

Water. Technology. Energy.

WTE Group

Competent. Dynamic. Innovative.



The **WTE Group** plans, builds, finances and operates facilities for waste water disposal, drinking water supply and energy generation.

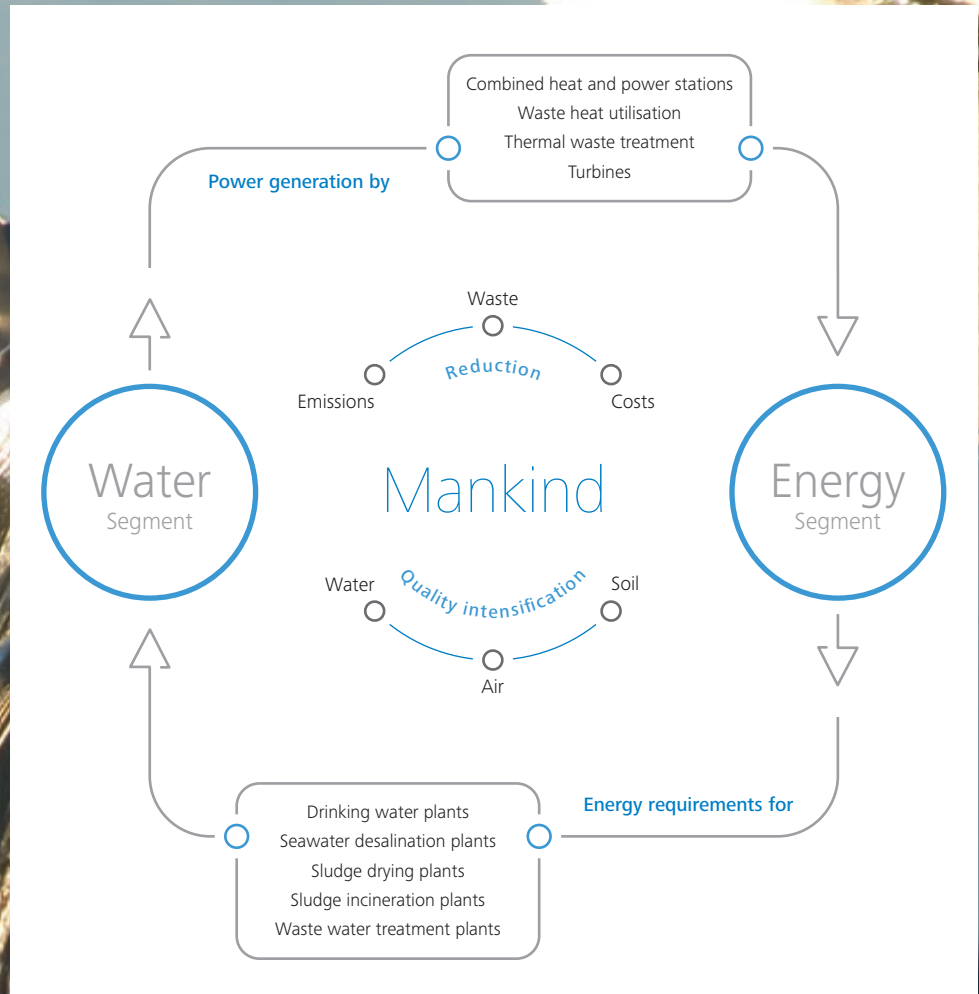
As one of Europe's **leading full-service suppliers**, we possess a unique set of know-how. We employ our knowledge to create **future-assured solutions** that set international standards in terms of energy efficiency, use of resources and investment costs.

Our objective of building facilities that operate efficiently, while at the same time being ecologically compatible, is attained by **effectively blending the elements of Water and Energy**. We assure the usability of the energy sources along the entire process chain. This enables the facilities to be operated in an **energy self-sufficient and energy-saving** way and even to feed energy into the national grid system.

We feel committed and bound to this sustainable approach, having already implemented it in **more than 100 projects in 18 countries**.

In the interests of our customers. In the interests of the environment.







