



Taking the lead
at the
Andernach 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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IHKW Andernach.
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 energy from waste plant at Andernach (IHKW) runs on refuse derived fuel (RDF) with additional gas-fired back-up and peak load boilers. The energy produced in the form of process steam, heating steam and electricity is supplied 365 days a year exclusively to the tinsplate factory belonging to thyssenkrupp Rasselstein GmbH in Andernach. This factory is the only one of its kind in Germany and the world's largest manufacturing plant for packaging steel (tinsplate). 267,000 megawatt hours of process and heating steam as well as 78,000 megawatt hours of power are produced for the factory every year under environmentally friendly conditions. This energy is generated by recovering 140,000 tonnes of RDF (specially treated municipal, commercial and industrial waste with a high calorific value) from the region. We are proud to take the lead – for energy to power nearby tinsplate production and for environmental protection.

An overview of how
the IHKW Andernach plant works.

1

Every week, several thousand tonnes of refuse derived fuel (RDF) are transported to the energy from waste plant.

2

The fuel is collected and temporarily stored in the RDF bunker, which has a capacity of around 2,200 tonnes. The air pressure here is kept slightly negative so that no odours can escape. Environmental protection is therefore integral right from the start.

3

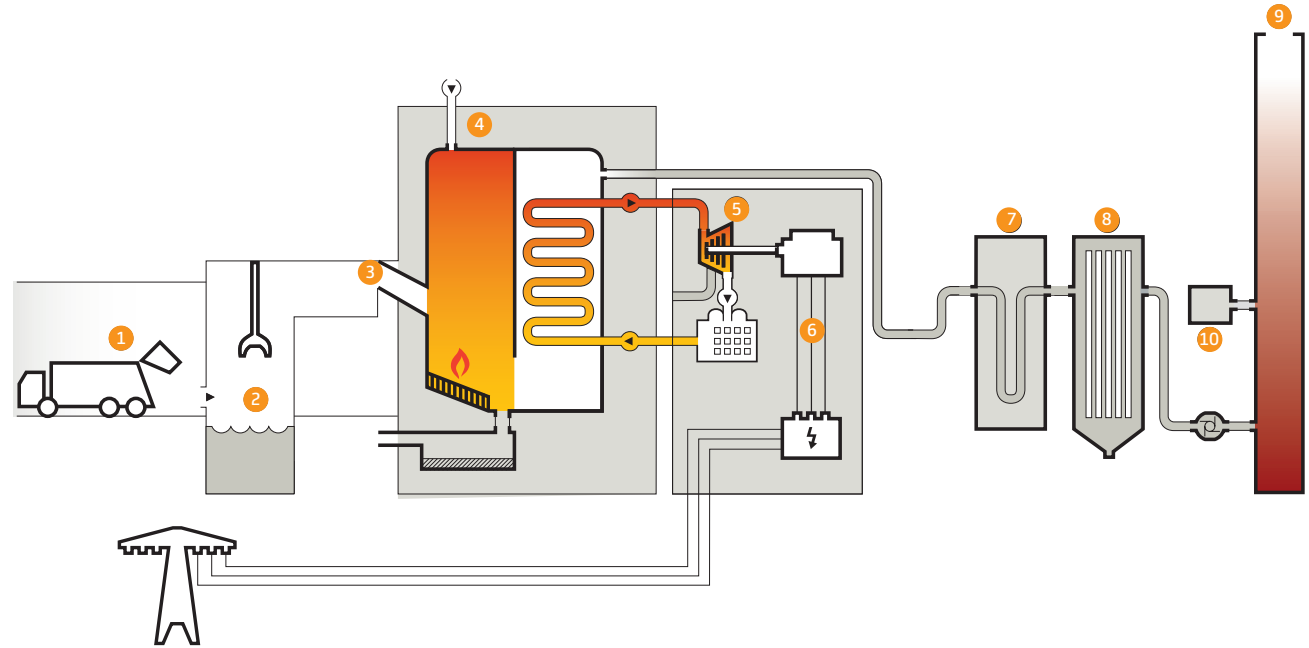
The RDF is automatically and continuously transferred to the feed hopper by the RDF crane system. From there, it enters the grate of the combustion line (boiler).

