BASF and Energy: Electricity Self-Generation

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Ludwigshafen site
Three co-generation plants on-site

- Area Ludwigshafen site: 10 km²
- Production plants: 160
- Length of quay: 6 km
- Streets: 115 km
- Rails: 213 km
- Pipes: 2600 km
BASF energy balance 2016

BASF Ludwigshafen

Power Plants

Natural gas: 15.6 TWh

Power: 6.3 TWh

Steam: 7.0 TWh

Process Heat: 8.1 TWh

Secondary fuels: 1.5 TWh

Production

Power to grid: 0.7 TWh

Power from grid: 0.1 TWh

BASF power supply – nearly self-sufficient
BASF worldwide: Sites

- 14 sites with 27 gas turbines
- Generation of 70% of electricity demand
Cost comparison
on-site power vs. procurement

*Industrial consumer at transmission grid, comparable to BASF
**In-house power generation incl. fuel, CO2, fixed costs; procurement grid 2.5%, comparable to BASF
Savings potentials get smaller

Index 1990 = 100 %, BASF-Gruppe w/o Oil- and Gas Business

+102% volume of sales product

-50% absolute GHG emissions

-75% specific GHG emissions
Conclusions

- Industrial on-site CHP power generation is highly efficient and remains an important source for still some time; RES intake can play increasing role if well managed

- Certain trade-off between flexibility and efficiency

- Lack of EU cooperation and certain national policies (e.g. EEG) lead to high levies, hampering market signals, lowering industrial RES intake
Requests

- Europeanize energy policies to dampen price increases (e.g. RES growth, capacity “markets”)  
- Reduce and dynamize levies to incentivize demand-response and RES intake in industry  
- Promote RES market integration by internalising back-up and storage costs  
- Let flexibility options compete: storage, power plants, demand-response  
- Accept lower efficiency in case of increased flexibility
150 years

BASF

We create chemistry