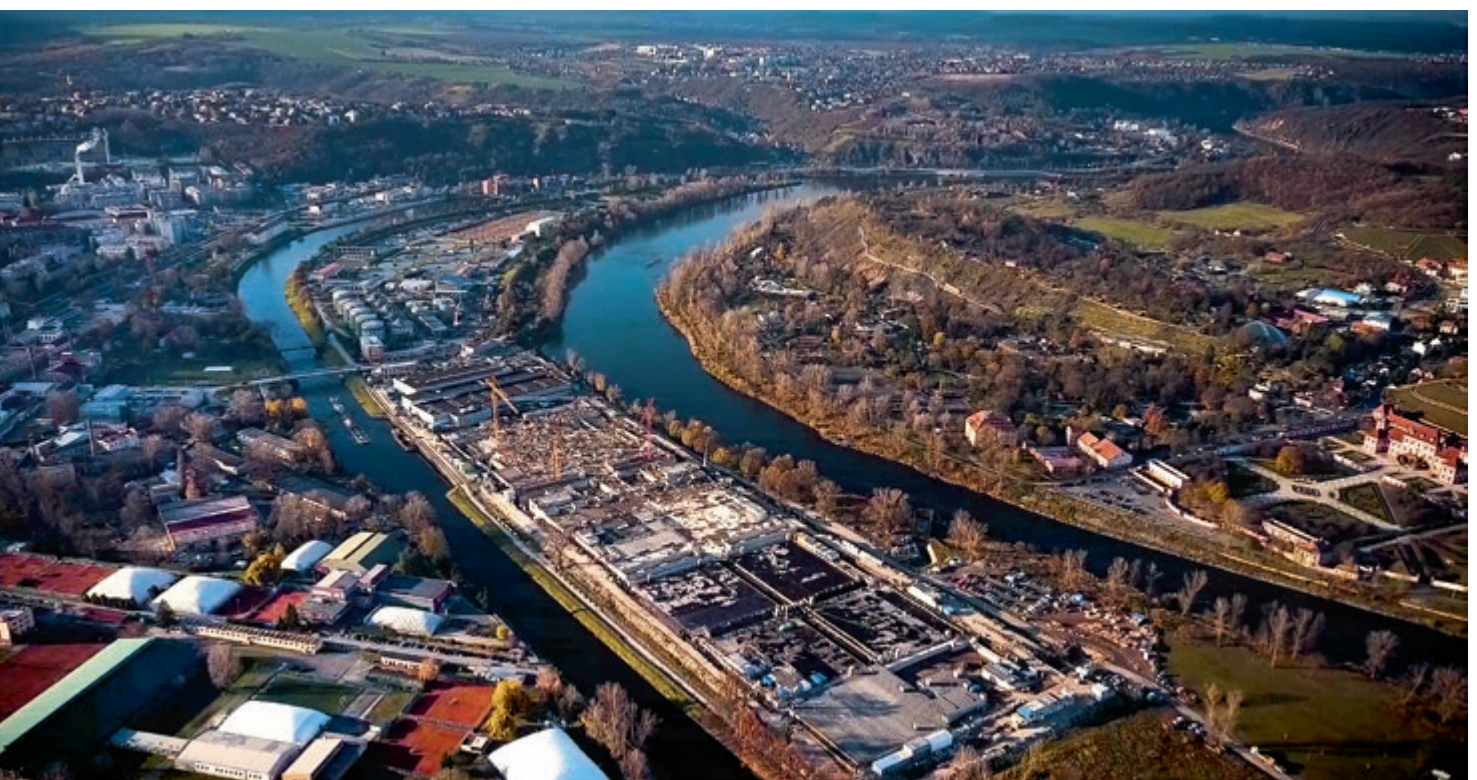


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Vision to market leadership

Our vision right from the start: A full service for communities and industry, from the supply of water to the disposal of waste water, provided from a single source for the benefit of mankind and the environment, and implemented to the highest quality standards. Within only a few years, we have become one of Europe's leading private service companies in this sector.

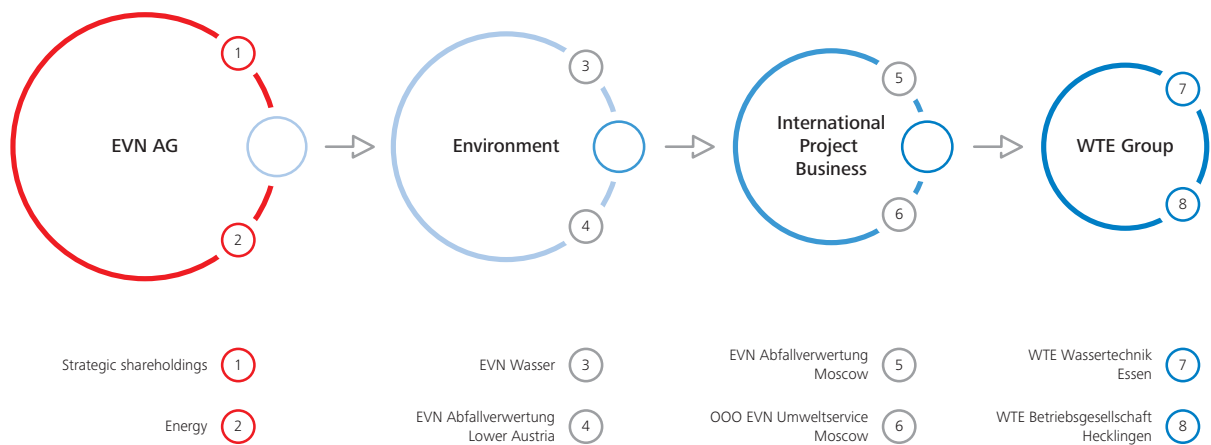


Founding history

The WTE Group came into being in 1989. In Bad Homburg, a German company merged with a Danish company to form Krüger Hölter Wassertechnik GmbH. This first step enabled an outstanding know-how in water supply and waste water disposal to join forces with a high level of expertise in turnkey plant construction.

Continuous development of services and competencies

The service portfolio of the newly-formed company underwent systematic and focused development. In 1990, the company was relocated to the pulsating Ruhr region to take advantage of the highly trained engineers and technical specialists to be found there. Over the years, the combination of technological and economic growth led to changes in ownership and shareholder structure. As from 1 January 2002, the company has operated under the name of WTE. These three letters that initially stood for 'Water. Technology. Energy.' now concisely symbolise our field of competence: 'Water to Energy'.



