



**ENSYSTRA**

# How Could Heat Consumers' Trust in District Heating Solutions Be Enhanced? Insights from Denmark and Sweden

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# What we meant is actually...

What institutional framework characteristics promote a trustworthy behaviour of DH companies?

**Our assumption:** These institutional framework characteristics can (indirectly) enhance residential heat consumers' **institutional trust in DH solutions**.





# Why is this relevant?

- ▶ District heating systems could play an important role in the EU for the implementation of a low carbon energy system with high shares of renewable energy.
- ▶ District heating systems are (vertically integrated) **natural monopolies**, which could put district heating consumers in a **more vulnerable position** and confer **lower level of autonomy** than having an individual heating system. Unless properly addressed, this could harm **consumers' trust in and demand for district heating solutions** and, ultimately, prevent district heating implementation and continuation in the EU countries.
- ▶ Countries with high shares of district heating have adopted different strategies. There is no comprehensive understanding about what institutional framework characteristics can (or cannot) promote a **trustworthy behaviour** of district heating companies.



# Our theoretical approach

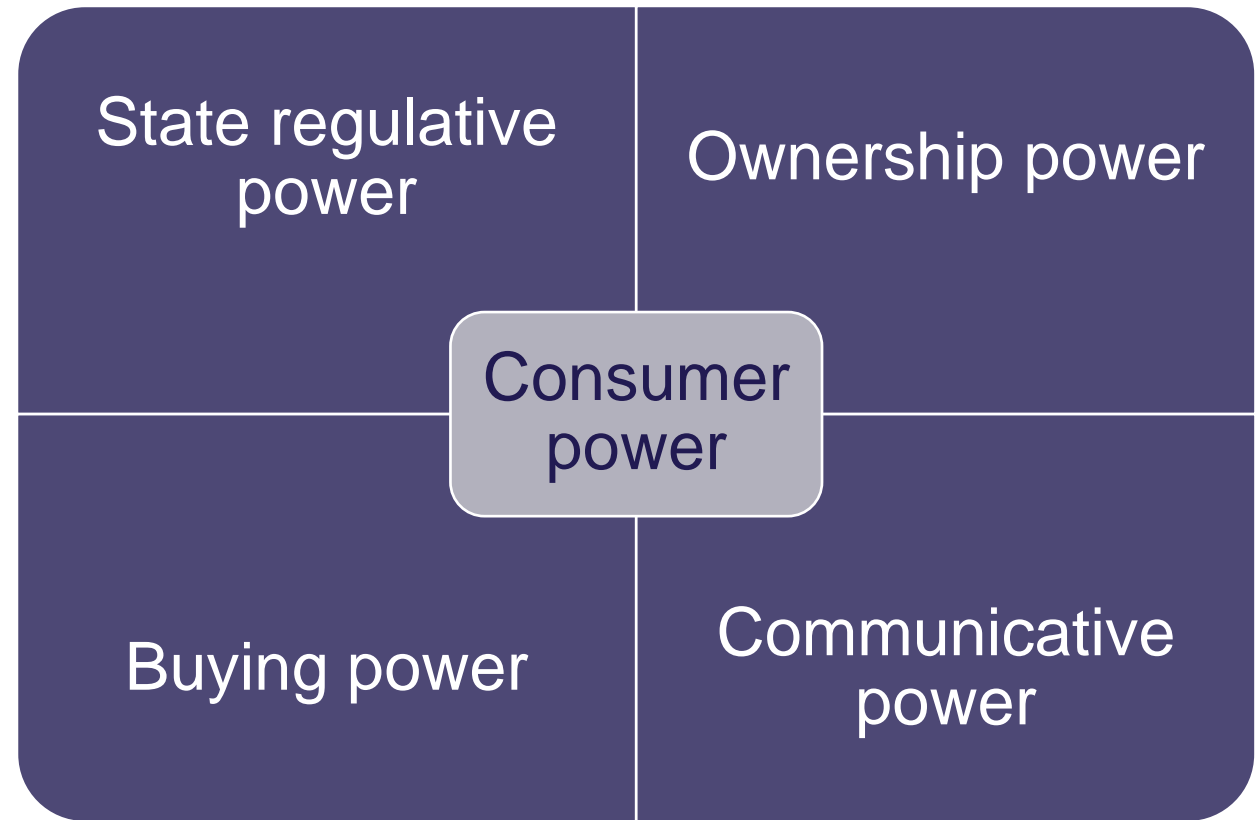
## Hypothesis:

The level of **consumer power** influences **DH companies' behaviour** with regard to fulfilling consumers' interest.

