



## **Euroheat & Power's 35<sup>th</sup> Congress Paris, 09/10 May 2011**

### **“Regional Cooperation”**

Udo Wichert,  
Director, Evonik Fernwärme GmbH  
10 May 2011



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# Overview: Consortium of Municipal Utilities in the Rhine/Ruhr Region



**1**  **DVV**  
DUISBURGER VERSORGENDE  
UND VERKEHRSGESellschaft mbH

**2**  **DSW21**  
Dortmunder Stadtwerke AG

**3**  **DEW21**  
Dortmunder Energie- und  
Wasserversorgung GmbH



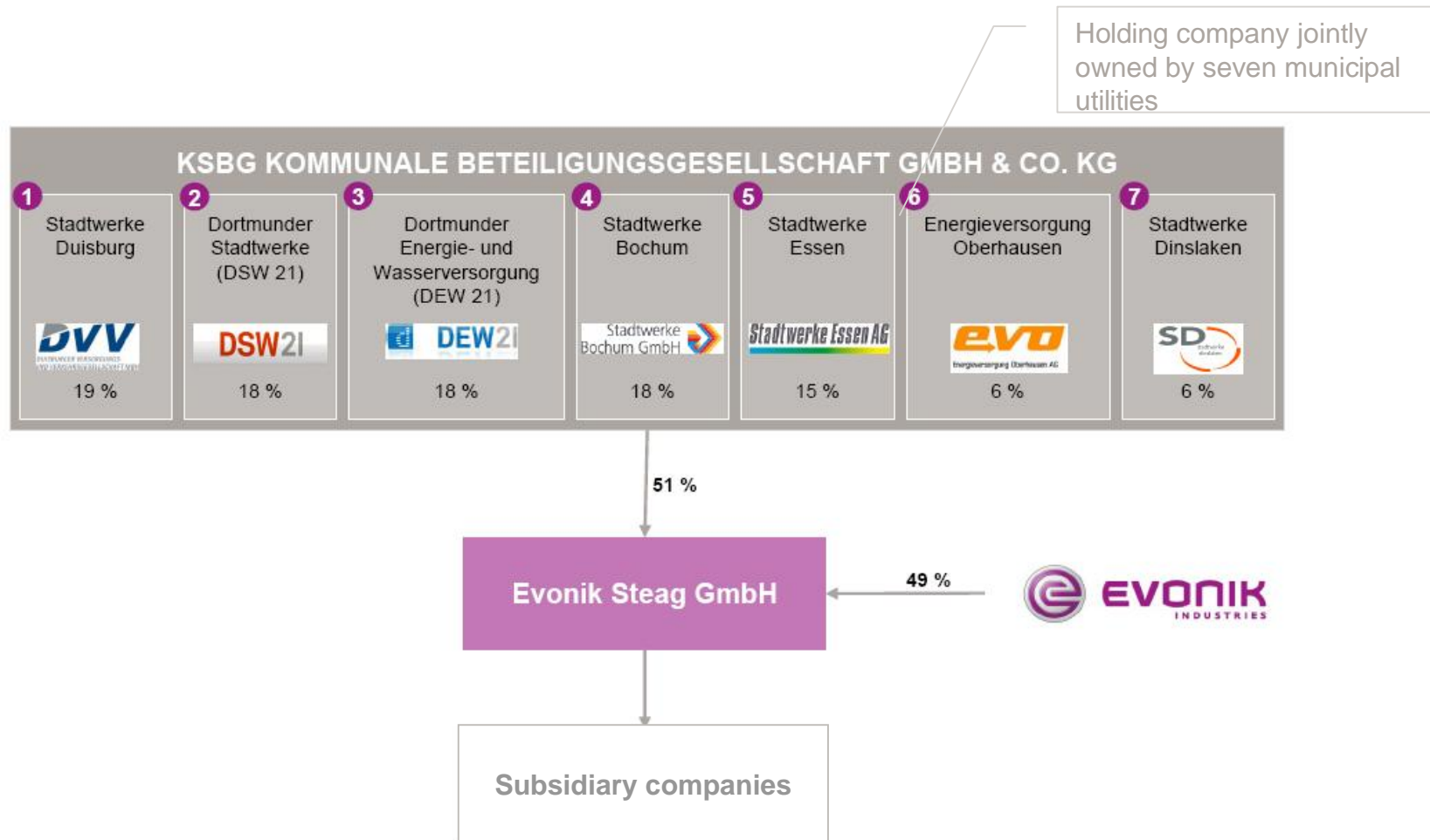
**7**  **SD**  
Stadtwerke Dinslaken GmbH

