

SmartReFlex – Final Event



100% renewable district heating and cooling



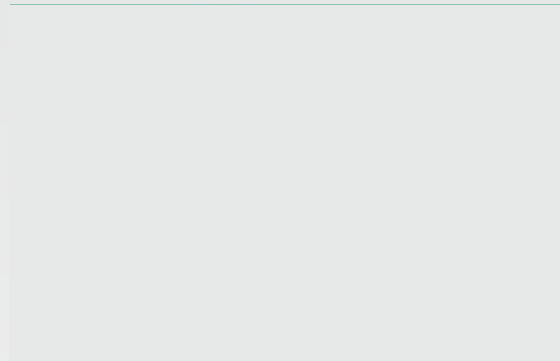
Current situation in Germany

Sebastian Grimm M.Sc., AGFW, R & D

Kolding, 24.11.2016,

- » **Barriers**
- » **Current situation and general trend**
- » **Changes with cogeneration law**
- » **Example “*Senftenberg*”**
- » **Industry experience**

- » Reorganization of companies
- » Area Problem
- » RES DHC are pioneer projects
- » Integration in existing systems
- » Financing and investment risk
 - Who will pay?
 - distortion of competition
 - Existing plants are running
- » Volatile availability
- » Planning uncertainties without cogeneration law



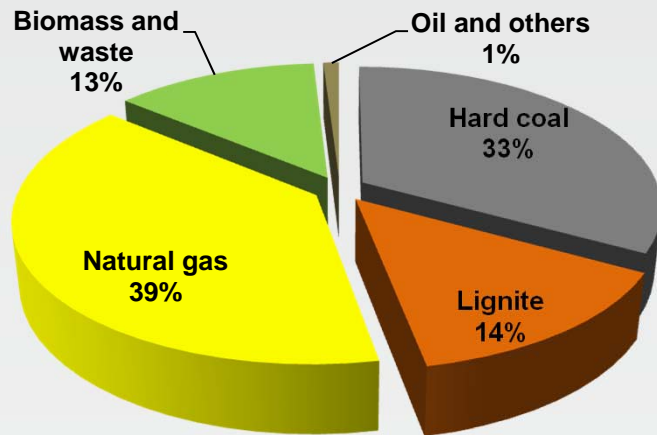
Source: <http://arbeits-abc.de/job-rotation/>



Source: <https://www.flickr.com>

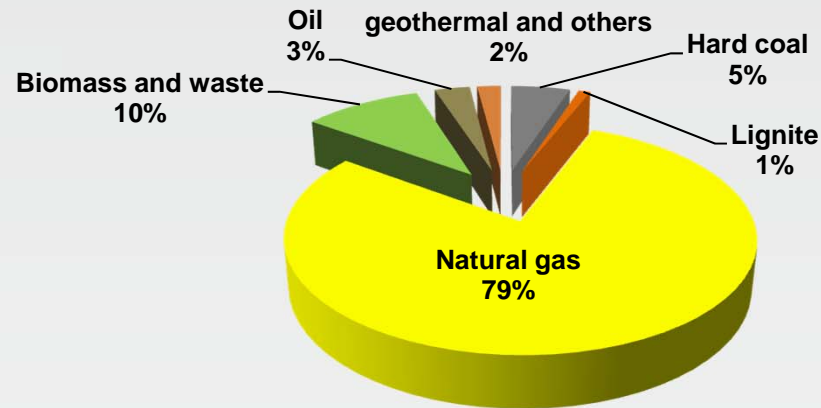
» Primary energy for DH in Germany is dominated by natural gas