## Study:

**How residential consumers' power** in DH companies **has evolved** in Denmark and Sweden.

How the different levels of consumer power **have led (or not) to a trustworthy behaviour** by the DH companies.





# Our theoretical approach

## Trustworthy behaviour:

The DH company complies with its duty of heat supply and customer service at satisfactory quality levels while charging a reasonable heat price for it.

**Table 1:** Parameters that consumers could consider to evaluate the trustworthiness of DH companies' behaviour.

Quality of the product	Quality of the customer relationship	Reasonable heat price
Related to e.g. the necessary temperature and pressure, hours of availability, environmental footprint, supportive of local economy, etc.	Related to e.g. customer service, available communication channels and their user-friendliness, time of response, helpfulness of response, etc.	Related to e.g. price-quality ratio (or value for money), competitiveness compared to other heat systems, affordability, stability of prices over time, company's profits on DH, promotion of energy conservation, etc.



# The methodology

Data collection:

- ▶ Structured literature review
- ▶ Semi-structured interviews with experts
- ▶ Other sources: websites of relevant stakeholders, legal documents, statistics reports, email conversations, etc.

**Table 2:** The stakeholders that we have interviewed.

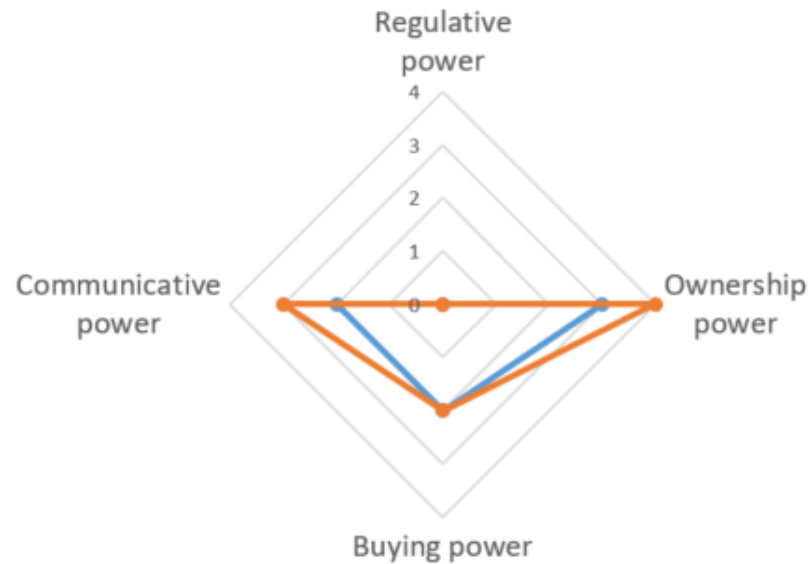
Type of stakeholder	Denmark	Sweden
Researchers	1	3
Industry	2	2
Regulatory Authority	1	0
Policy Makers	1	0