4

As RDF 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. At the same time, nitrogen oxides are converted into environmentally neutral nitrogen and water with the addition of urea.

5

The thermal energy of the boiler produces 65 tonnes of steam every hour. At a pressure of 68 bar and a temperature of around 523 °C, the steam drives a turbine connected to a generator.



6

78,000 megawatt hours of electrical energy are produced in this way every year. After the steam has been used to generate electricity in the high-pressure section of the steam turbine, it is fed into thyssenkrupp Rasselstein's plant grid as process steam.

7

The exhaust gas leaves the boiler at a temperature of approximately 180 °C and directly undergoes several stages of exhaust gas treatment. Acidic components of the flue gas are separated by adding lime hydrate to the gas flow and by mixing the flue gas with recirculate in a fluidised bed reactor.

8

Hearth furnace coke is then used to bind heavy metals, dioxins and furans, which are captured in the downstream fabric filter.

9

The cleansed gas then leaves the 60 m high stack with the aid of an induced draught fan. 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 back-filling material in mines.

10

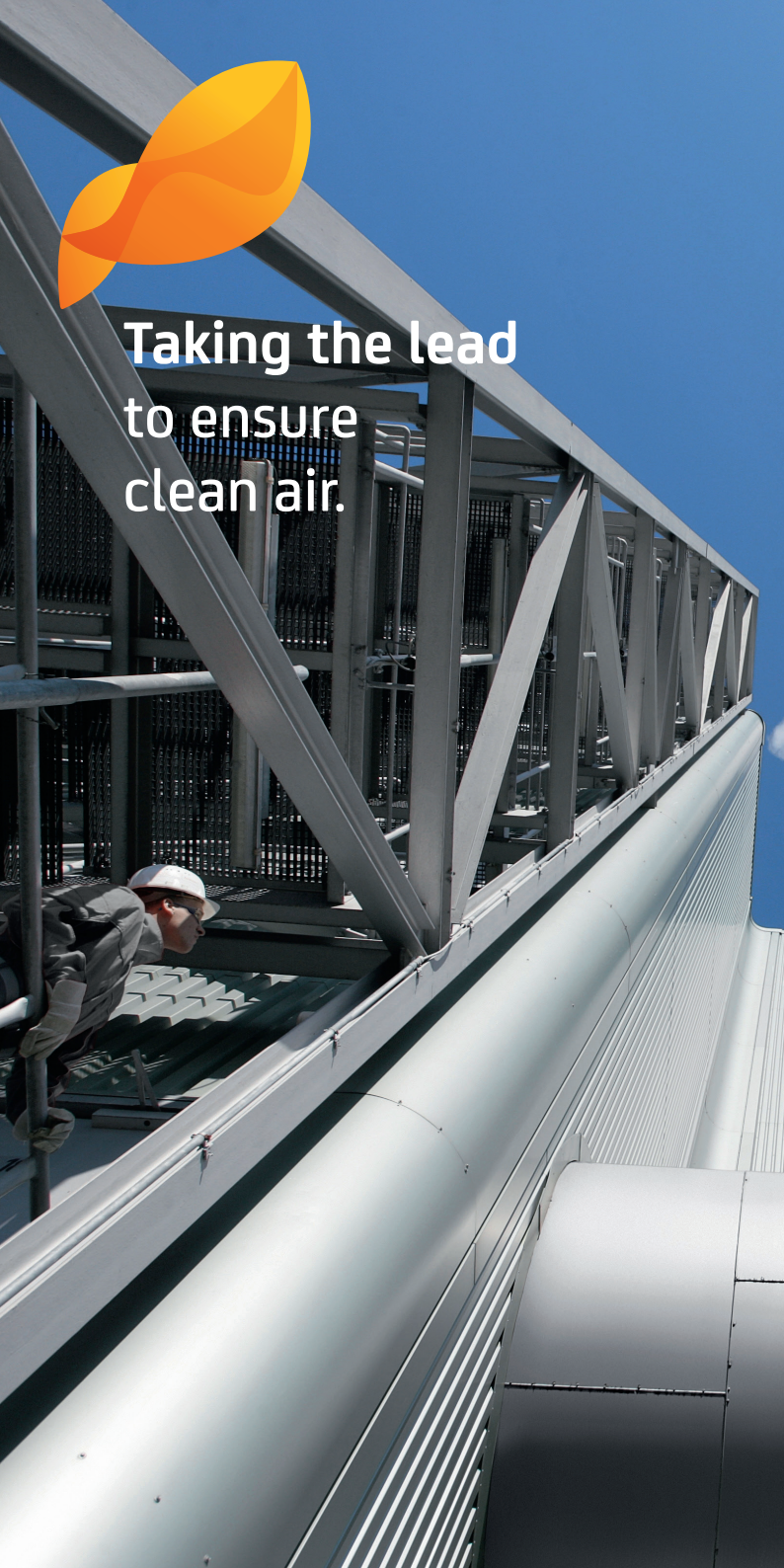
The plant easily complies with the particularly strict statutory emission limits and in most cases is substantially below them. A measuring station at the stack continuously analyses and monitors the emissions.