**6**  **EVO**  
Energieversorgung Oberhausen AG

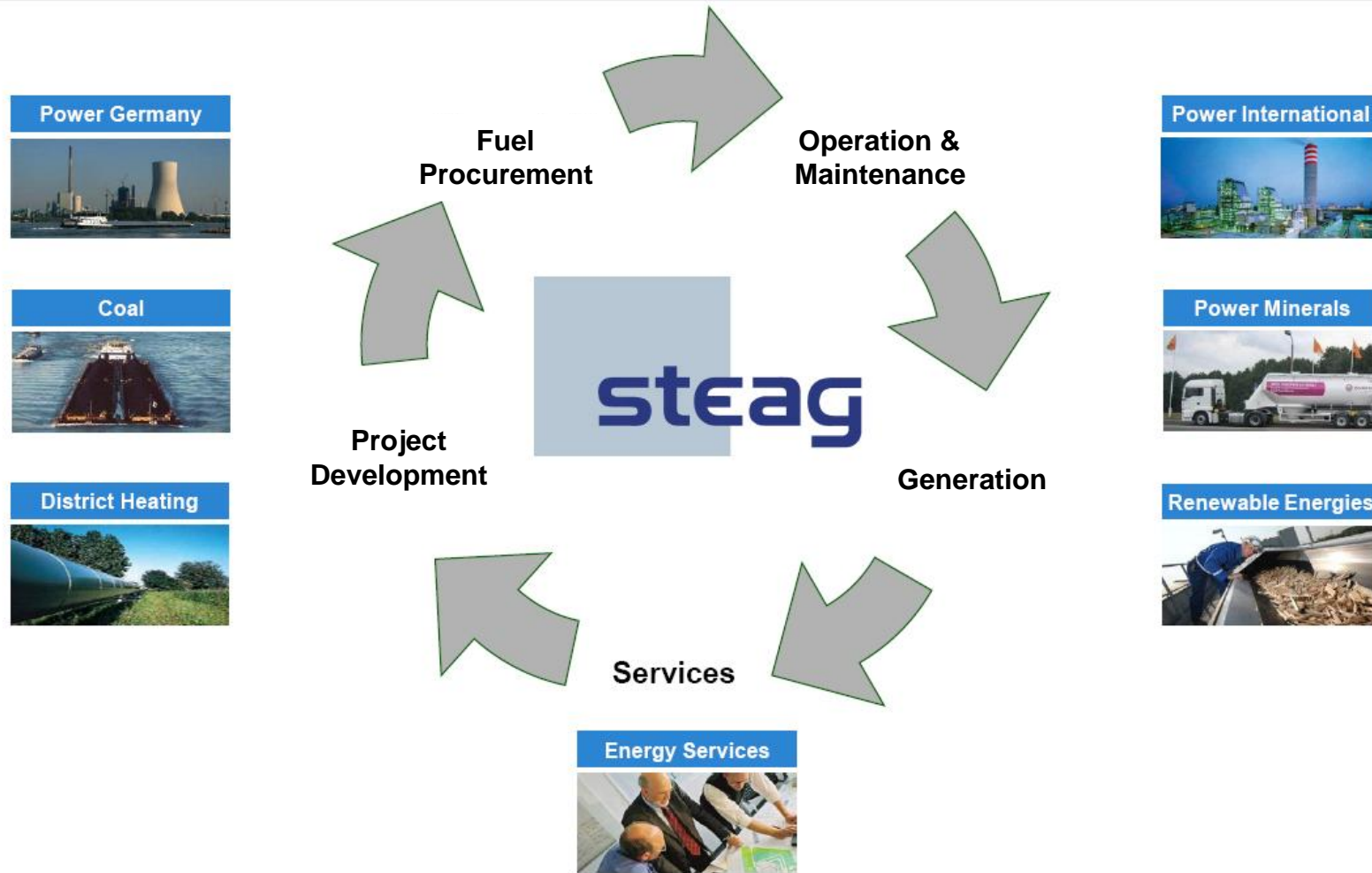
**4**  **Stadtwerke  
Bochum GmbH**  
Stadtwerke Bochum GmbH