# Preliminary results: Consumer power in Denmark

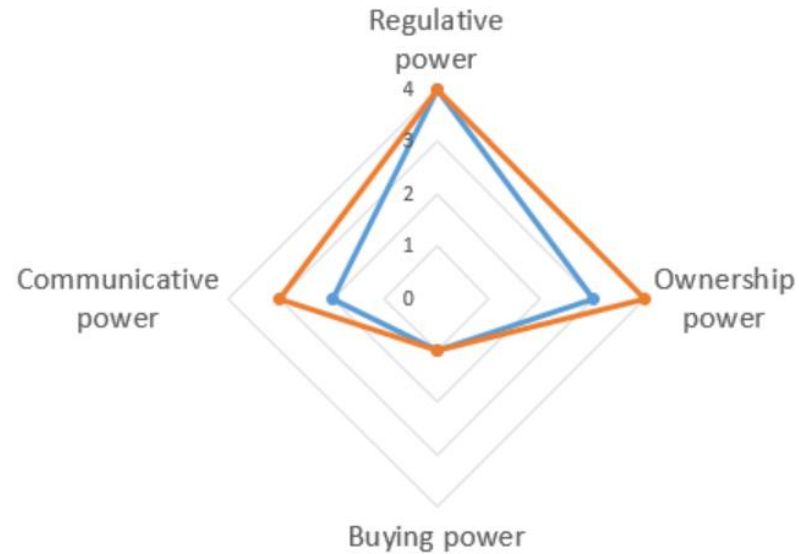
0: Very low  
1: Low  
2: Medium  
3: High  
4: Very high

The “local initiative” period  
(1903-1978)



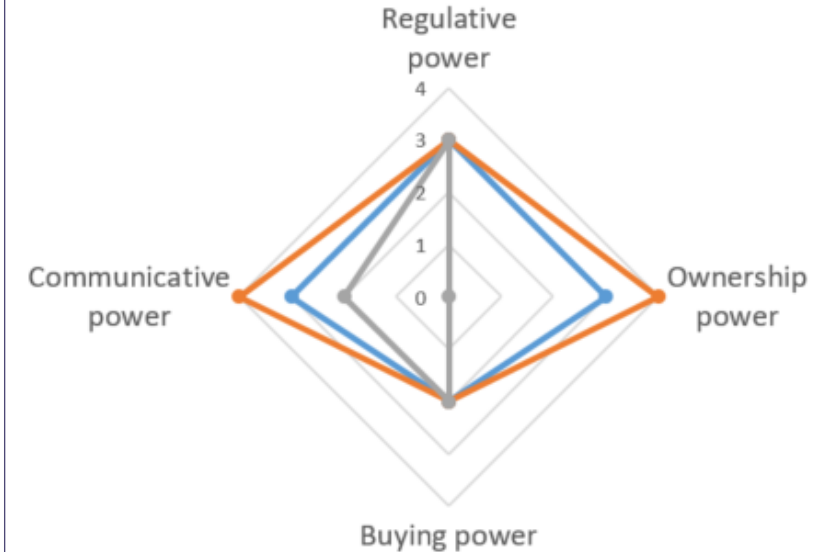
≈30%

The “post oil crisis” period  
(1979-1999)



57%

The “current” period  
(2000-present)



64%

— Municipal ownership — Consumer cooperative — Commercial company

# Preliminary results: The trustworthy behaviour of DH companies in Denmark

**Table 3:** Identified issues regarding the trustworthy behaviour of DH companies in Denmark.

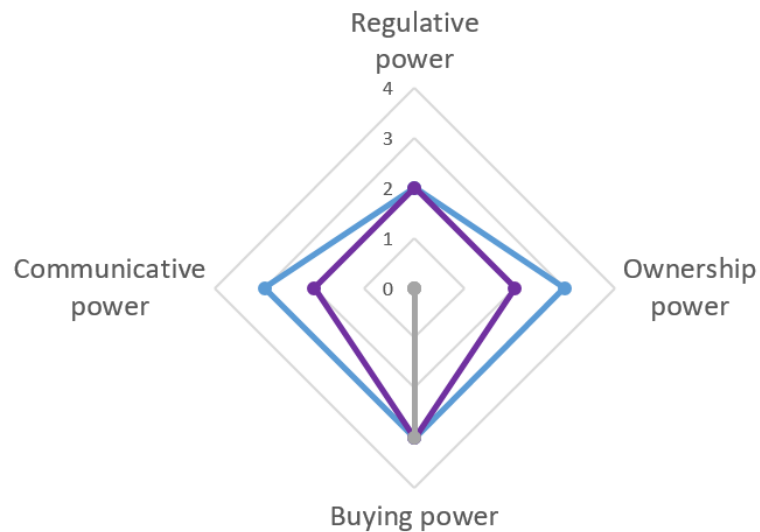
Trustworthy behaviour of DH companies	The “local initiative” period (1903-1978)	The “post oil crisis” period (1979-1999)	The “current” period (2000-present)
Satisfactory quality of the product and customer relationship	No data	No data	No data
Reasonable heat prices	No data	- Financial issues and high DH prices, particularly in small-scale DH systems.	<ul style="list-style-type: none"> <li>- Financial issues and high DH prices, particularly in small-scale DH systems.</li> <li>- High DH prices in commercially owned DH companies.</li> <li>- Low legislative pressure to improve internal efficiency.</li> <li>- It can be difficult for the Regulatory Authority to identify cases of abuse by DH companies.</li> <li>- High fixed costs may prevent energy conservation.</li> </ul>



