



EMSCHER GENOSSENSCHAFT
LIPPE VERBAND

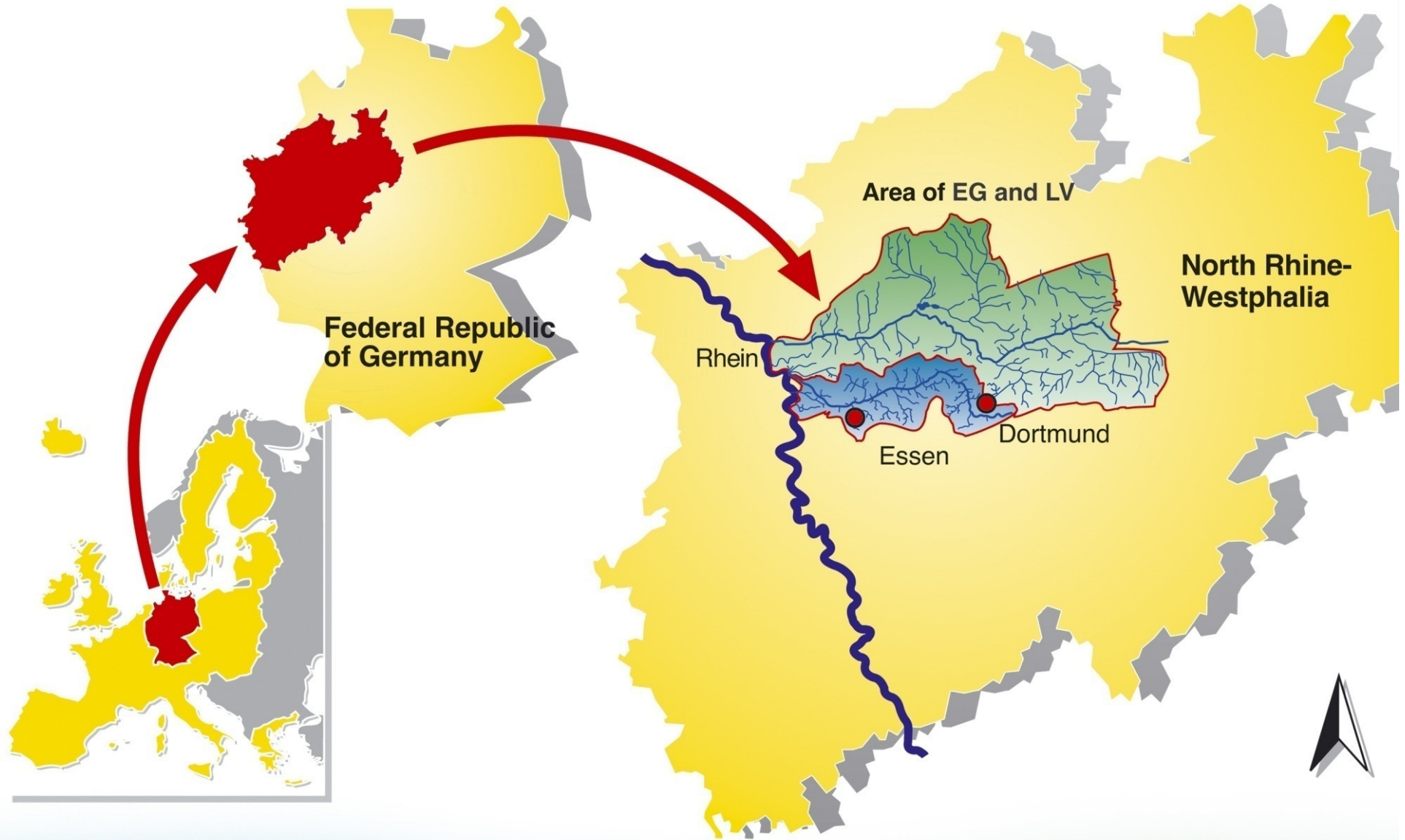


The Emscher-System Changes and challenges

Ekkehard Pfeiffer



Our catchment area





What moves us



We manage the natural river areas of the rivers Emscher and Lippe



We are a service provider for water management



Together we are the largest waste water treatment provider in Germany



We are water management companies incorporated as statutory bodies under public law