Fuels used in CHP plants



350 PJ

Fuels used in non CHP plants



41 PJ

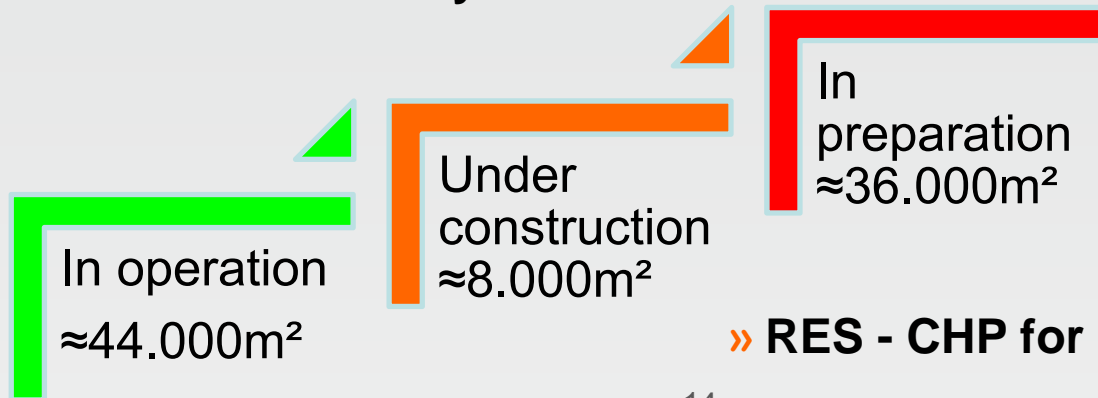


District Heating

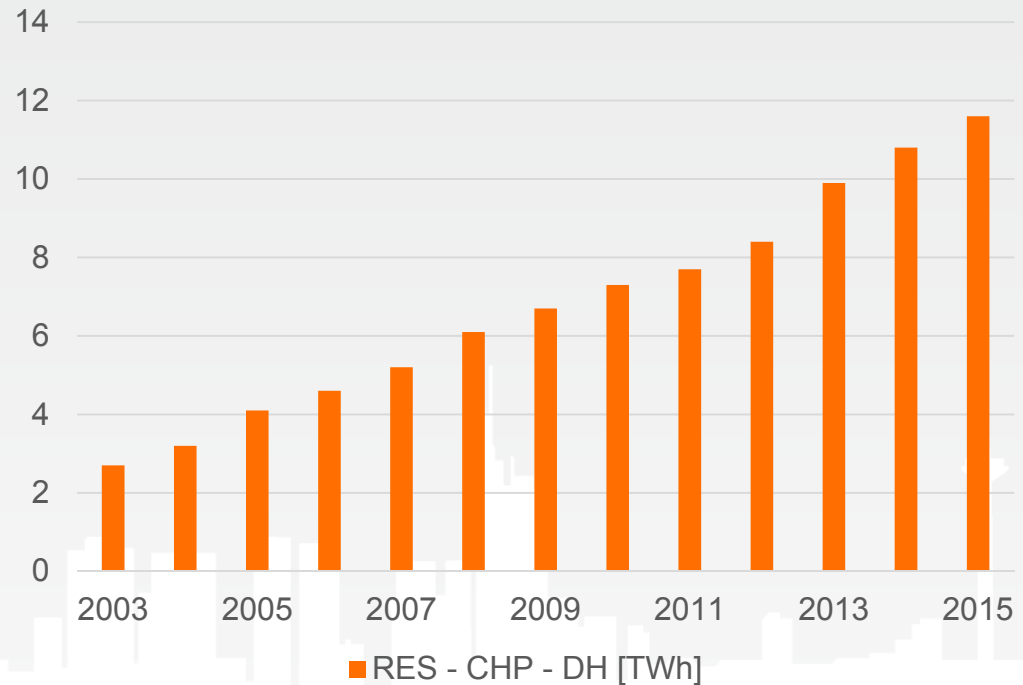


- » **Supplier increased awareness**
- » **Decarbonization trend**
- » **General interest in RES DH and sustainable generation**
- » **Integration of RES into the planning process at an early stage**
- » **RES are successful when they speed up the grid expansion**
 - Willingness to pay for connectivity

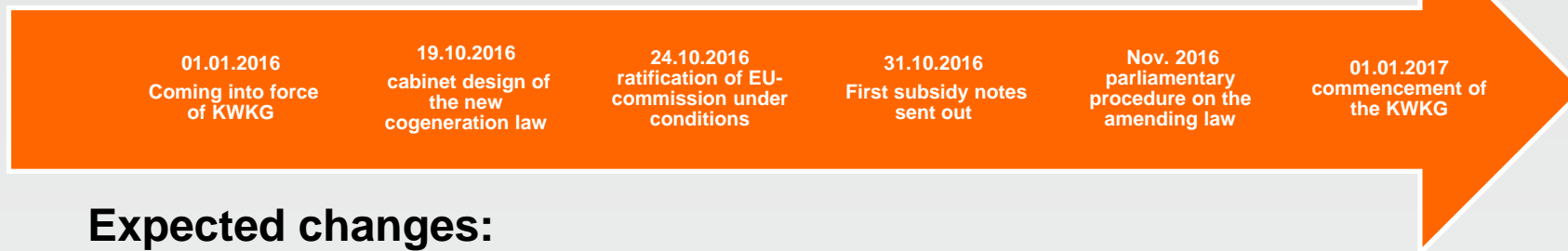
» **SDH in Germany**



» **RES - CHP for DH in Germany**



» Timeline of the German cogeneration law

**Expected changes:**

- » For CHP plants > 50 MW
 - Overcome the phase of uncertainty
 - Better planning security
 - Higher investment confidence

- » Plants between 1 – 50 MW the process is still in progress

Targets

- » 110 TWh CHP power generation in 2020

- » 120 TWh CHP power generation in 2025

» Senftenberg

- Started August 2016
- 8300 m² collector field (0,022km² area)
- 1680 vacuum tube collectors
- ≈ 4 GWh annual output
- ≈ 4% annual demand
- 4,6 MW peak power
- Supply temperature 85°C
- Grid storage



Source: <http://ritter-xl-solar.com/anwendungen/waermetetze/senftenberg/>

» Boundary condition

- Big investment in the power plant fleet needed
- Replacement of a pulverized lignite power plant
- Available area of a recultivated landfill

» Industry experience

- Suppliers are (actively) interested in RES
- Awareness increases (information events, showcases)
- Lack of knowledge (subsidies, state of the art, strategies)
- Clients thinking to small (pilot plant size)
- Constant heat production costs and economic analyses convince
- The barrier of available space can often be solved creatively
- Compared with fossil fuels maintenance cost are often neglected

darum fernwärme ...

denn sie ist stubenrein und hilft,
CO₂ zu vermeiden.

fernwärme 
rein ins haus.

www.fernwaerme-info.eu