**5**  **Stadtwerke Essen AG**  
Stadtwerke Essen AG

# Future Ownership Structure of Evonik STEAG



# Steag's Integrated Business Model



# Reasons for the Municipal Utilities to Acquire a Share in STEAG

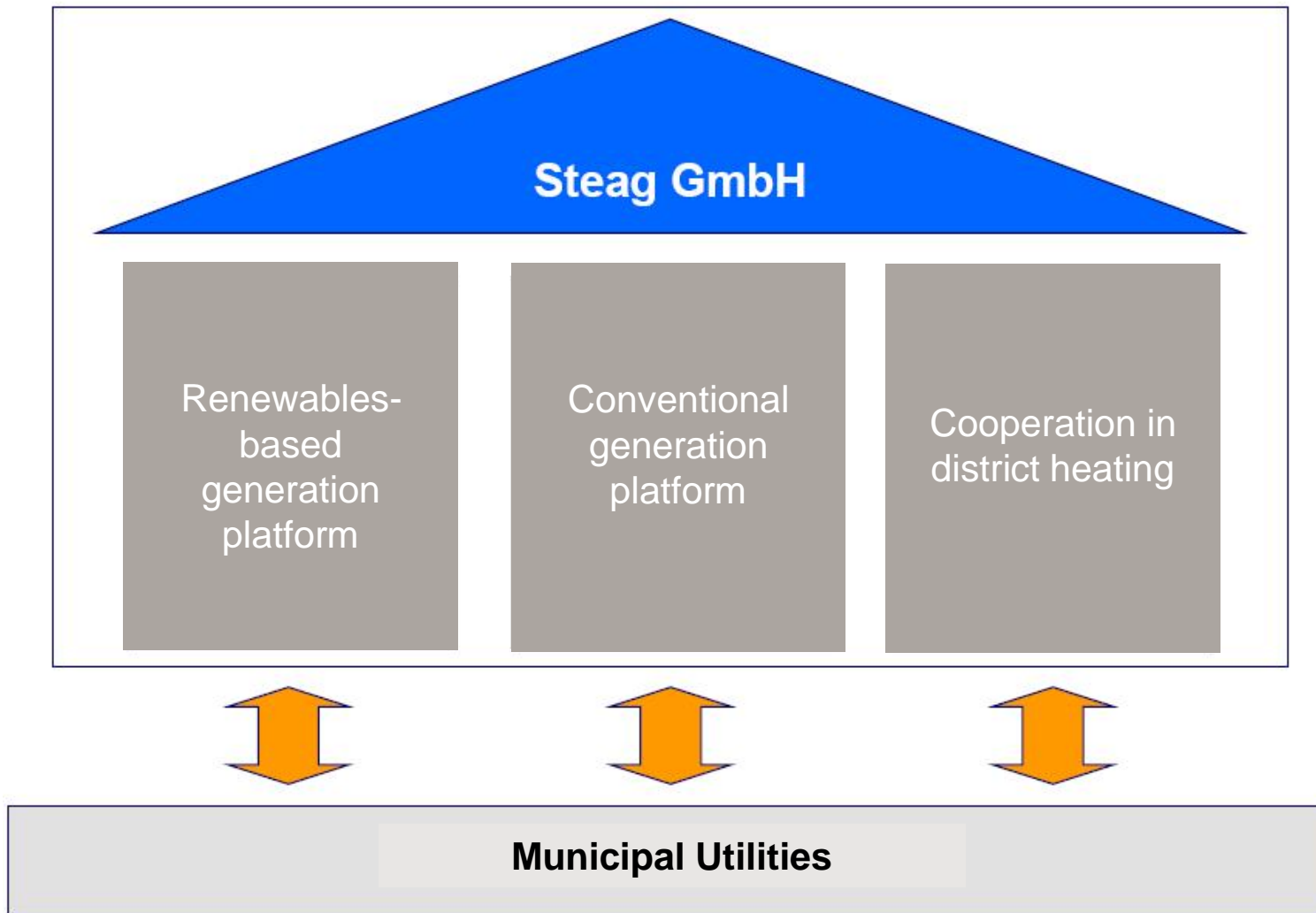


- § **Strengthen the generation basis** of the consortium of municipal utilities
- § **Promote competition in the generation sector** by establishing a strong fifth player in the market
- § **Good international reputation** of the **Steag** brand
- § **Stable cash flows** from **long-term power purchase agreements** for Steag's very successful foreign power plants