We have been a administrative partnership for almost 100 years now

Our catchment area

- Waterway
- Drainage pumping station
- Waste water treatment plant



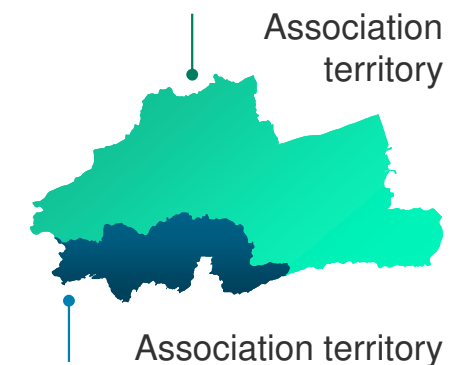
Association territory

	Area (km ²)	Inhabitants (mio.)	Inhabitants/ km ²
Lippeverband	3.280	1,4	427
Emschergenossenschaft	865	2,4	2.775

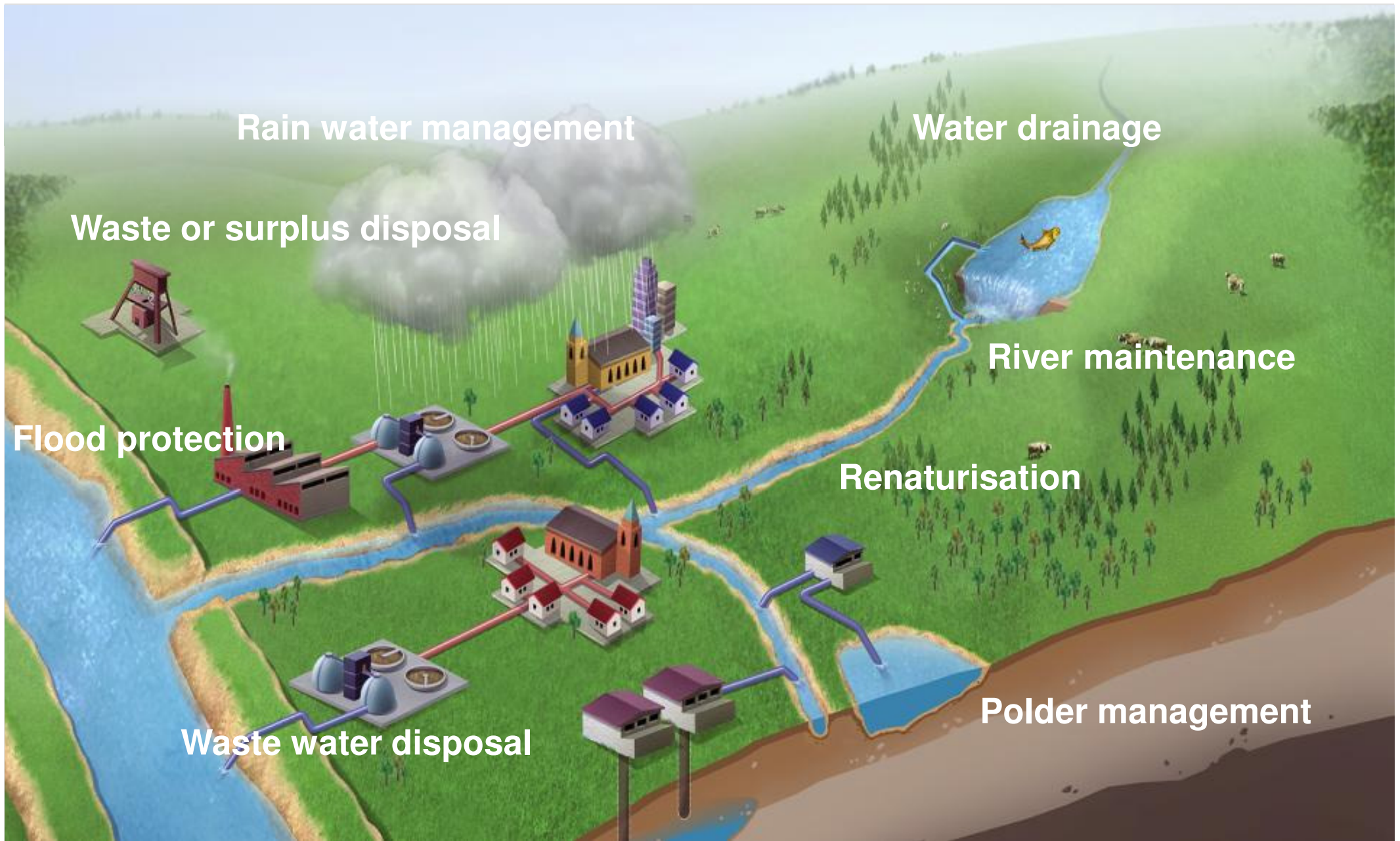
Water management parameters

2011

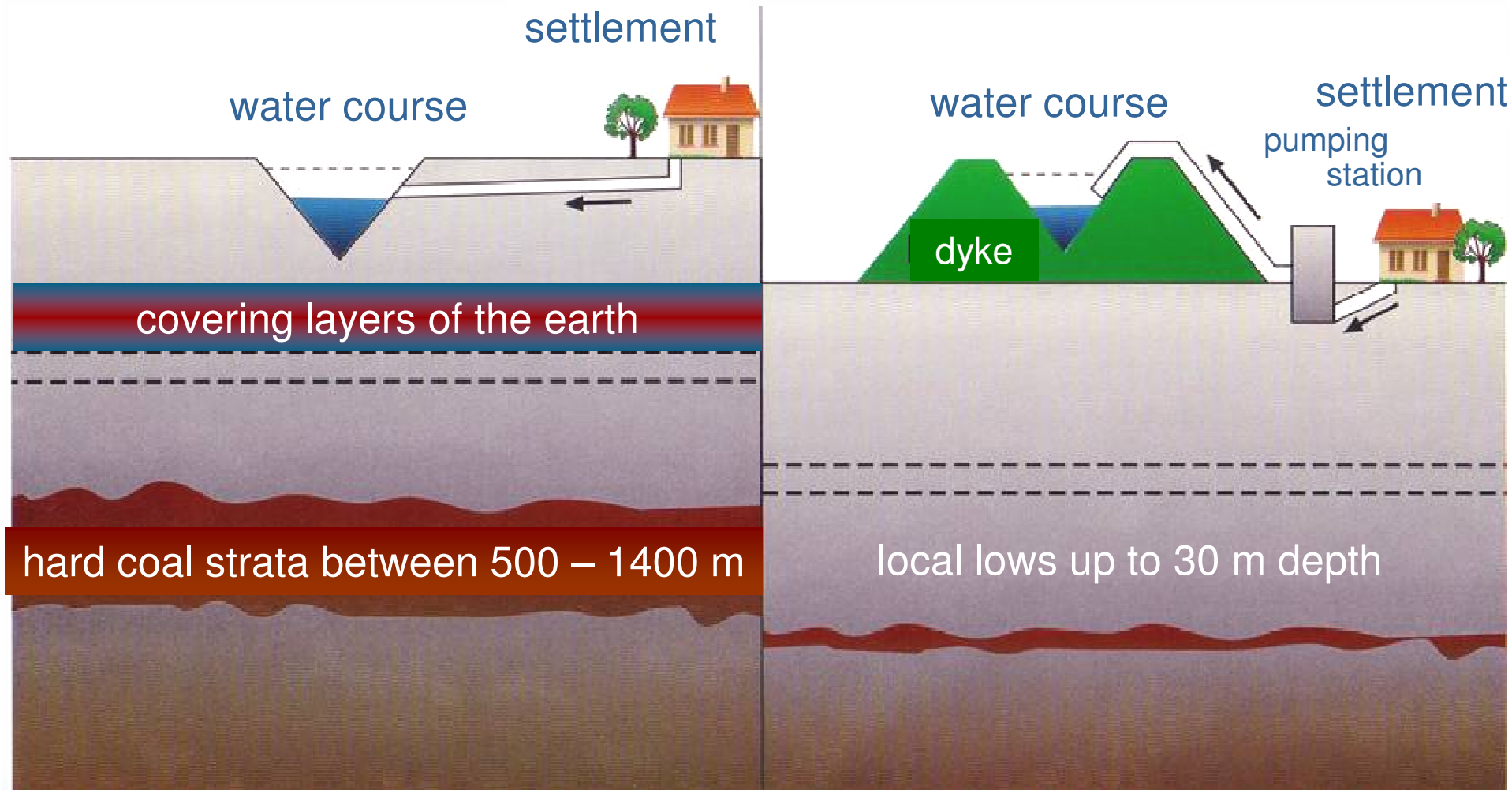
Rivers	750	km
Waste water channels	1,161	km
Pump stations	297	
Polder areas	842	km ²
Waste water treatment plants	60	
Capacity	7.3	Mio. inhabitants
Waste water disposal	0.9	Bill.. m ³ /a
Rain water treatment		
• Facilities	354	
• Volume	1,047,422	m ³
Flood protection		
• Flood water retention basins	50	
• Retention volume	3.25	Mio. m ³
• Dikes	193	km



Integrated water management



Mining influence on drainage and flow regimes



The Emscher valley at 1900



EMSCHER

The status quo - open sewers



The 'schwatte' (black) Emscher

symbolic of the 'old Ruhr region'



