention to the environment and at the same time to offer nearly a million people in the greater Hamburg region reliable waste management and energy supplies. To this end, Hamburg along with the Stormarn and Duchy of Lauenburg districts opened an energy from waste plant in 1979 and extended it in 1997. In 2003, it was incorporated into today's EEW Energy from Waste Group. Now, 129,000 megawatt hours of environmentally friendly electricity are generated here every year, corresponding to the energy needs of over 37,000 households in the region. The 243,000 megawatt hours of district heat produced are supplied to households as well as some industrial estates and the neighbouring indoor swimming pool. To generate this energy, up to 350,000 tonnes of waste from the region are recovered each year in a safe low-emission process. We are proud to take the lead – for energy in the region and for environmental protection.

## **An overview of how the EEW Stapelfeld plant works.**

1

Every day, 1,400 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 6,000 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

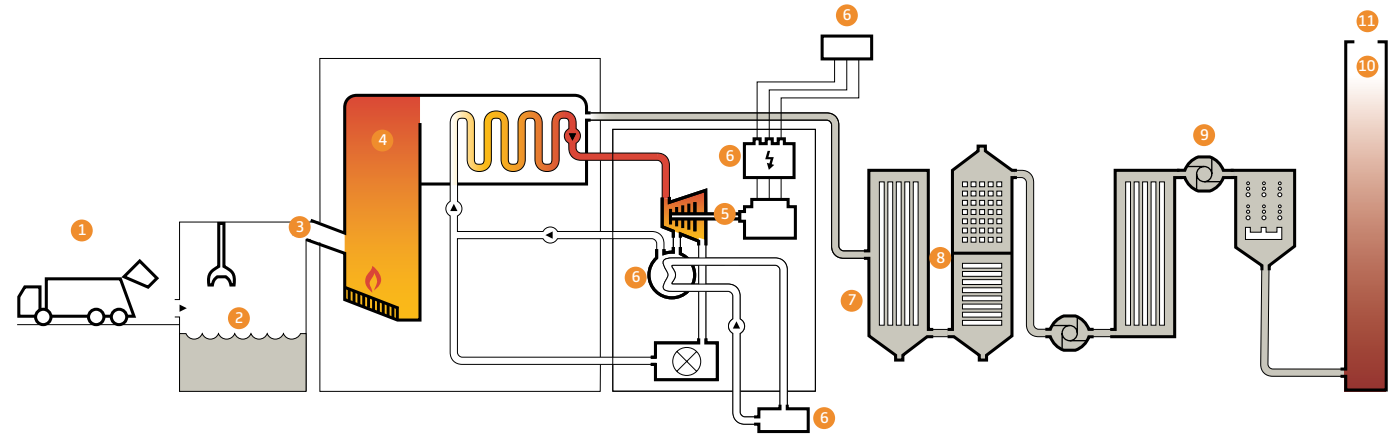
The waste is mixed and continuously transferred to the feed hopper. From here, it enters the combustion grate of the two lines (boilers).

4

As waste self-combusts at the high temperatures in the boiler, no additional fossil fuels are required. Gas 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 boiler produces nearly 130 tonnes of steam every hour. At a pressure of 26.5 bar and a temperature of 380 °C, the steam drives two turbines connected to a generator.



6

Approximately 139,000 megawatt hours of electrical energy and 243,000 megawatt hours of district heat are produced in this way every year.

7

The flue gases leave the boiler at a temperature of approximately 220 °C and then undergo several stages of flue gas cleaning, which remove dust and heavy metals. In the first stage, electrofilters remove fine fly ash.

8

Further dust, gaseous substances and heavy metals are bound in the two-stage (acid and alkaline) wet scrub.

9

Active carbon filters and ammonia solution are then used to capture hydrocarbons and the last heavy metals, and to break down nitrogen oxides into environmentally neutral nitrogen and water in the catalytic converter.

10

The clean gas then leaves the 110 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 particularly 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 directly to the responsible supervisory authority. Another interesting fact: The EEW Stapelfeld site produces no wastewater. Dirty water is collected, treated and reused. Rainwater is used as process water.



Roland Malchow, Maintenance, EEW Energy from Waste Stapelfeld GmbH

### Technical data

Commissioning	1979
Total investment	€ 240 million
Capacity	350.000 tonnes/year
Number of combustion lines	2
Waste bunker capacity	12,000 cubic metres ≈ 6,000 tonnes
Calorific range of waste	7,5 - 12,5 megajoules/kilogram
Electricity generation	129,000 megawatt hours/year ≈ 37,000 households
District heating generation	243,000 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 350,000 tonnes  
of waste recovered



129,000 megawatt hours of  
electricity generated in an  
environmentally friendly manner



Electricity produced in an  
environmentally friendly manner  
for 37,000 households



243,000 megawatt hours  
of district heating produced with  
resource-conserving technology



## **We tackle the future.** And assume responsibility.

For more than 147 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 17 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 5.0 million tonnes of waste. We can thus produce around 2.5 million megawatt hours of electricity, more than 2.8 million megawatt hours of process steam and around 1.0 million megawatt hours of district heating. EEW's electricity output alone corresponds to the power required by around 720,000 households.\*\* Our team of around 1,250 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 18 EEW Energy from Waste plants in 2020

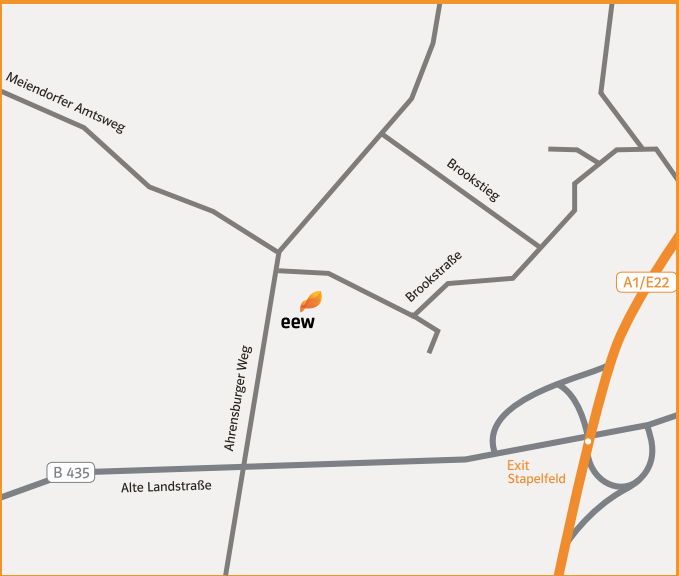
\*\* Assumed annual average consumption per household: 3,500 kWh



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 Stapelfeld?  
Please get in touch!  
You can reach us at:

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