# Preliminary results: Consumer power in Sweden

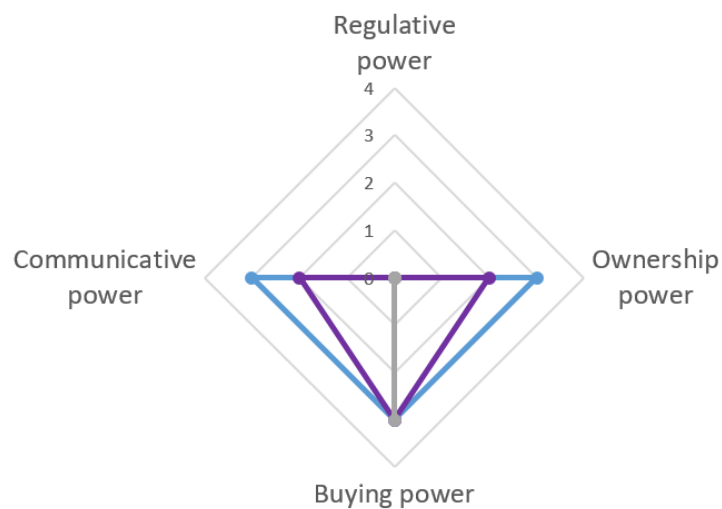
0: Very low  
1: Low  
2: Medium  
3: High  
4: Very high

The “regulated” period  
(1948-1995)



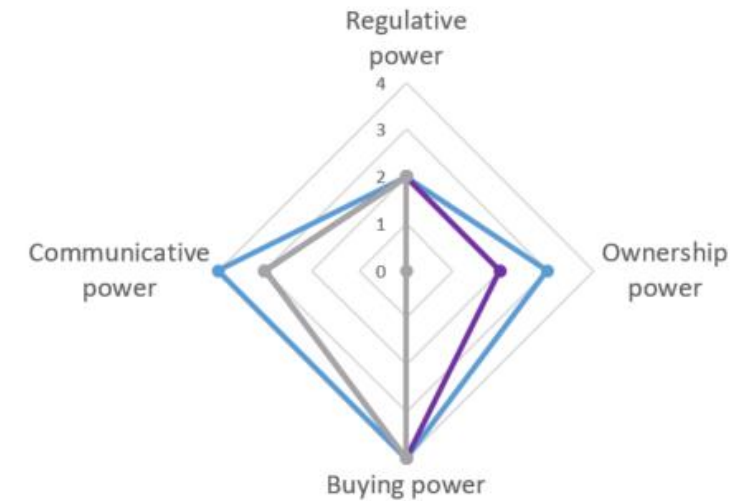
40%

The “de-regulated” period  
(1996-2007)



56%

The “re-regulated” period  
(2008-present)



54%

— Local municipal ownership    — Joint municipal and state or private ownership    — Commercial or state company

