



Taking the lead
at the
Andernach site.



Welcome to EEW Energy from Waste!

Energy is the basis of our life. As fossil fuels are only available in limited quantities, using energy from waste as a resource is becoming increasingly important. As Germany's leading company in the production of environmentally friendly energy from the thermal utilisation of waste, it is our task to take the lead. With highly modern energy from waste plants that are state of the art technically and ecologically. With superbly qualified, dedicated employees. With good and effective relationships with citizens, municipalities and companies. And of course with environmentally friendly energy from waste.



.....

1 tonne of waste = 600 KWh of power

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

.....

EEW Energy from IHKW Andernach. Built out of responsibility for the region.

Energy from waste plants are a special kind of high-quality power plant. They not only have to meet the strictest requirements with regard to emission limits but also to satisfy the highest technical demands and are therefore continuously checked and optimised. For about 30 years, the EEW Energy from Waste Group has been planning, building and operating thermal waste recycling plants that set standards throughout Europe. New companies are being established and thus new jobs created near to the plants, which are characterised by low emissions, high efficiency and an exemplary health and safety record. At the same time, consumers and surrounding industrial companies are benefiting from the use of the energy generated in an environmentally friendly manner.

The industrial thermal power station 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 and heating steam as well as power delivers exclusively, 365 days in the year, to the tinplate factory belonging to ThyssenKrupp Rasselstein GmbH in Andernach. This plant is the only one in Germany and at the same time the world's largest for the manufacture of so-called packaging steel (tinplate). 301,000 megawatt hours of process and heating steam as well as 82,000 megawatt hours of power are produced for the plant every year under environmentally friendly conditions. In return, 140,000 tonnes of refuse derived fuel from the region, i.e. specially treated domestic, commercial and industrial waste with a high calorific value, are recycled. For energy provided to the nearby tinplate production plant and to protect the environment. That is something we are proud of.

An overview of how an EEW plant works.

1

Every week, several thousand tonnes of RDF are transported to the energy from waste plant.

2

The fuel is collected and placed in interim storage in the waste bunker which has a capacity of around 2,400 tonnes. A slight underpressure is maintained to ensure that no odours can escape. Environmental protection starts right there.

3

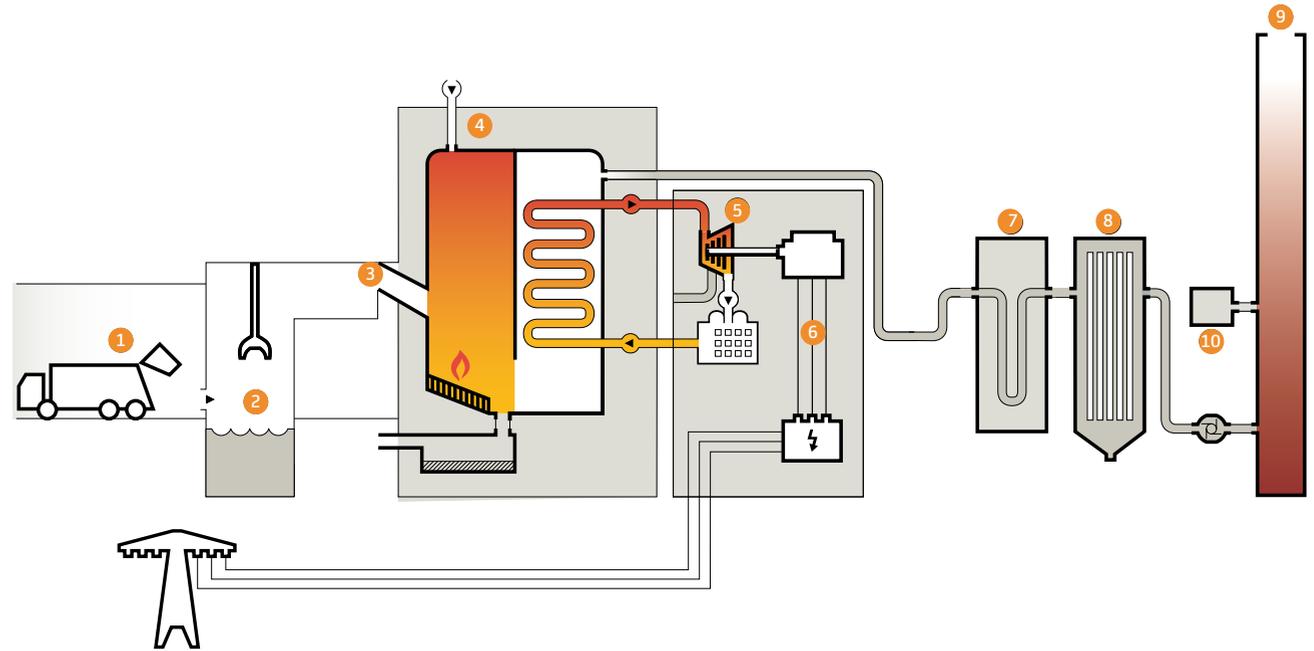
The waste is automatically mixed by the RDF crane and continuously transferred to the feed hopper from where it reaches the combustion grate for the line (boiler).