Number one in Germany: Springboard for international expansion

Our broad range of services, the in-depth know-how of our staff, the widely acknowledged high quality standards of project implementation and our impressive project references are all factors that have contributed to the WTE Group's becoming Germany's leading contractor for public works commissions. This positive development formed the basis for the company management's strategic decision to expand into foreign markets.

The vision lives on

Today, the dynamism of the WTE Group is reflected in all the data that characterise the company: Due to the success of our domestic and foreign business, our workforce has risen to around 600 employees. In addition to our head offices in Essen and Maria Enzersdorf, near Vienna, we maintain numerous locations in Germany and in other European countries. To date, the WTE Group has carried out more than 100 projects in 18 countries. Our plants provide over 19 million people with drinking water and dispose of their waste water.

Time and again, the WTE Group has been able to ecologically and efficiently combine the elements of water and energy. The initial vision has become a success story not only for our company, but also for the environment and for the people who benefit from the plants we build.

We give protection to mankind and the environment.
For the good of mankind, for the good of nature. We
actively promote their health. Healthy people. A sound
environment.





Locations and projects

WTE Group project business¹⁾

WTE Group projects¹⁾		114
Projects under construction		9
Completed projects		105
Total performance of waste water projects	in PE	18,426,154
Performance of projects under construction	in PE	1,700,419
Total performance of drinking water projects	in PE	1,097,500
Of which: Projects under operational control of WTE Group	in PE	1,985,300
German projects under operational control	in PE	176,650
International projects under operational control	in PE	1,808,650

Major international projects of the WTE Group

	Country	Scope classes in PE
Czajka-Warschau ^{2) 4)}	Poland	> 2,000,000
Istanbul-Ataköy ^{2) 4)}	Turkey	> 2,000,000
Kaunas ^{2) 4)}	Lithuania	> 350,000
Kielce ^{2) 4)}	Poland	> 250,000
Klaipeda ⁴⁾	Lithuania	> 250,000
Kohtla-Järve ^{2) 4)}	Estonia	> 200,000
Lublin ²⁾	Poland	> 300,000
Moscow South Butowo ^{2) 4)}	Russia	> 250,000
Moscow Southwest ³⁾	Russia	> 1,000,000
Moscow Zelenograd ²⁾	Russia	> 500,000
Opole ^{2) 4)}	Poland	> 150,000
Prague ²⁾	Czech Republic	> 1,500,000
Stettin Pomorzany ^{2) 4) 5)}	Poland	> 400,000
Stettin Zdroje ^{2) 4)}	Poland	> 150,000
Vilnius ⁴⁾	Lithuania	> 500,000
Vienna ²⁾	Austria	> 4,000,000
Zagreb ^{2) 4)}	Croatia	> 1,500,000

