Greening District Heating in Germany
Policy Recommendations

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We are...

...a non-profit environmental and nature protection organisation.

...a consumer protection organisation entitled to bring legal action.

...politically independent.

...campaigners at a national and European level.
Our interests

Nature
Energy & climate
Transport

Clean air
Recycling
Consumers

Issues at municipal level
Environmental justice
Issues at international level
District Heating in Germany today

9.4% of annual heating demand (1,330 TWh)
125 TWh via public heating networks
14% of all households
Approx. 1,200 heating networks
80% tenants
Ownership structure

Quelle: Bürger, Veit et al (2019): Third party access to district heating systems.
• Only 1% does not require fuels
• Biomass + organic waste main renewable sources
• 72% heat from fossil CHP plants
• No changes expected, but turning from coal to natural gas
• Few plans to change from coal to wood burning => protests
Renewable potential

Heat demand:
- 2015: 1,330 TWh
- 2050: 740 TWh

Sufficient renewable potential in Germany
- Solar thermal systems => potential of 600 TWh
- Geothermal energy => potential of 66 TWh
- Environmental heat via heat pump => potential?
- Biomass => potential of 180 TWh

Climate friendly heat:
- Surplus heat (sewage plant, waste incineration, industrial processes, data center) => potential?
Obstacles for climate friendly district heating
Obstacle 1 – Missing subsidies for renewable heat

72% of DH come from CHP plants which means: fossil fuels

CHP is highly supported by subsidies

No direct support for renewable heat

Economically no level-playing field

Absurd: only subsidy for RE heat is a bonus paid on fossil CHP-electricity
Obstacle 1 – Missing subsidies for renewable heat

Subsidies for renewable heat should be provided directly.

The level of support must vary according to the technology.
Obstacle 2 – Subsidies for fossil heat

• Basic bonus for each electrical kWh
• one-off bonus for switching from coal to other fuels
• payment for avoided grid charges

Total subsidies: 1,425 to 3,790 €/kW

• Economically no chance for renewable heat
Obstacle 2 – Subsidies for fossil heat

All subsidies for fossil heat, particularly for fossil CHP plants, must be abolished in order to end the economic disadvantage of green heat.
Obstacle 3 – Combined production of heat and power

CHP prevents the use of renewable heat:

• High subsidies on CHP power => production of high shares of fossil CHP heat
• Power-to-heat storages doesn’t solve the problem => fossil heat of the storages competes with renewable heat
Obstacle 3 – Combined production of heat and power

Generation of electricity and heat should be separated.
Obstacle 4 – CHP term „highly efficient“

• EED defines: CHP is “highly efficient”
• Massive subsidies based on this definition
• State Aid guidelines follow this definition

But:
• Heat network losses over 10 %
• Flexibility reduces efficiency of CHP
• Just comparing same fuel falls short
Obstacle 4 – CHP term „highly efficient“

- **CHP**
  - Natural gas: 100 kWh
  - KWK
    - Efficiency electric: 40%
    - Efficiency thermal: 50%
  - Electricity: 40 kWh
  - Heat: 50 kWh

- **CC gas power plant with heat pump**
  - Natural gas: 100 kWh
  - CC gas turbine
    - Efficiency: 60%
  - Electricity: 40 kWh
  - Heat: 60-80 kWh
  - Environmental heat: 40-60 kWh

**Legend**
- 90 kWh
- 100-120 kWh
- 20 kWh
Obstacle 4 – CHP term „highly efficient“

CHP should no longer be classified as “highly efficient”.

Renewable systems deliver greater efficiency.
Obstacle 5 – heat system planning missing

Municipalities should be required to plan heating systems in line with climate targets
Obstacle 6 – bundling of heat generation and grid

- No access for third-party renewable heat providers
- Costumers can´t change provider
Obstacle 6 – bundling of heat generation and grid

Heat generation und heat network operation should be unbundled. Governments should provide real third-party access to heating grids.
Summary
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Laws, directives, subsidies... hinder renewable heat.

Recommendations:

• Subsidies for renewable instead for fossil heat
• Removal of the CHP-definition “highly efficient”
• Heat system planning at municipal level
• Facilitate third-party access to the grid
Thank you very much for your attention.