- § Promote **ecological expansion and restructuring**, drawing on Steag's competencies
  - in the **development of renewable generation projects**
  - in the construction of environmentally friendly **gas and steam power plants**
- § **Support environmentally friendly heat supply in one of Europe's biggest conurbations**
- § Use Steag as a **competence platform for the implementation of joint projects**, providing know-how along the value chain, e.g. engineering and project development, disposal services and trading



# Steag

## – a Strong Partner of the Municipal Energy Sector



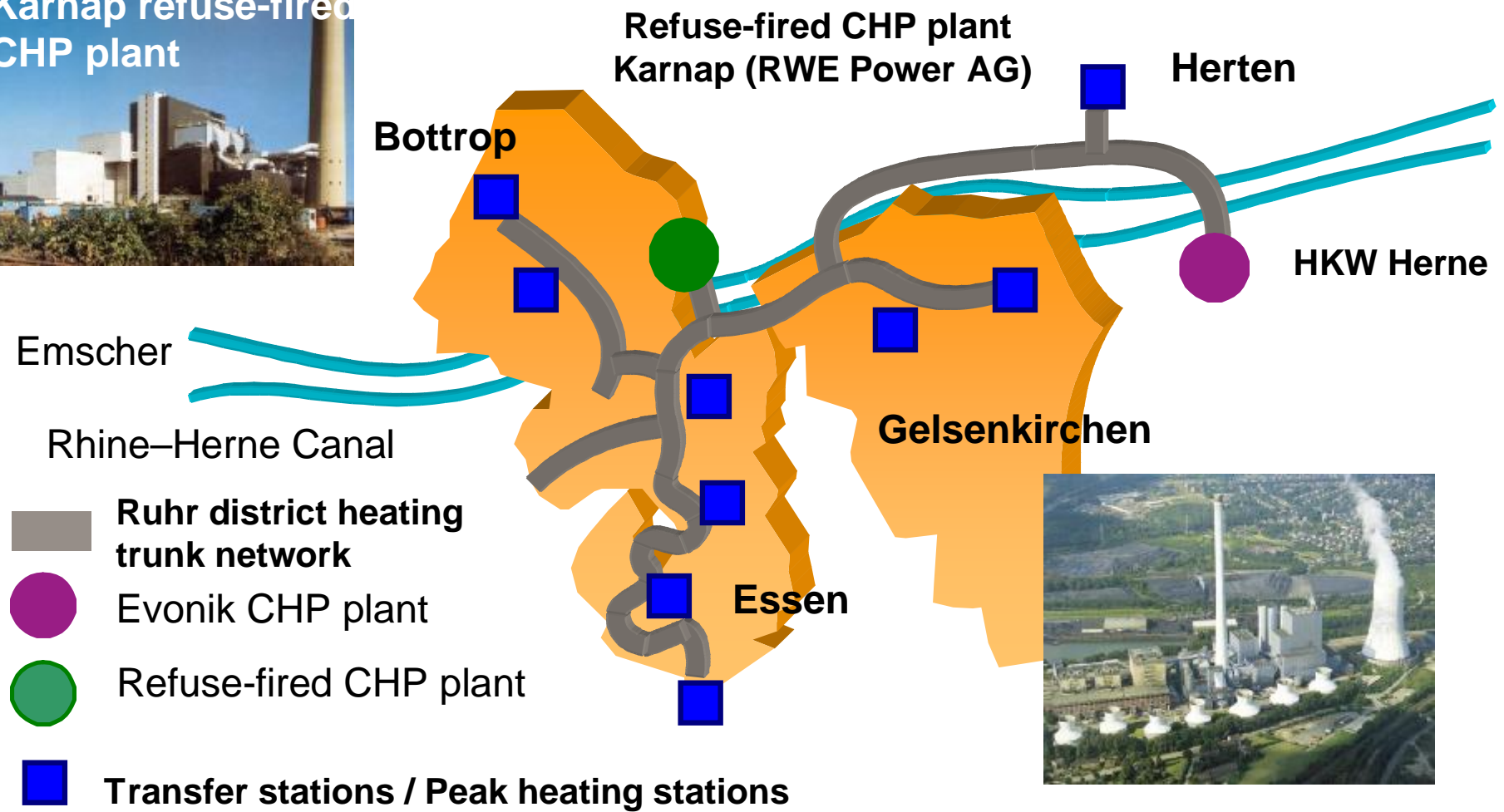
# Key Data of Evonik Fernwärme for Financial Year 2010