Peter Hahn, shift manager, IHKW Andernach GmbH

Technical data

| | |
|----------------------------|---|
| Commissioning | 2008/2009 |
| Capacity | 140,000 tonnes RDF/year |
| Number of combustion lines | 1 |
| Waste bunker capacity | 6,260 cubic metres \approx 2,191 tonnes |
| Calorific range of waste | 11 - 15 megajoules/kilogram |
| Electricity generation | 78,000 megawatt hours/year \approx 24,000 households |
| Process steam generation | 267,000 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 140,000 tonnes
of RDF recovered



78,000 megawatt hours
of electricity generated in an
environmentally friendly manner



Electricity produced in an
environmentally friendly manner
for 24,000 households



267,000 megawatt hours
of process steam produced with
resource-conserving technology



We tackle the future.

And assume responsibility.

150 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 2.2 million megawatt hours of electricity, 3.35 million megawatt hours of process steam and around 1.1 million megawatt hours of district heating. EEW's electricity output alone corresponds to the power required by around 700,000 households.**

Our team of around 1,400 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:

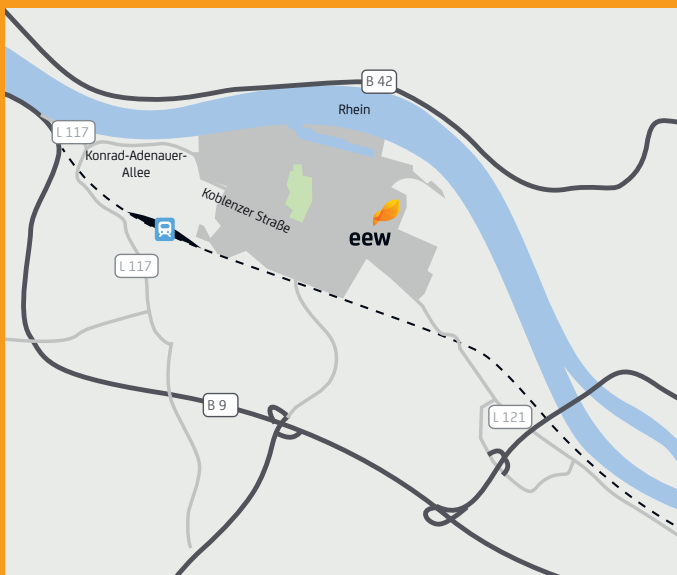
* Electricity, district heating and steam volume produced by 17 EEW Energy from Waste plants in 2022

** Assumed annual average consumption per household: 3,190 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 Andernach?

Please get in touch!

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