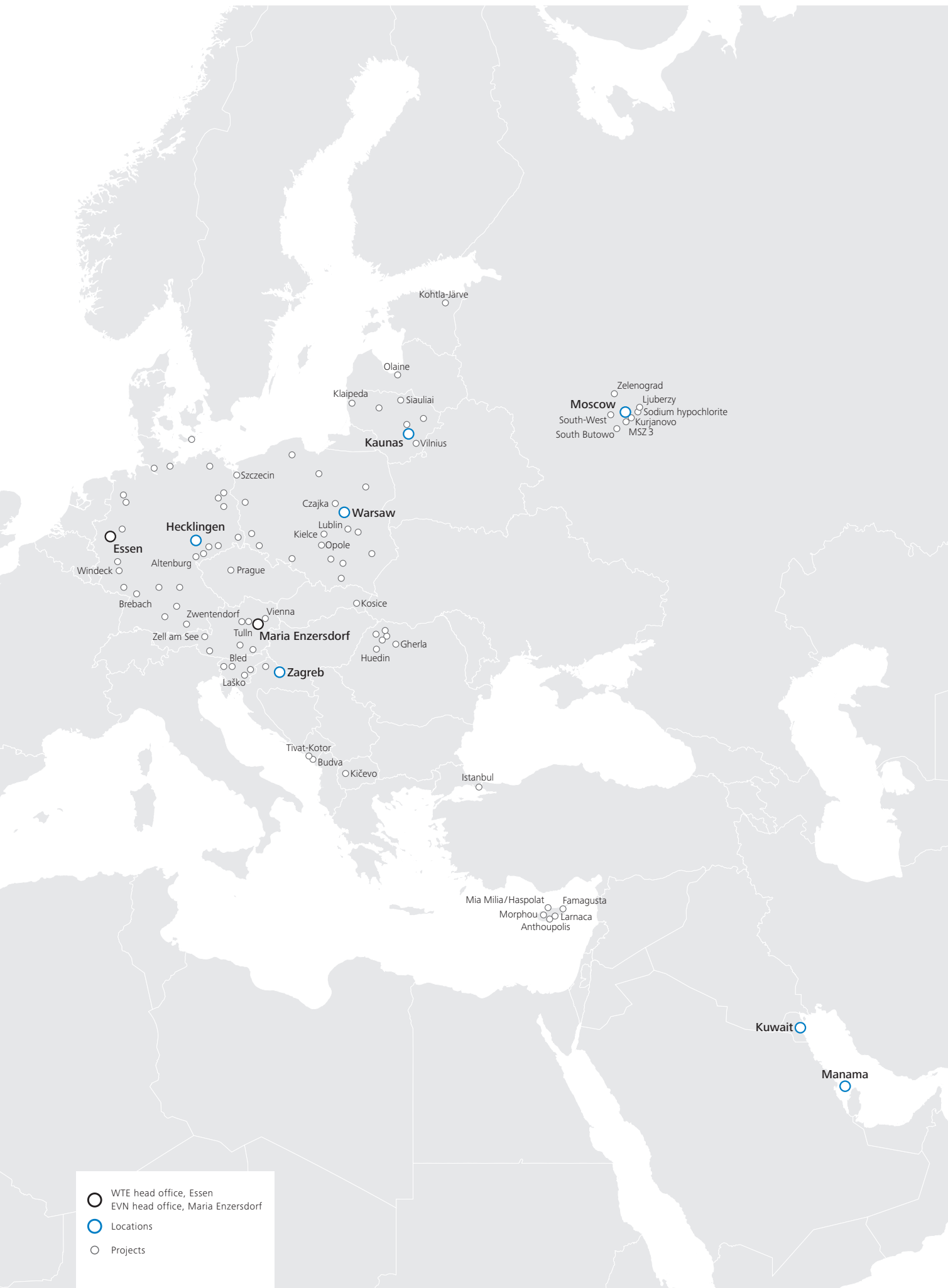
WTE Group national projects

	Operational
Altenburg	until 2013
Dietzenbach	since 1999
Hecklingen	since 1992
Langnese (Heppenheim)	since 2004
Holzdorf	since 1998
Buckow ⁶⁾	since 1992
Straupitz	since 1998
Teupitz	since 1997
Walkenried	since 1998
Windeck ⁶⁾	since 2003

Thermal waste recycling

	Tons / year
MSZ 3 Moscow	360,000
Zwentendorf/Dürnrohr	500,000

1) Projects in 18 countries: Germany, Austria, Russia, Lithuania, Estonia, Latvia, Poland, Croatia, Turkey, Cyprus, Montenegro, Slovenia, Denmark, Slovakia, Rumania, Czech Republic, Bahrain, Macedonia 2) Waste water 3) Drinking water 4) Sludge treatment 5) Sludge incineration 6) including drinking water supply





WTE Wassertechnik GmbH

Ecological innovations

Innovations for ecological water supply and waste water disposal.

WTE Wassertechnik GmbH rises to the demanding challenges posed by the diverse requirements of environment, society, plant operators, legislators and international organisations. We implement the commissioned projects with a keen sense of responsibility and an eye to the future.

Our service portfolio includes the planning and construction of plants for the supply of drinking water and disposal of waste water as well as thermal waste treatment for the production of heat and energy. Our domestic and foreign activities are focused on optimising people's quality of life and protecting natural resources.

Internationally recognised partner for environmental projects

We construct plants in regions with widely varying conditions. This can mean extreme climatic or geographical conditions, or complicated political relations, or even especially strong effluent pollution through chemicals. Our specialist knowledge and capabilities are always in demand, enabling us to conceive and implement innovative and future-assured solutions in even the most adverse conditions.

Valued partner for new EU members and candidates

Our company's main target markets are the countries of mid-, eastern and south-eastern Europe. EU members and EU candidates regard us as valued partners in achieving their objectives relating to compliance with EU directives for water supply and waste water disposal. However, we have also been able to build up a strong reputation beyond the boundaries of Europe.

Satisfying the highest demands of compliance, ecology and an assured future

The know-how, in-depth experience and social competence of our staff are of enormous value to our company, our customers and our partners. Our customers are assured of receiving completed facilities that not only comply with current legislation and safety standards, but also serve the interests of environmental protection while at the same time enabling profitable operation.



WTE Betriebsgesellschaft mbH

Economics and reliability

The economics and reliability of plant operation. In line with the WTE Group's holistic approach, we support our customers with much more than just the planning and construction of plants. WTE Betriebsgesellschaft mbH offers a variety of services that can be tailored in individual packages to the customer's requirements.



WTE Betriebsgesellschaft mbH employs around 300 highly qualified staff in the areas of operational management, management services and engineering services. They are specialised in areas such as overground and underground construction, sanitary environmental engineering, environmental technology, technical operations management, acquisition as well as financing and refinancing of technical facilities.

Operational management: Supervision and optimisation

Our range of operational management services includes such tasks as commissioning, process optimisation and supervision and the optimisation of operating expenses, but also damage management, water pollution control and residual waste disposal. Our WTE System, certified in accordance with DIN EN ISO 9001:2008 and DIN EN ISO 14001:2004, provides the basis for compliance with all guidelines, regulations and legislation.

Management services: Decisions that set the future course

Our management services provide the framework for maximising the availability and operational life of a plant. Our specialists are able to identify and exploit savings potential at an early stage. They make the necessary decisions based on their experience and react promptly to changed conditions.

Engineering services: Assuring compliance and infrastructure

Our engineering services specialists assure the fulfilment of statutory technical requirements for a plant. They develop network information systems, operational management and statistical modules; they prepare network asset and status documentation, and take on the management of fees and subscriptions. Their expertise and vision assures the preservation of the infrastructure.



Future-assured concepts for ecological energy recovery

The search for new forms of energy is considered to be one of mankind's most significant future topics. As one of Europe's leading environmental services providers, we have, by merging the elements of water and energy, developed innovative methods of utilising regenerative forms of energy.