4

As waste self-combusts at the high temperatures in the boiler, no additional fossil fuels are required. Only when the boiler is powered up and powered down are oil burners switched on in order to guarantee the minimum temperature of 850 °C. This high temperature is required to ensure that pollutants are largely destroyed. At the same time, the nitrogen oxides are broken down to environmentally neutral nitrogen and water through the addition of urea.

5

Around 65 tonnes of steam are generated every hour from the thermal energy of the boiler. With a pressure of 68 bar and a temperature of 523 °C the steam drives a turbine connected to a generator.



6

82,000 megawatt hours of electrical energy are produced in this way every year, and 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

With a temperature of approx. 180°C, the flue gases leave the furnace and then undergo several stages of flue-gas cleansing. Dust and the acidic components of the flue gas are separated by adding hydrated lime to the gas flow and by mixing the flue gas with recirculate in a fluidized reactor.

8

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

9

Then the clean gas leaves the 60 m chimney with the aid of suction extraction. What remains is bottom ash, flue ash and filtration dust. The bottom ash is recovered and used for road-building and landfill. Flue ash and filtration dust are used as backfilling 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 chimney determines and monitors the emissions on a continuous basis.



Jürgen Kretzer, Systems Operator, IHKW Andernach GmbH

Technical data

Commissioning	2008/2009
Total investment	85 million euros
Capacity	140,000 tonnes/year
Number of combustion lines	1
Waste bunker capacity	6,700 cubic metres \approx 2,400 tonnes
Calorific range of waste	11 - 15 megajoules/kilograms
Combustion temperature	$> 850^{\circ}\text{C}$
Power generation	82,000 megawatt hours/year \approx 24,000 households
Process steam generation	301,000 megawatt hours/year



**Taking the lead
for the air purity
requirement.**

We're improving the CO₂ balance.

A benefit for the environment.

Energy generation from waste is active environmental protection. With an average share of 50% biogenic substances in waste, it is recognised that energy from waste plants produce energy from renewable sources pursuant to the Renewable Energies Act (EEG) and thus help to achieve the climate goals in Germany and Europe.

Also exemplary: the emissions of our waste recycling plant easily comply with the strict statutory regulations of the Federal Immissions Control Act (Bundesimmissionsschutzverordnung) and are substantially below them in some cases. This is documented by the seamless emissions control by the supervisory authority.

Ideally, come and see for yourself and take a look in person by visiting our plant. You will discover that at EEW Energy from Waste, we give waste a job in climate protection.



Our annual environmental contribution.



Up to 140,000 tonnes
of recycled waste



82,000 megawatt hours
of environmentally friendly power



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



301,000 megawatt hours
of process steam produced with
energy-saving technology



We tackle the future. And assume responsibility.