Milestones of the Reconstruction of the Emscher River

The largest infrastructure project in the region

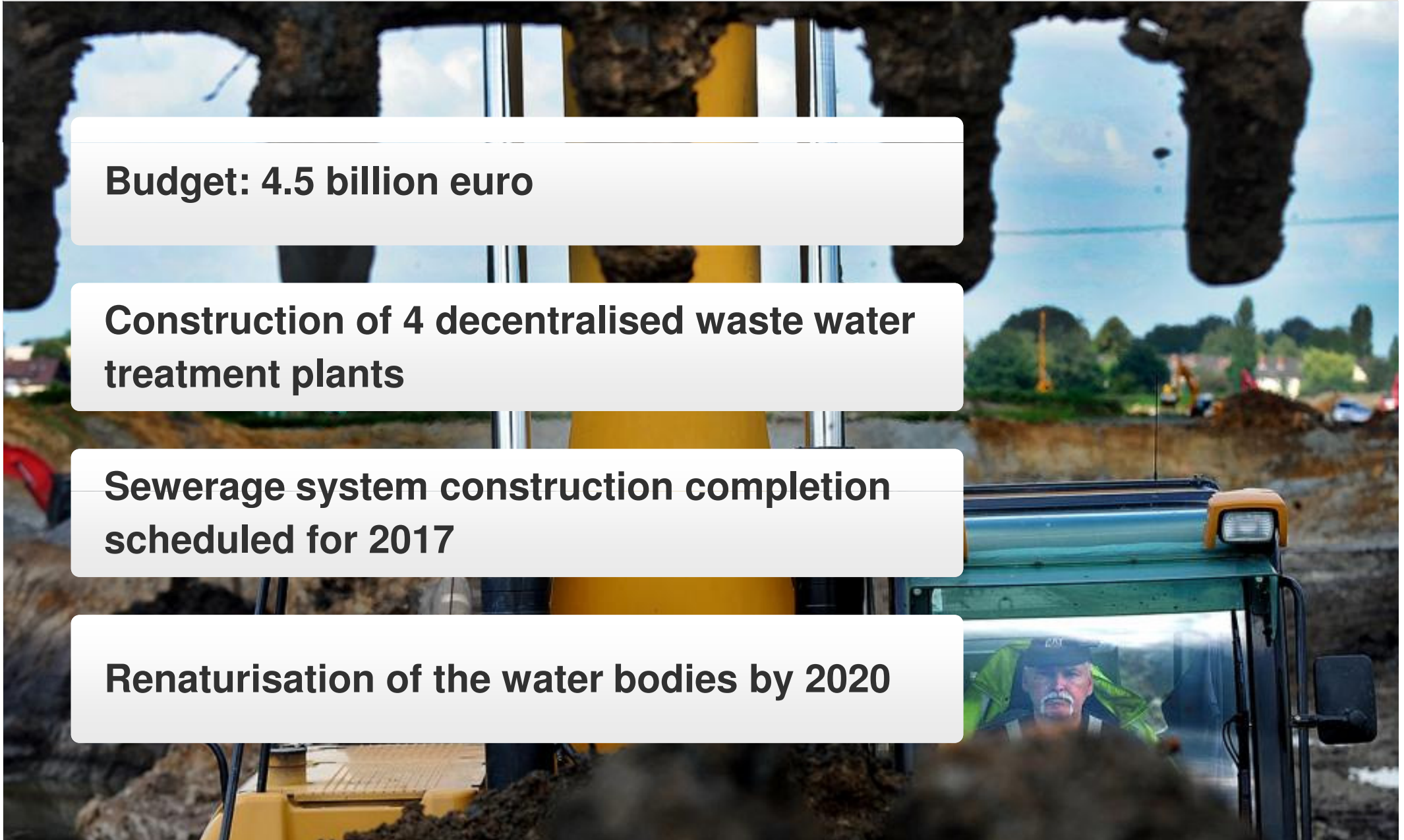