We offer the operators of environmental plants three forward-looking concepts for the generation of renewable energies. Our objective is to enable ecological sustainability coupled with economically acceptable investment costs.

Water to Energy: Generating renewable energies from water

This concept exploits the large amounts of energy produced when purifying waste water. By installing combined heat and power stations, turbines and low-energy aggregates, we ensure that the energy sources along the entire process are usable. We then provide this resource-saving energy to diverse environmental plants for their virtually energy self-sufficient operation, or for the generation of electricity.

Waste to Energy: Generating energy from waste incineration

The amount of waste being produced globally is rising in line with the advancing industrialisation of countries on all continents. Our activities reduce the volume of atmospherically combustible waste through environmentally compatible incineration, subsequently converting the heat generated in this way to electricity and district heating.

Sludge to Energy: Thermal recycling of sewage sludge

Together with our globally active partner, Huber SE, we have created a unique method of extracting energy from sewage sludge. The heat generated during thermal recycling is used to dry the sludge, leading to a reduction in volume of around 90 %. This results in economic advantages for the plant operators, such as assured disposal, less space requirement as well as the reduction of sewage sludge transportation to a minimum.



Thermal recycling

The thermal recycling of waste benefits plant operators on their path to a more environmentally friendly CO₂ balance. It protects the environment and is a valuable source for generating renewable energy.



An excellent example of thermal waste recycling is the MSZ 3 plant, which is the largest of three waste incineration plants in the city of Moscow.

Each year, the Russian capital accumulates around 3.5 million tons of solid domestic waste, including bulky waste. About 800,000 tons are burnt in the city's waste incineration plants, almost half of that in the MSZ 3 plant constructed by our parent company, EVN.

Roughly 2.7 million tons of Moscow's domestic waste is still stored in landfill sites, including products which contain highly toxic materials such as fluorine, chlorine, cadmium or mercury. The depletion and decomposition processes, which can take as long as 300 years, cause pollution of the air and of drinking water.

This means that these waste disposal sites are a long-term hazard for the environment. They destroy ecologically valuable countryside and represent an incalculable risk for future generations.

Ecological recycling carried out to the most up-to-date technical standards

With a capacity of 360,000 tons per year, the MSZ 3 plant became operative after a construction period of only two years. Since then it has made an important contribution to the ecological treatment of the large amount of domestic waste produced in Moscow.

The treatment of the delivered waste is ecologically sound, and recycling is carried out to the most up-to-date technical standards. The non-degradable items of waste are extracted in a multi-phase flue-gas purification plant. The remaining organic pollutants are destroyed at temperatures of over 1,000 °C.

The energy harnessed in the waste is fed into a power/heat cogeneration plant, which is attached to the Moscow heat network and produces electricity and district heat for 48,000 Moscow households.

Conceived as a BOOT model, the MSZ 3 plant will be operated by EVN until 2020, after which it will transition to ownership by the city of Moscow.

Water as a building block of life in accord with mankind and nature

Our plants serve to maintain and nurture one of the greatest gifts mankind has ever possessed: Water. Our portfolio comprises solutions applying to the individual conditions in each of the regions in which we are active – however distinctive and demanding they may be.

Waste water purification

We construct completely new waste water purification plants, remodel existing facilities that don't conform to guidelines, or extend plants in accordance with valid regulations. Under WTE's operational management, our customers receive the assurance that the facilities will comply with applicable guidelines over a period of at least 25 years.

Drinking water supply

Due to ground water contamination, discharging of industrial waste water into rivers, or lasting water scarcity, many communities experience serious problems in providing the required volume of clean water. With our plants, we support these communities in assuring a sufficient supply of high-quality drinking water for their inhabitants.

Seawater desalination

Many countries of the world do not possess sufficient fresh water for the supply of drinking water. Or the quality of the available water does not conform to current guidelines. Our seawater desalination plants offer seaboard countries an ecological and economically sensible alternative to the costly delivery of drinking water by ship, which has been standard practice for many years.

Membrane-bioreactor technology

Membrane-bioreactor technology for waste water purification is an option for regions that suffer from water scarcity. This process offers communities a resource-saving way of recycling waste water to provide water for the irrigation of fields. By this means, drinking water remains available for use by the inhabitants.



Energy – electricity and heating from regenerative sources

We view the subject of energy entirely in terms of the quest for regenerative sources. Our technologies allow us to exploit renewable energy carriers.



Combined heat and power stations

Operating waste water purification plants requires large amounts of energy. When integrated as a module in purification plants, combined heat and power stations enable almost energy-autonomous operation of the facility. The biogas produced following the purification process and sludge treatment is converted through incineration either to electricity for plant operation or heat for sludge drying.

Waste water treatment

Not only combined heat and power stations produce heat during waste water purification. We are able to extract heat from waste water with a special process. Using heat exchangers, we can convert the heat to energy, which in turn can be used to operate the plant, or routed into the public grid.

Thermal waste treatment

The thermal treatment of waste has proved to be an ecologically worthwhile solution for recovering energy. From the heat created by incineration, we produce district heating for household heating and hot water. Moreover, we produce hot water for steam to drive the turbines.

Sewage sludge incineration

We use a process for sewage sludge treatment that emanates from the biological purification of waste water. First, the sewage sludge is dried. The subsequent incineration generates heat that can be used for energy-autonomous plant operation, for sewage sludge drying, for the production of hot water for steam to drive turbines, or for district heating.

