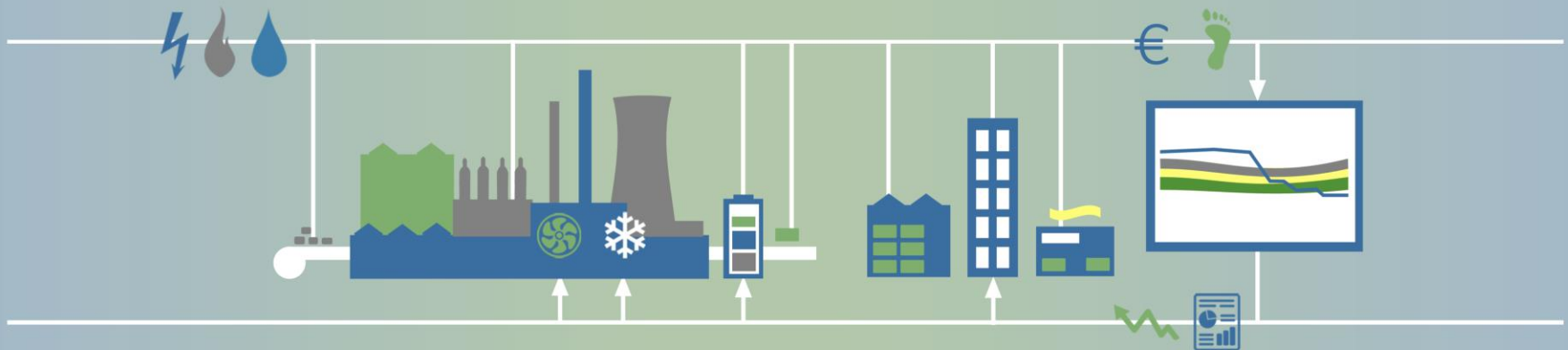


Efficient Energy and Climate Strategy from the Industry's Perspective

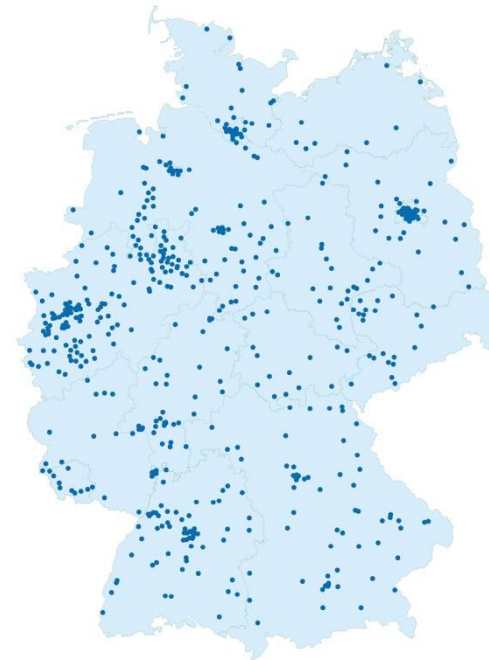
E-world Essen, 12th February 2020
Arne Grein, Head of Energy Markets



ÖKOTEC – Your Efficiency Experts

- Consulting in energy management since 1999
- Part of Veolia since 2016
- Improving energy efficiency with technological and organisational measures
- Experience in all relevant branches of industry, commerce and buildings
- Interdisciplinary team of 50 employees

NATIONAL PROJECTS



| | |
|--|-------------------|
| | Argentina |
| | Austria |
| | Azerbaijan |
| | Belgium |
| | China |
| | Czech Republic |
| | France |
| | Germany |
| | Hungary |
| | Italy |
| | Kazakhstan |
| | Netherlands |
| | Poland |
| | Republic of Korea |
| | Romania |
| | Slovakia |
| | Slovenia |
| | South Africa |
| | Spain |
| | Sweden |
| | Switzerland |
| | Tunisia |
| | Turkey |
| | UAE |
| | United Kingdom |
| | Ukraine |
| | USA |
| | Uzbekistan |

**A leading expert for energy efficiency
with projects at over 850 national and international sites**



An Overview of Our Services

Optimization Projects

Energy audit

Analysis of energy use and identification of optimal efficiency measures



Energy planning

Reliable planning for maximum savings while minimizing investment costs



Implementation

Measurable energy savings



Ongoing Optimization

Energy Management (EnM)

Ongoing improvement process in line with ISO 50001

Energy Efficiency Controlling (EnEffCo®)

Software and services for systematic monitoring, analysis and optimization

Networks

We maintain industry networks for knowledge exchange and collaborative learning on energy-related topics