Budget: 4.5 billion euro

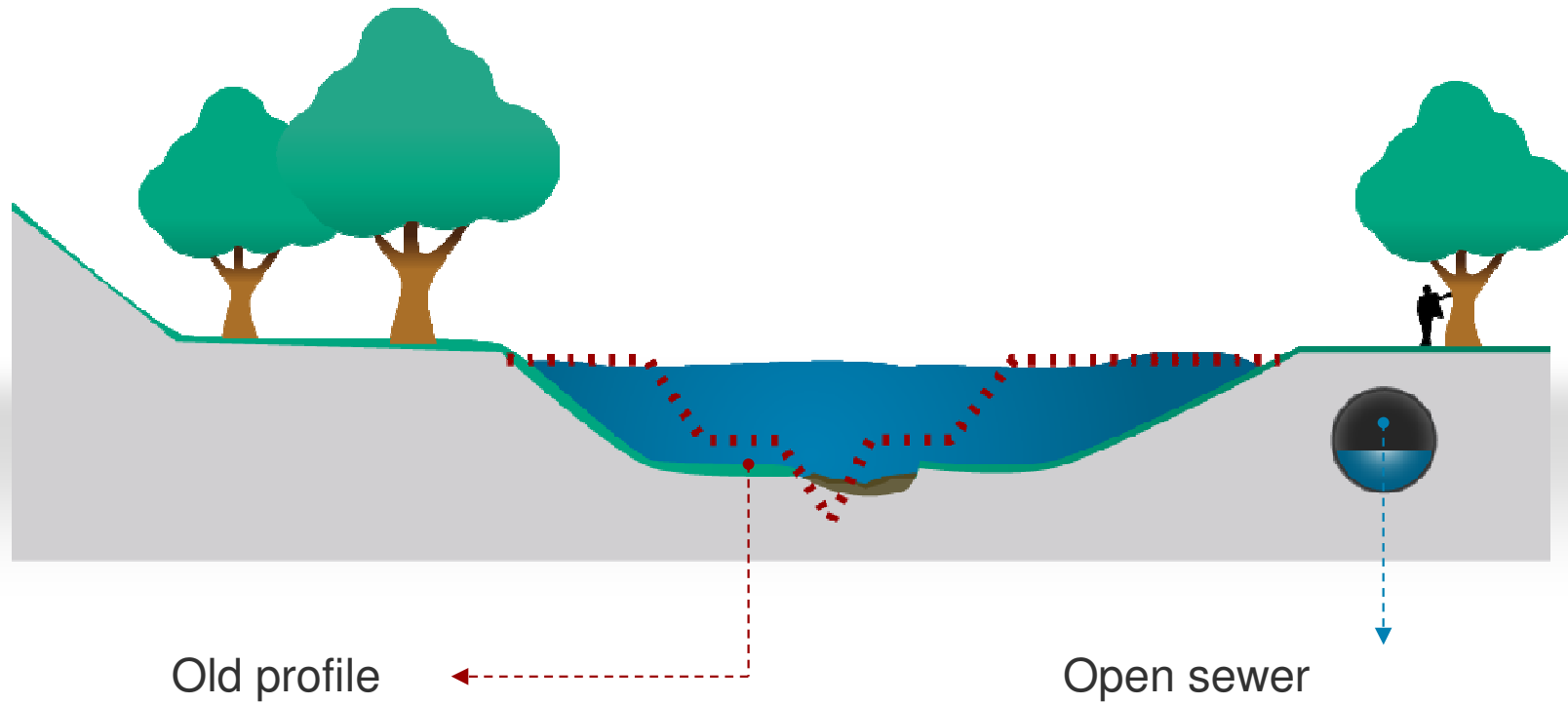
Construction of 4 decentralised waste water treatment plants