Research and development

Collaborations raise efficiency

For us as a forward-thinking company, research and development have a high priority, which is why we are also keen to collaborate with leading research institutes*.

We are currently working on the following topics:

Innovative biological wastewater treatment system with functionally differentiated biofilm reactors

The aim of the joint project known as Innovative Biological Wastewater Treatment System (IBAS) is to develop a calculation base for a new biological wastewater treatment system with functionally differentiated biofilm reactors, in order to subsequently bring the process to market. The system will make it possible to almost entirely eliminate nitrogen compounds, as stipulated for sensitive areas by the European Water Framework Directive. The system presents advantages such as the reduction of tank volumes for carbon removal and denitrification, greater stability of nitrification, energy savings with regard to aeration, and low investment costs.

The project, which is funded by the German Federal Ministry of Education and Research, is being implemented by WTE Wassertechnik GmbH in collaboration with Martin Membrane Systems (MMS) AG, the Research Institute for Water and Waste Management at RWTH Aachen (FiW) as well as Abwasserreinigung Dietzenbach GmbH (adg) as an associated member.

Advanced oxidation for natural organic matter removal in drinking water treatment

In recent years, advanced oxidation processes (AOP) have increasingly become the focus of drinking water treatment. These processes can also break down and degrade organic substances that are difficult to oxidise by conventional technologies.

The existing problem of surface water exposure to natural organic compounds or DOC in the drinking-water catchment area of the South-West Waterworks in Moscow has long been recognised. The AOP as an advanced oxidation process offers an effective option for the transformation of these otherwise difficult-to-oxidise organic compounds. Another objective, specifically for this drinking water plant, is to reduce the concentration of long-chain

organic substances, which concentrate due to circulation of backwash water, prior to the ultrafiltration step. The aim is therefore to improve the treatment performance using the AOP process and to largely dispense with the otherwise necessary discharge of backwash water over a period of several months per year (increase in efficiency).

Development and verification of measurement techniques relating to operational data collection for the fractionation of the chemical oxygen demand in sewage treatment plant inflows

The dimensioning of single-stage municipal sewage treatment plants is often carried out, also internationally, according to the worksheet ATV-A 131 (2000) of the German Association for Water, Wastewater and Waste. In its new edition in 2016, the fractionation of the chemical oxygen demand (COD) replaced the biochemical oxygen demand (BOD) as a guide parameter. More operating data concerning these COD fractions is required in order to be able to further optimise operational plants in the future. In collaboration with the Ruhr University, Bochum, measuring techniques are currently being determined for the various COD fractions and subsequently tested on large-scale facilities, including ones located in warm climates.

Selective removal of excess sludge from difficult-to-settle activated sludge in secondary clarification

In a secondary clarifier, quickly and easily sedimentable activated sludge settles near the inlet area. Activated sludge that is difficult or slow to sediment tends to collect near the drainage area. If only the difficult-to-settle activated sludge is removed as excess sludge, the sedimentation performance of a secondary clarification can be improved. This increases operational safety and enables increased sewage treatment plant capacity.

As part of this study together with the University of Duisburg-Essen, this working hypothesis is being examined in operational sewage treatment plants with the help of the sludge volume index. The objective is to determine the mass flows for poor, medium and easily sedimentable activated sludge by means of a balancing process. On this basis, the position and performance of the selective excess sludge removal process can be determined.

* Research Institute for Water and Waste Management at RWTH Aachen (FiW) e. V.; Department of Urban Water Management and Environmental Technology, Ruhr University Bochum; Department Urban Water- and Waste Management, Chair for Mechanical Process Engineering/Water Technology, Duisburg-Essen University; Institute of Urban and Industrial Water Management, Dresden University of Technology; Institute of Wastewater Management and Water Protection (AWW), Hamburg-Harburg University of Technology.

Energy management

The objective and purpose of energy management is to plan and steer the generation and usage of energy in such a way that natural resources are protected, the requirements of climate protection as far as possible fulfilled and energy costs for industry reduced.

For our company, the subject of energy management revolves around the search for sources of renewable energy. The technologies we offer our customers have for a long time enabled regenerative energy sources to be exploited in their plants. Now, our focus lies on the continuous improvement of energy efficiency.

In order to achieve this objective, we have introduced an energy management system in accordance with DIN EN ISO 50001. Using this system, we can sustainably reduce our specific energy usage and avoid unnecessary usage.

Analysis and consequent actions

How will WTE's energy management system be implemented in the company?

Firstly, all energy usages will be systematically collated, documented and evaluated with the aid of a comprehensive system of key metrics. The next step will be to involve all employees, define those responsible and set up the necessary information and organisation structures as well as the technical resources.

The team responsible for energy efficiency will have the authority to implement the essential measures, and every employee will be sensitised regarding energy-conscious behaviour at the workplace. When introducing new processes, those products and services with already proven energy efficiency will be favoured; this will be re-checked as the project progresses.

An excellent example

An outstanding example for energy efficiency in line with the WTE energy management system is the outdoor photovoltaic system operated by WTE Betriebsgesellschaft mbH in Buckow.

Conceived for the Märkische Schweiz sewage plant and costing 275,000 EUR for planning and construction, the installation is sized at 195 kWp. In practice it is achieving about 179 kWp with an annual output of around 218,000 kWh.