Targeted training

Education of your staff on energy-related topics



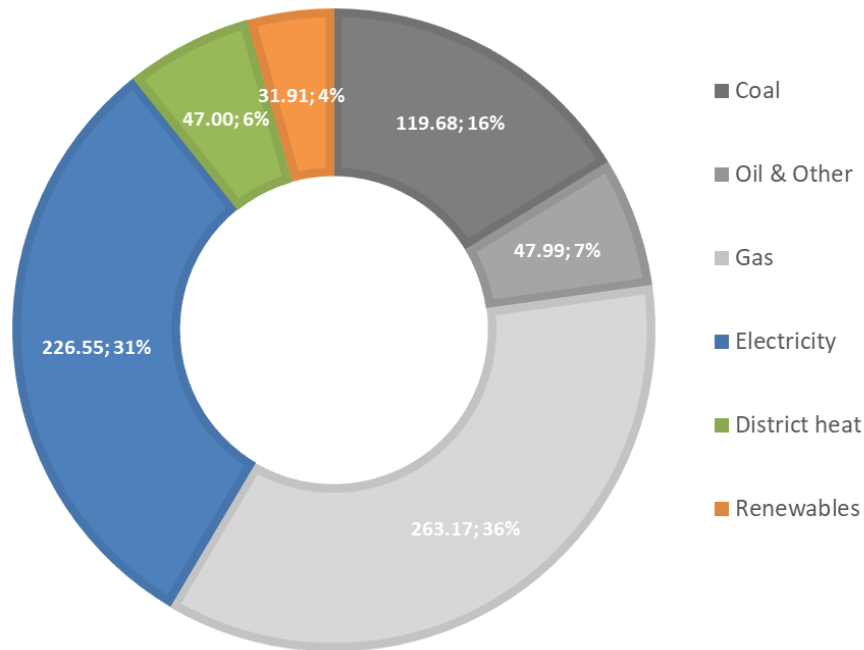
Research and Development Projects (R&D)

The development of new ideas and application-based research on energy topics in collaboration with universities, research institutes and partners in industry

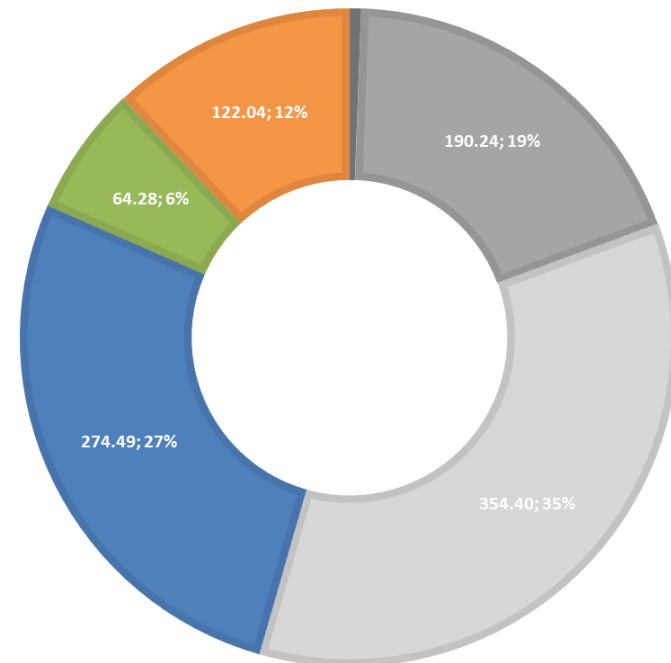


Energy Consumption in 2018 – Quo vadis?

Industry



Households & commercial sector



Source: BMWi Energiedaten 2019

Decarbonization requires substitution of conventional fuels towards scarce resources of alternative carbon free fuels.

Drivers of Energy Efficiency on a Path Towards Industrial Decarbonization



Energy costs

How will energy prices develop for carbon free sources (biogas, green hydrogen) under scarcity?



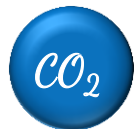
Energy management & Audit

Which regulatory requirements will be imposed to push efficiency improvements?



Decarbonization (Energy- & Climate strategy)

Can energy efficiency and electrical heating balance limited availability of carbon free energy sources?



Climate protection Act & sector targets

What is the political risk of not aligning energy strategies with national sector targets?



An Example: Energy Efficiency & Hybrid Heating

Example: Ventilation – waste heat exchanger with heat pump vs. gas boiler

- Energy efficiency reduces investment in new supply and process technologies
- Flexible electric heat supply operates dynamically depending on temporal renewable generation
- Step-by-step increase of electricity use substitutes residual conventional fuels

Timing strategy is important for profitable investment, flexibility management for the operation of the hybrid system!



An Efficient Energy & Climate Strategy Requires...



Digitalization: Monitoring of energy and CO₂ of supply, processes and products

Efficiency first: Assessment of measures using cost of opportunity for carbon free energy sources

Regulatory requirements: Implementation of energy efficiency measures

Timing strategy: Investment and flexible operation for hybrid systems

Harmonization: Energy strategy and national sector targets for CO₂



Contact



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Thank you!

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