More than 145 years – that is how long our expertise has been built on progress. Founded in 1873 as Braunschweigische Kohlen-Bergwerke (BKB), the company was soon also operating as a power generator and has grown steadily to the present day. EEW Energy from Waste entered the waste combustion sector as early as 1990 and today is the most experienced company with the greatest expertise in the environmentally friendly generation of power from thermal waste recycling. As the market leader in Germany, we make a substantial contribution with 18 plants here and in neighbouring countries to resource management and to a reduction in greenhouse gas emissions.

Our figures speak for themselves:

Our plants have a yearly energy recycling capacity of around 4.7 million tonnes of waste. This means that we generate approx. 2.4 million megawatt hours of power and 2.6 million megawatt hours of process steam and 900,000 million megawatt hours of district heating.* The power volume produced by EEW alone corresponds to the electricity requirements of around 700,000 households.**

Around 1,150 highly qualified, dedicated employees are sending a clear signal with energy which provides a benefit not only to numerous companies, but also hundreds of thousands of households and particularly the environment.

References:

* Power, district heating and steam volume

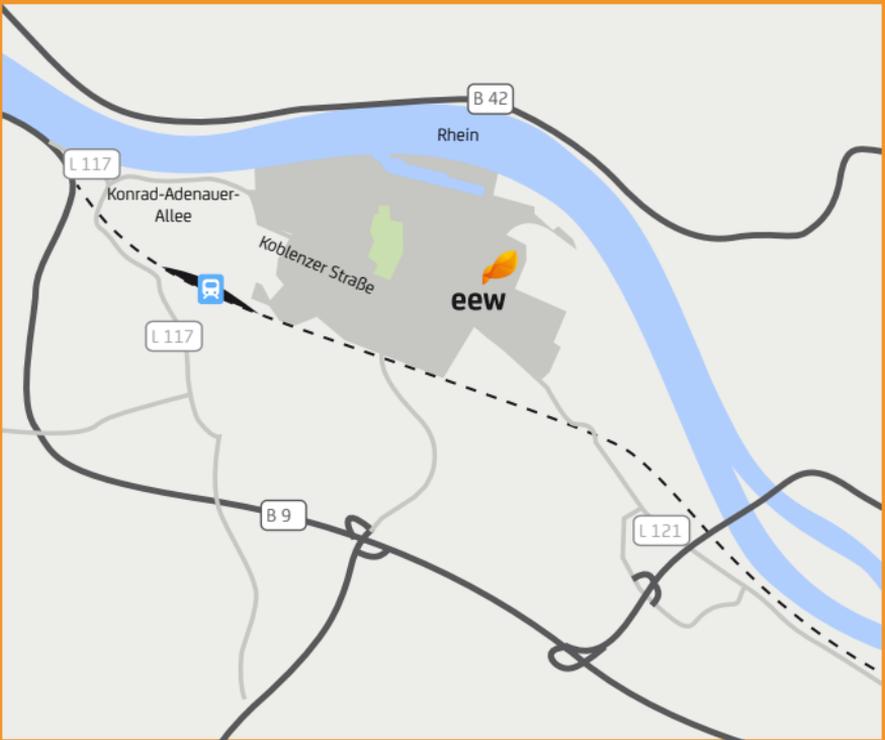
produced by our currently 18 EEW Energy from Waste plants in 2017

** Assumed annual average requirements per household: 3,450 kWh



We are not resting on our laurels; instead, we are continuously improving the processes and the efficiency of our plants. Ultimately we offer municipalities and companies pioneering waste management that keeps an eye on every aspect: we offer customised waste disposal concepts, accept the waste and also take care of the statutory documentation procedure. With outstanding performance and equal 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?
You are very welcome! Simply contact us at:

IHKW Industrieheizkraftwerk Andernach GmbH

Koblenzer Straße 141
56626 Andernach
Germany

T +49 2632 49859-0
F +49 2632 49859-299

andernach@eew-energyfromwaste.com
www.eew-energyfromwaste.com