A large part of the electricity is required by the plant itself and about 20 % is fed into the public network. The in-house generation covers about a quarter of the plant's annual power requirement and has the parallel effect of reducing the CO₂ emission by about 142 tons.

Strengthening global environmental protection

In connection with our technologies for virtually energy self-sufficient plant operation, our energy management system supports us in further developing and perfecting energy efficiency's path to optimisation. This helps us to make a valuable contribution to protecting resources, climate and environment.

Ethical principles

Our corporate mission: Guided by ethical principles. As one of Europe's leading environmental service providers, we are aware of the responsibility we carry for mankind and the environment. Strong ethical principles are inextricably bound to our self-perception.

The rules for our technical actions are determined from the outside by legislators and organisations. With regard to our corporate thoughts and actions, and our dealings with customers, partners and colleagues, we feel inwardly bound to values that go beyond the effects of legislation.

Voluntary commitment to values that go beyond rules and regulations

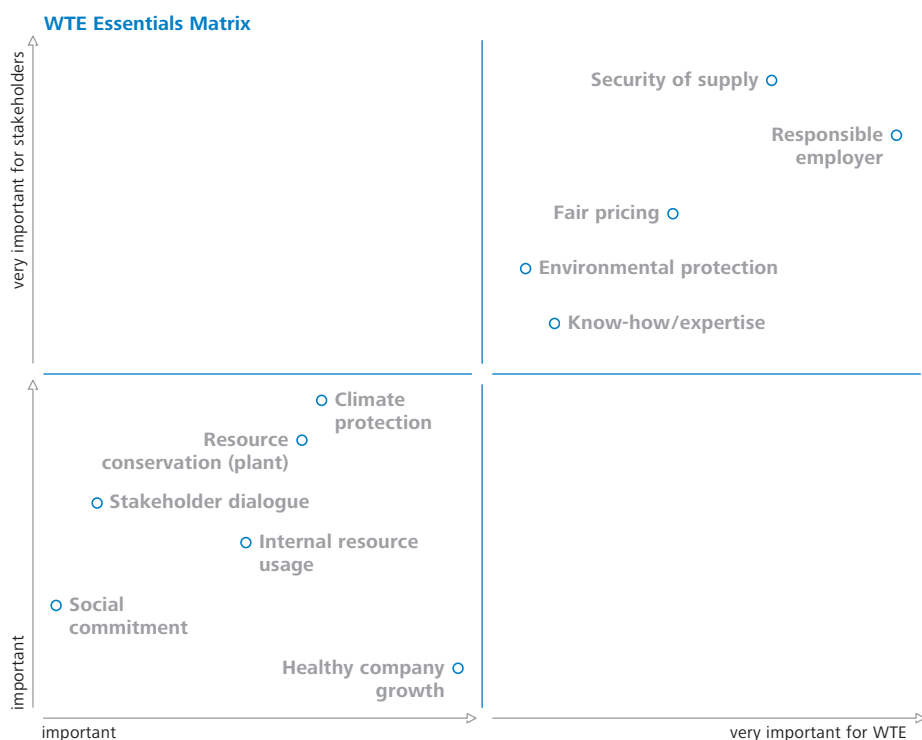
Basic ethical principles and codes of conduct recommended for international business are anchored in our corporate mission. They apply to fairness in competing for project tenders, just as they do for our dealings with the people, companies and institutions involved in our projects. We strive for maximum transparency in all our business dealings. Active environmental protection, project sustainability and the good of mankind are always at the forefront of our dealings.

Guiding principles as the impulse for future development

The values defined in our corporate mission contribute to ensuring the success of our projects. They promote our reputation at home and abroad. Not least, they encourage our staff to meet the increasing demands made on them, and to develop more and more innovative solutions and implement these even under the most difficult conditions.

Social commitment – an element of our corporate culture

Corporate social responsibility, representing the involvement with matters over and above the actual business itself, is for us a welcome element of our corporate mission that has become a matter of course. Here we also maintain our view to the future and to the good of mankind: From our head office in Essen we promote institutions that support young people.



All-encompassing view of the supply of water to mankind

Our all-encompassing view takes account of all factors that influence the fulfilment of our objectives: Protecting the environment and water resources, guaranteeing good water quality and providing people with sufficient clean drinking water.

Corporate social responsibility

Our company maxim is to serve mankind and the environment, and to promote health, sustainability and a secure future through our environmental projects. In this spirit, we also take on social responsibility and engage in projects for the public benefit.

Spring water for village wells in the third world

In many third-world villages, each person only has access to a few litres of water per day. Villagers in such regions live in hope of getting material and aid to enable them to construct a well.

In many cases they must wait years for this dream to come true. But when it actually happens, the moment in which the water flows is the long-awaited signal: From today, life in the village will take a distinct turn for the better.

We would like to secure sufficient fresh water for as many people as possible, so we support the WasserStiftung (WaterFoundation), which has already implemented such projects in third world countries for thousands of people.



Creating prospects for the project locations

In the economically poorer regions of the world in which we implement projects to supply drinking water and dispose of waste water, we feel it is our duty to commission work within the local economy.

In constructed plants, we are creating future-assured workplaces for local employees. We train them and pass on our know-how, which they in turn pass on to successive generations.

Think and act globally, promote locally

Despite thinking and acting globally, we also turn our attention to our own region, for example in promoting community projects in Essen, the city in which our head office is located.