§ Registered capital	20.5 m EUR
§ Connected load	1,465 MJ/s
§ System length	596 km
§ No. of accounting (metering) points	9,557
§ Heat sold	2.6 bn kWh
§ Sales	121.9 m EUR
§ Capital expenditure (on fixed assets)	6.3 m EUR
§ Staff (incl. WSG heat metering service)	178 persons
§ CHP share in integrated generation portfolio	85 %



# Most of the Heat Supplied by Evonik is Generated in Combined Heat and Power Plants (CHP Share > 90%)



- Ruhr district heating trunk network
- Evonik CHP plant
- Refuse-fired CHP plant
- Transfer stations / Peak heating stations



# Bottrop is “InnovationCity Ruhr”



## Press release issued by Initiativkreis Ruhr

**04.11.2010** The winner city of the competition launched by Initiativkreis Ruhr has been decided: an independent jury elected the city of Bottrop as “InnovationCity Ruhr”. During the next ten years, the selected pilot project area will be converted into the “Climate City of the Future”. This was announced today (Thursday, 04.11.2010) by the project sponsor Initiativkreis Ruhr jointly with the state government of North Rhine-Westphalia.



# The Vision for Steag's District Heating Unit



## Steag today

District heating supplier in the federal states of Saarland and North Rhine-Westphalia

- system length: approx. 800 km
- heat supplied: approx. 3,4 bn kWh

## Vision

- Develop and implement an integrated district heating strategy for the Rhine/Ruhr and Saar regions, prospectively with the involvement of other market players
- Jointly advance district heating and combined heat and power generation in the Rhine/Ruhr and Saar regions by expanding and consolidating the system
- Exploit synergies in operation & maintenance