Sewerage system construction completion scheduled for 2017

Renaturalisation of the water bodies by 2020



The Objective - Future-Proof Water Management



Modern waste water treatment plants for the region constructed in the 1990ies



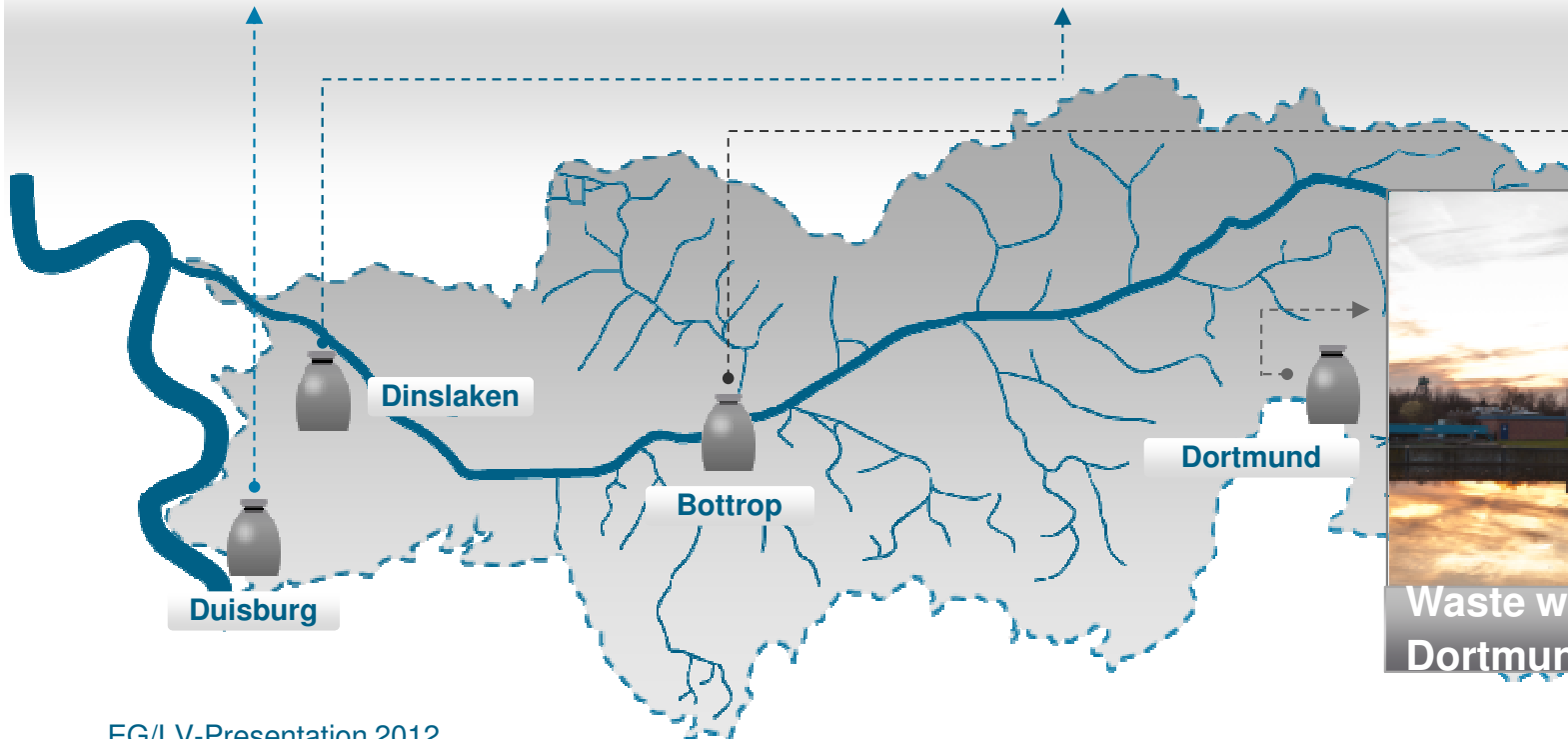
Waste water treatment plant
'Old Emscher'



Waste water treatment plant
Emscher River estuary



Waste water treatment plant
Bottrop



Waste water treatment plant
Dortmund-Deusen

The open sewers – main investment objective of the Emscher restoration project

Our objective: No more open sewers by 2017

▶ 225 km
finished
(of 400 km)



Waste Water tunnel Emscher

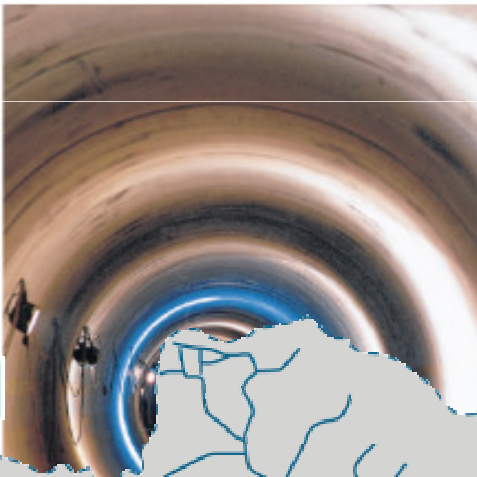
Main 'artery' in terms of waste water management in the new Emscher system

Baustart für Emscher-Kanal

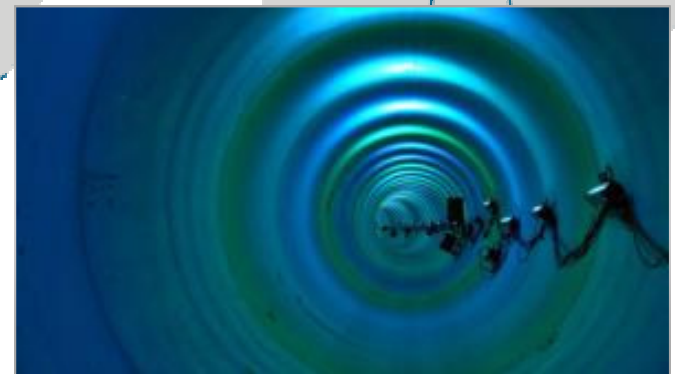
420-Millionen-Euro-Vertrag unterzeichnet, 2017 sollen die Röhren das Abwasser aufnehmen