Today's youth will carry tomorrow's responsibility for the population's health and the protection of the environment. With this in mind, we particularly support institutions that take care of disadvantaged young people.

Raum 58: Emergency sleeping accommodation for young people

'Raum 58' (Room 58) was opened in Essen in 2001. It is a reception centre for young people aged 14 to 21 who suffer from broken relationships and traumatised.

Those seeking help are cared for by social and education workers with the aim of strengthening their individuality. We support the institution, which is mainly financed through donations, with a financial contribution on a yearly basis.

Weigle-Haus: Offers for disadvantaged people

The Weigle-Haus combats the exclusion and social discrimination of children and young people. It offers them open youth work and street work, help with their homework, religious services, house circles and a café.

It also offers middle-class youngsters a place where they can challenge themselves, create their own youth culture and seek answers to their questions about God and the world in general. We also support this youth work with a regular financial contribution.

The present, and our future – topics that affect us all



Phosphor recovery from waste water and sewage sludge

It sounds inconceivable, but according to current estimates, there will be no more phosphor reserves on this earth in 100 years time. But this mineral is essential for the growth of every living organism on our planet. So if the reserves are running out, phosphor will have to be recovered by some other method.

One possibility is the recovery of phosphor from waste water and sewage sludge. It is known that the mineral is found in the faeces of seabirds, but also in human excrement. On average, every human excretes around two grams of phosphor per day, which enters the water cycle via the waste water system and can lead to strong algae growth in inshore waters.

The recovery of phosphor from waste water and sewage sludge therefore offers two advantages: Pollution is reduced, and the recovered phosphor can be spread on the fields as fertiliser.

Today's recovery methods for phosphor are simply not economically viable enough to be widely used. But it will only be a matter of time until more efficient processes are developed.

We keep ourselves continually informed about the current research status concerning phosphor recovery. Our objective is to be one of the pioneers of extracting phosphor from sewage sludge ash. This would be a meaningful extension of our proven technologies for waste water purification and sewage sludge processing.



Biogas is an important component in the regenerative energy mix

Today, wind energy and photovoltaic are indispensable for the supply of electricity through regenerative energies. These technologies, which are now widely installed in Germany and other countries, are subject to alternating phases in which very high or very low levels of electricity are generated, which means the plants require a high level of flexibility.

As emphasised by the specialist association Fachverband Biogas e. V.¹⁾, biogas is an important option for the provision of renewable power in line with requirements, because it is currently the only energy carrier that is storable.

We utilise this characteristic of biogas as far as possible in our projects, for example by integrating combined heat and power stations that use biogas into our waste water purification plants. Thus WTE supports waste water plant operators by enabling the virtually energy self-sufficient provision of this ecologically recovered resource.

1) Source: [www.biogas.org/edcom/webfbv.nsf/id/DE_PM-03-13/\\$file/13-01-30_PM_Biogas-Jahrestagung.pdf](http://www.biogas.org/edcom/webfbv.nsf/id/DE_PM-03-13/$file/13-01-30_PM_Biogas-Jahrestagung.pdf)



Our earth – victim of the anthropocene?

A new geo-chronological epoch has begun: The anthropocene. Derived from ancient Greek, this term in effect means ‘the new impact of human activities’. In the year 2000, the Dutch chemist and researcher of the atmosphere, Paul Crutzen, was one of the first to publicise it.²⁾

The term describes that part of the earth’s history in which mankind emerges as being one of the most important factors influencing natural processes – whether they be biological, geological or atmospheric.

How could human activities achieve such great significance for our entire living environment that they herald a new era in the earth’s history?

Senselessness prevails

Day for day, agriculture, industry and private households use incredible amounts of freshwater. By the year 2030, demand will outstrip supply by forty percent.

Due to the search for valuable raw materials, about half of all the world’s beaches have been carried off. Roughly 65,000 kilos of stone need to be moved in order to gain one kilo of platinum; for the same amount of diamonds, the figure is more than 5.2 billion kilos of stone.

Compared to the present, the volume of rubbish will have doubled by 2025; and up to now, around 30 million tons of radioactive waste has accumulated.

For mankind and the entire planet, global warming of more than two degrees is regarded as a catastrophe. But very little is being done to stem CO₂ emissions, raising the threat of global warming at the rate of around four degrees.³⁾

Stringent implementation of environmental projects

These are only a handful of examples that show how mankind is exploiting the only planet on which it can live, and is thus depriving itself of the basis for its existence. And despite the daily warnings about the irreversible pollution of the oceans, the consequences of deforestation, the effects of today’s CO₂ balance as well as many more, a stringent global rethink has not yet taken place.

10 billion people are expected to be living on this earth by the year 2050³⁾ – sufficient reason for us to consistently direct our environmental projects to a future in which mankind can live in harmony with nature and the environment.

2) Paul J. Crutzen: Die Geologie der Menschheit (The geology of mankind). In: Paul J. Crutzen et al: Das Raumschiff Erde hat keinen Notausgang (The spaceship Earth has no emergency exit). 2011, pp. 7–10.
(Source: <https://de.wikipedia.org/wiki/Anthropoz%C3%A4n>)
3) Source of all facts and figures shown in this section: Die Welt am Limit (The world at its limits) In: WirtschaftsWoche 9. 3. 2015 Green Economy pp. 16-17



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