# A look back: The Ruhr District Heating trunk system - a Pioneering Achievement



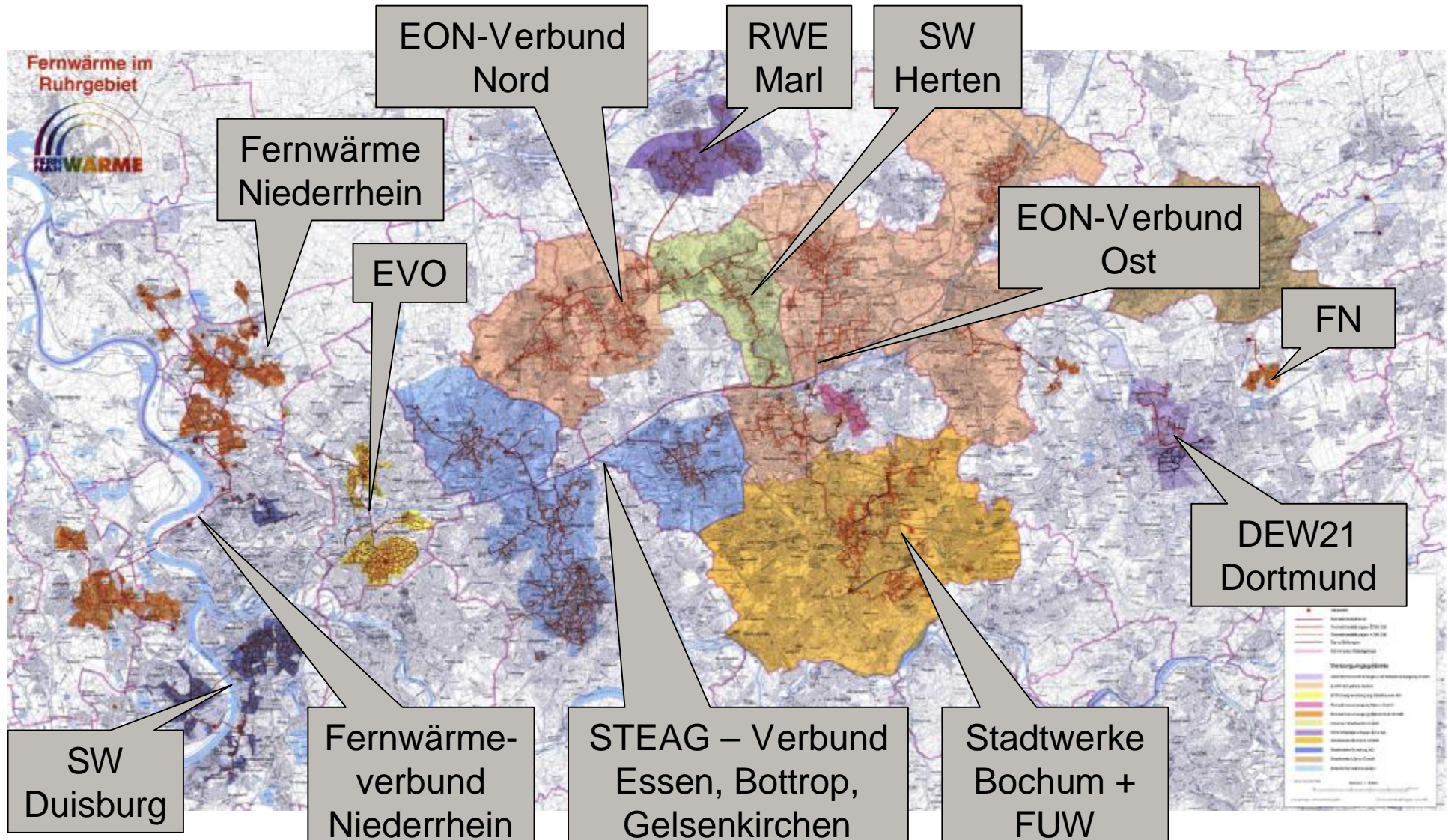
**August 17, 1978**

**After about three years of planning and construction, the Ruhr District Heating Trunk System is placed into service: the first supra-regional, interconnected district heating system in the Federal Republic of Germany.**

