Ownership structure, financing, and regulation: Experience and innovative approaches

Belgrade, December 6, 2019

Søren Djørup, Email: djoerup@plan.aau.dk, Twitter: @sorendjorup
Outline

- Why & When District Heating? A macro-perspective
- Where District Heating? Basic national planning principle
- How District Heating? Ownership, prices and finance
Why District Heating? A Macroeconomic Perspective

Is it costly for society to build up district heating infrastructures?

From a macroeconomic perspective, we currently have
- Abundant capital, low interest rates
- No shortages of labour
- Imports of fuels
- A CO2 crisis

Now’s the moment to develop and expand the district heating sector!
Where District Heating?

- National procedure for identifying **socioeconomic viable district heating areas**.
- For example, using the European framework for comprehensive assessment of heating and cooling
  - Supported by available tools and reports (Eg. Heat Roadmap Europe / Peta4, Hotmaps, Thermos, and others).
- On this basis, establish designated areas for district heating systems through zoning policies.
How district heating?

What are the regulatory challenges?
This presentation focuses on **Ownership & Price Regulation for a monopoly supply**
The regulative challenge – Company perspective

From a **company perspective**, the regulation of district heating systems must address:

- High upfront capital costs needs long term investment perspective
- Associated risks
- Access to capital
The regulatory challenge – Society’s perspective

From a **societal perspective**, the regulation of district heating systems must able to deliver:

- Consumer acceptance and protection
- The ability to maintain long term strategic energy planning
Three basic forms of regulative strategies

Consumer vs Investor protection

- Free connection + Price regulation
- Obligation to connect + Price regulation
- Free connection + No price Regulation
- Obligation to connect + No price Regulation
The price-ownership matrix – framework for considering regulative strategies

<table>
<thead>
<tr>
<th>Ownership Regulation</th>
<th>Consumer ownership</th>
<th>Public ownership</th>
<th>Private commercial ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>True costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No price regulation</td>
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<td></td>
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</tbody>
</table>

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Price regulation – Price cap principle

**PRICE CAP**
Using state regulative power to determine a regulative price that seeks a compromise between investors demands for return and the society’s need for price control of the monopoly

**BENEFITS**
Potentially attracts new investors as a return is all allowed

**CHALLENGES**
It is difficult for regulator to monitor company costs – and thereby difficult to determine/regulate a ‘fair price’
Price regulation – True cost principle

TRUE COST PRICING
Ensures that profits cannot be transferred out of the company – profit is either re-invested in the system or payed back to consumers

BENEFITS
Keeps prices low – thus promotes consumer acceptance.
Ensures capital for maintaining and improving grid.

CHALLENGES
Can be difficult to regulate if the interests of the regulated are not sufficiently aligned with intention of the regulator.
Difficult and costly for regulator to monitor true costs

OWNERSHIP
Due to these challenges the ownership structure is an important part of the regulation
Traditional regulation in a market economy
Traditional regulation in a market economy – The monopoly challenge

Diagram:

- State
  - State regulative power
  - Company
    - Price
    - Consumer
      - Incentives not aligned
      - Buying power

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Example of ownership contraction: Local public ownership
Example of ownership contraction: Consumer ownership
The ownership factor – Experience from Denmark

<table>
<thead>
<tr>
<th>Name of DH company</th>
<th>DH price 15 Dec. 2013</th>
<th>DH price 18 Dec. 2012</th>
<th>Change in DH price</th>
<th>Change in ownership</th>
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</thead>
<tbody>
<tr>
<td>Hjortekær</td>
<td>37.090</td>
<td>37.096</td>
<td>-6</td>
<td>No. Privately owned</td>
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<td>Annebergparken</td>
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<td>Ørslev-Terslev Kraftvarmforsyning</td>
<td>31.041</td>
<td>31.005</td>
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<td>Slagslunde Kraftvarmeværk</td>
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<td>30.205</td>
<td>-4.591</td>
<td>Yes. Consumer group buys DH supply</td>
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<tr>
<td>Præstø Fjernvarme</td>
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<td>21.329</td>
<td>2.244</td>
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<td>Lendemarke Varmforsyning</td>
<td>18.971</td>
<td>13.151</td>
<td>5.820</td>
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<td>Skævinge Fjernvarmforsyning</td>
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<td>Frederikssund Kraftvarme</td>
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<td>No. Privately owned</td>
</tr>
</tbody>
</table>

*Information obtained from Ole Odgaard, DEA*
Regulatory framework – Danish Case
Summing up

- Historical necessity and opportunity for district heating
- Expansions should be based on socioeconomic assessments
- Regulatory measures should address:
  - Consumer acceptance and protection
  - Access to capital & risk management
  - Company & ownership structures that enable long term planning
References

Contact:
Email: djoerup@plan.aau.dk
Twitter: @sorendjorup

Some references in English:


[5] The forthcoming publication from IRENA/AAU!