Hans-Karl Reintjens

420 Millionen Euro? Dafür können locker 15 Fußballstadien à 140.000 Plätze bauen, oder fast acht Folienang-Museen. In Berlin allerdings würde es nicht einmal für ein 2,2 Kilometer kurzes U-Bahn-Tiefloch reichen. Alexanderplatz und Brandenburger Tor reichen. Innerhalb: Die Röhre, die Eisen passieren wird, verbindet wie eine gigantische U-Bahn Dortmund mit Bottrop, getrieben mit dem Klärwerk Bottrop. Womit bereits klar ist, dass hier keine Menschen befördert werden. Im Rahmen des Emscher-Umbaus ist es vielmehr das größte Bauprojekt: Für 420 Millionen Euro wird die Firma Wayss & Freytag Ingenieurbau eine gigantische, 35 Kilometer lange Abwasser-Leitung von Dortmund bis Bottrop



Stefan Kurrle, Vorstand der Wasser- und Abwasserwirtschaftlichen Verbände des Ruhrgebietes



Waste Water Channel Emscher River

Largest individual project within the Emscher River refurbishment



35,000

Pipe elements
at a depth length
of up to 40 m



51 km

channel section
(at total pipe
length of approx.
73 km)



Approval plan
in force since
March 2009

A new aquatic landscape is created

Our objective: Completion of ecological improvements in 2020



90 km
already recreated
(of 350 km)



Modern water management requires energy



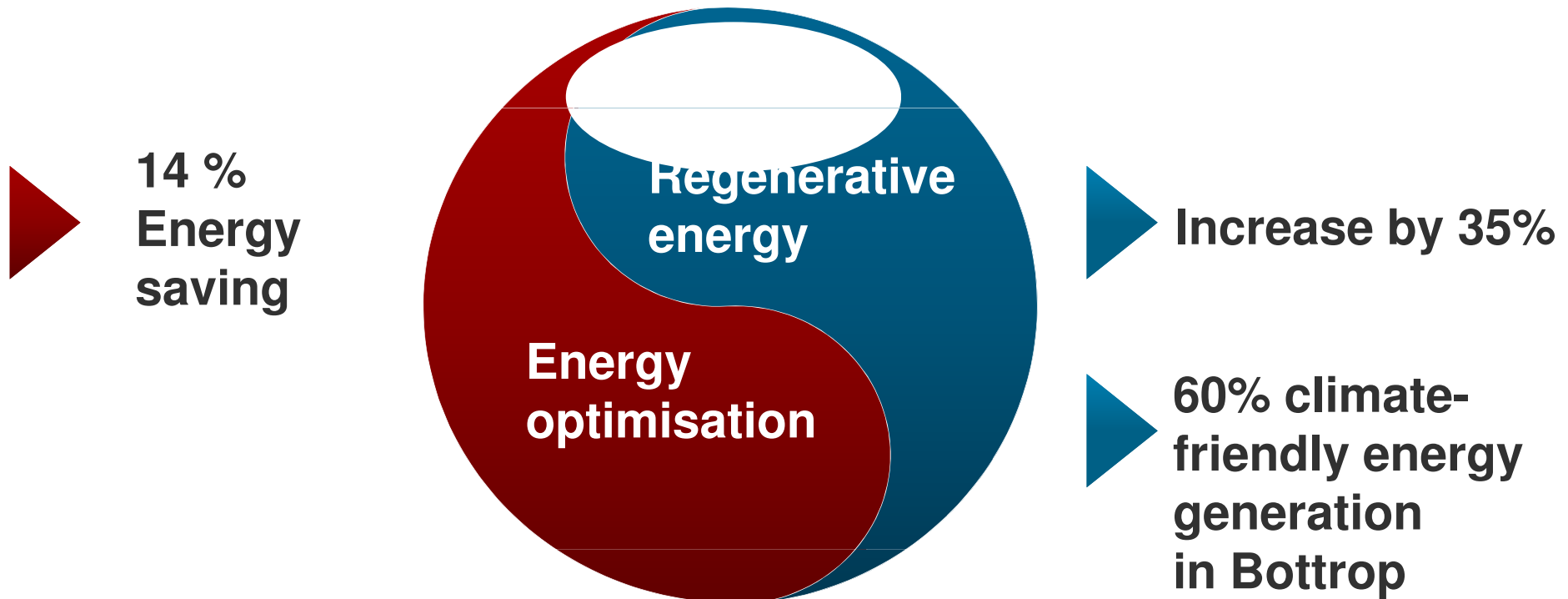
10,000 waste water treatment plants in Germany = 4.2 bil. kWh of power per year

56 waste water treatment plants at Emscher and Lippe = 170 mio. kWh of power per year



Energy efficiency increased successfully!