**Also for the first time, heat is supplied from combined heat and power (CHP) plants.**



# Geographic Overview of Networks and Trunk Lines in the Rhine/Ruhr Region, 2010



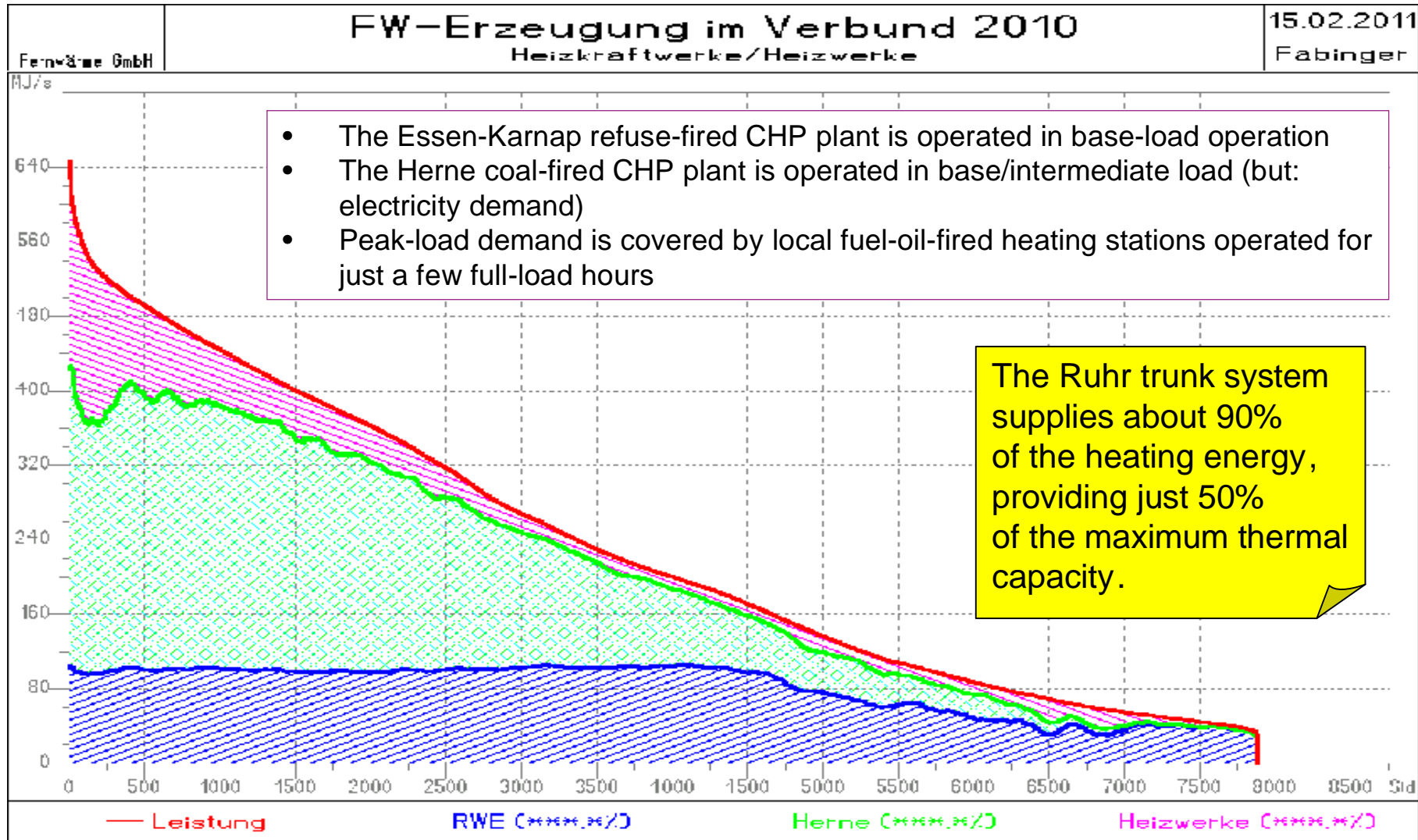
# Technical Key Aspects of District Heating Supply in the Rhine/Ruhr Region