# Preliminary results: The trustworthy behaviour of DH companies in Sweden

**Table 4:** Identified issues regarding the trustworthy behaviour of DH companies in Sweden.

Trustworthy behaviour of DH companies	The “regulated” period (1948-1995)	The “de-regulated” period (1996-2007)	The “re-regulated” period (2008-present)
<b>Satisfactory quality of the product and customer relationship</b>	No data	<ul style="list-style-type: none"> <li>- Protests against the use of coal in Stockholm</li> <li>- Lack of security of supply due to the bankruptcy of a few DH companies</li> </ul>	No data
<b>Reasonable heat prices</b>	No data	<ul style="list-style-type: none"> <li>- Significant increases in DH prices, particularly in Stockholm and Uppsala.</li> <li>- High price increases after the bankruptcy of a few DH companies.</li> <li>- It can be difficult for the Regulatory Authority to identify cases of abuse by DH companies.</li> <li>- Strong debate on whether DH ought to be allowed to make profits or not and on the ethics of “indirect municipal tax” collection.</li> </ul>	<ul style="list-style-type: none"> <li>- Higher DH prices in commercially and state-owned DH companies.</li> <li>- It can be difficult for the Regulatory Authority to identify cases of abuse by DH companies.</li> <li>- Complex DH bills may prevent energy conservation, behavioural changes, etc.</li> <li>- Diverse opinions on whether DH ought to be allowed to make profits or not and on the ethics of “indirect municipal tax” collection.</li> </ul>



# Summary

## Consumer power:

- DH started similarly in Denmark and Sweden: local ownership, cost-based pricing principle, purpose of cheaper heat and lower air pollution, etc.
- Regulation for DH has been very different in the two countries.
- Yet, local ownership and cost-based pricing are very common in both countries.
- Besides, both countries have focused on strengthening consumers' communicative power and it seems that authorities have reacted sympathetically and appropriately to customer complaints and DH problems. This combination has proven to be a strong tool to control DH companies.

## Issues with DH:

- These are mainly concerns about how reasonable DH prices are.





# Preliminary lessons from Denmark and Sweden

- ▶ **Ownership** of DH companies influences DH prices. Under the same regulation, consumer cooperatives and municipal companies result in lower DH prices than commercial or state-owned companies.
- ▶ With the right combination of institutional incentives, it is highly possible for local consumer cooperatives and local municipal companies to develop and run DH systems and to **greatly contribute to the integration of DH**.
- ▶ **Regulatory Authorities** might not be able to identify all abuses by the DH companies.
- ▶ **Transparency, access to information and media coverage** are important to monitor and control DH companies. However, for this to work, Regulatory Authorities and Policy Makers must listen and consider consumers' complaints. There is a need for **democratic practices**.
- ▶ It could be relevant for Denmark to consider implementing something similar to the Price Dialogue in Sweden for municipal and commercial DH companies.





# Preliminary lessons from Denmark and Sweden

- The management of DH companies requires **knowledge and expertise**. Some small DH companies may lack this and run into bad managerial decisions. A standard and quality assured **guideline for investment** decision making, **merging** of small companies and **customised support** from experts can mitigate the problem.
- **Short-term cost reduction** approaches may lead to e.g. poor maintenance of the system and higher costs in the future.
- **Free market competition** requires that individual heating solutions are price competitive with DH solutions. However, from a socio-economic perspective, DH may be cheaper, particularly in densely populated areas. Therefore, creating market competition can result in some **additional costs** for the society.





# Preliminary discussion: Transferability of lessons to other EU countries

## Cultural aspects

- ▶ Different countries, regions, communities... have higher or lower **experience** with and **preference/reluctance** for **municipal companies and consumer cooperatives** in the energy sector.
  - ▶ However, these ownership models are increasingly common accross the EU and the new EU Directives Support them.
  - ▶ Targeted policies may support the implementation and development of such ownership models.
  - ▶ Joint ownership models and significant consumer representation in DH boards could be a solution too.
- ▶ Denmark and Sweden are **highly democratic** countries.
  - ▶ Many EU countries are making progesses in democratic practices. Stenghtening that could be very important to control the monopolistic DH companies, independent on the chosen ownership model.





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Thank you for your attention!

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