Emschergenossenschaft



Our objective: Self-sufficient treatment plants

Concept for power and material stream management:

Options for energy optimisation and further development



Waste water treatment plant Bottrop



New system parts required

- Sewage sludge incineration to be developed into biomass power plant
- Sewage gas generation to be increased by adding other 'bio-fuels'
- Optimisation of efficacy of existing combined heating and power plants

HYBRID power plant Emscher

Energy optimisation by way of expansion

Optimising existing systems:



Sewage sludge
power plant

Combined heating
and power plant



Gas storage



Constructing new facilities:



Utilisation of
wind power

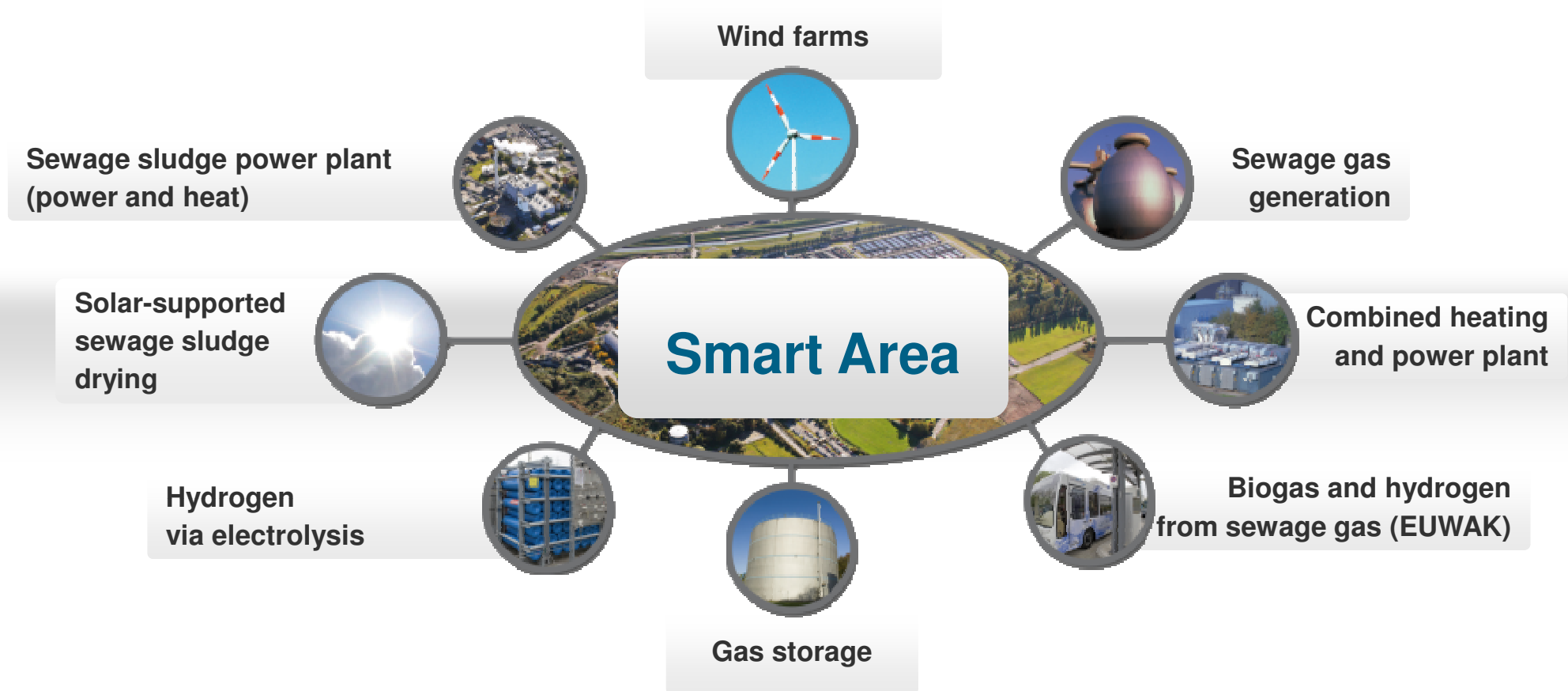
Solar sludge
drying



Hydrogen
via electrolysis

HYBRID power plant EMSCHER at Bottrop location

The intelligent combination and control of technologies



HYBRID power plant EMSCHER



A pioneering project:

- For city development in the project area Innovation City and in Bottrop
- For water management, e.g. for 56 waste water treatment plants in the Emscher-Lippe region and 3,000 more in Germany



The Emscher redevelopment – chance of the century for the region

- Modernisation of the waste water infrastructure
- Development of the Emscher River as a sustainable water ecosystem with new green and free spaces
- Highlighting the landscape and cityscape
- Improving the quality of life
- Economic improvement of the Emscher region and its cities