- § The local distribution networks have evolved from local conditions (topography, heat sources, technology), mostly over the last 50 years; the networks are thus characterized by different operating parameters (pressures, temperatures), pressure maintenance systems and heat transfer systems at customers' sites (direct transfer or transfer via heat exchangers).
- § Therefore, the networks cannot be directly interconnected.
- § The operating parameters of the Ruhr District Heating Trunk system are higher than those of all local district heating networks in the Rhine/Ruhr region; the trunk system works similar to a high-voltage line in electricity supply.
- § The Ruhr and Lower Rhine district heating trunk systems are designed for the same parameters, i.e. a direct hydraulic interconnection between these systems is possible.
- § If the Ruhr and Lower Rhine trunk systems are interconnected, then refuse-fired CHP plants can be integrated optimally (except for the E.ON system).



# Heat Demand and Supply 2010 in the Ruhr District Heating Trunk System



## Possible solutions for heat generation and distribution in 2020 and after

- § Engineering and construction of an interconnecting line in east-west direction, DN 800 to connect the Lower Rhine and Ruhr trunk systems
- § Connection of the local distribution networks in Duisburg and Oberhausen and construction of heat transfer stations to provide a hydraulic separation of the trunk system from the local networks
- § Economic optimization of the available CHP plants, based on refuse, coal and other fuels; integration of “additive waste heat recovery systems”

## District Heating in the Ruhr Area – on the road to a secure future

### District heating on yesterday's market....

- § district heating networks have developed around **existing (CHP) plants** in some cities in the Ruhr area
- § **Natural gas** and district heating have been competing in an initially growing, but today shrinking heat market
- § Introduction of natural gas supply in the Ruhr area was partly delayed due to the **marketing of coke oven gas** by Ruhrgas
- § On the basis of an integrated district heating concept, **STEAG** has been supplying district heating since 1978 from coal-fired CHP plants (Consol, Herne) and the Karnap refuse fired CHP plant, via the **Ruhr District Heating Trunk System**

### ... and opportunities for tomorrow

- § increased use of **refuse-fired CHP plants, renewable heat sources** and industrial waste heat
- § Use of synergies in heat production by improved utilization of the important generation facilities and **cooperation across city limits**; pooling and leveraging of special knowledge, realizing of savings in purchasing.
- § Competitive edge in the market owing to favourable primary energy factor (building regulations) and **efficient service close to the customer**

**The “Meseberg Decisions” adopted by  
the German Federal Government in 2007**



## **“Meseberg Decisions”**

**Integrated Energy and Climate Programme  
adopted by the Federal Government on 23/24 Aug. 2007**

## **Impacts on the Heat Market**

## Meseberg: Individual decisions to be enacted in law (I)



	Keyword	Brief description
1	Combined heat and power generation (CHP)	Amendment of the CHP Act and consistent compliance with the climate connection commitment given by the industry
2	Promotion of climate protection and energy efficiency	Economic incentives beyond the buildings sector
3	German energy saving ordinance (EnEV)	Tightening of requirements by 60%, by 2012 – extension of maintenance obligations
4	Operating expenses for rented flats	Abatement of heating bill if maintenance is neglected
5	Modernization of buildings to reduce CO <sub>2</sub> footprint	Significant increase in financial support – funds raised to a total of 2.6 bn €

Source: BMU 19.09.2007



# Coalition Agreement between the Social Democratic Party and the Green Party in North Rhine-Westphalia July 2010



...The federal government plans to have 25 percent of nationwide electricity demand covered from combined heat and power generation by 2020. North Rhine-Westphalia will support this goal by achieving a CHP share of more than 25 percent.

... Therefore, the state government is set to improve funding and boundary conditions for expansion of combined heat and power generation capacities.

**... As a lighthouse project, the Lower Rhine District Heating Trunk System is to be expanded in a close dialogue with local governments.**

***Thank you very much for  
your attention !***



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