



Is Swedish district heating operating on an integrated market? – Differences in pricing, price convergence, and marketing strategy between public and private district heating companies



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HIGHLIGHTS

- Price statistics and owner type data were used along with results from a questionnaire.
- Results show that prices among district heating systems do not converge.
- Municipal district heating companies still apply cost-based pricing to a large extent.
- District heating companies are not operating on an integrated market for heat.
- Some price-controlling mechanism for district heating is necessary.

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ABSTRACT

The deregulation of the Swedish electricity market in 1996 made it possible to operate municipal district heating commercially. Until that time district heating had been organized mainly as municipal utilities. After 1996 district heating is instead expected to function on a market. In competitive and integrated markets, prices are expected to be equal, or converging. To find out if district heating operates on an integrated market the differences in price levels, price convergence, price strategy, and business goals, among municipal, private and state owned district heating companies are investigated.

Price statistics was used along with results from a questionnaire that was answered by representatives for 109 Swedish district heating companies. The results show that prices among district heating systems do not converge significantly and that variations in prices among municipal systems are larger than among private and state owned systems. Furthermore, despite the fact that district heating is supposed to be commercial, a vast majority of district heating companies apply cost-based pricing and not market pricing. The municipal companies give priority to political goals before financial goals. The conclusion is that a Swedish integrated market for heat has not yet evolved, and some district heating price-controlling mechanism is necessary.

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1. Introduction

In 1996, a new law deregulating the pricing of municipal district heating in Sweden was put into effect. As a consequence the share of commercial actors in the district heating sector was increased, leading to a discussion between customers, authorities, and energy companies that concerned the lack of district heating

price regulation (Andersson and Werner, 2003).

The deregulation of district heating was part of a larger deregulation of the system for the production and sale of electricity in Sweden. Instead of planned and monopolistic systems, competitive markets were to be created. The consequences of the deregulation of the electricity industry had been carefully investigated beforehand, but the same cannot be said about district heating. The whole investigation and its proposals amounts to about 200 pages, but only in one short paragraph is district heating mentioned (Swedish Government, 1993). Instead it seems obvious that the government and the industry had little

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understanding in advance of the consequences of the deregulation of district heating (Westin and Lagergren, 2002). The only guiding principle in the new legislation was a rather vague principle of a *business-like manner* (our translation of Swedish “affärsmässighet”) (Andersson and Werner, 2003). However vague this principle, it made it possible for the municipal district heating companies to abandon the principle of cost-based pricing. Instead price-setting was now free for all actors.

Almost all of the grids for the distribution of district heat are local and closed – that is, not connected to other grids – and, due to large-scale economies, almost all contain only one producer and distributor. This is in contrast to electric power, where production plants are many, grids are connected and suppliers, competing for customers, soon became plentiful after the deregulation. Thus, the preconditions for creating competitive integrated markets for electric power were quite favourable, for district heating much less so.

A few years after the deregulation a restructuring of the Swedish district heating industry had occurred (Andersson and Werner, 2005). In 1990, municipal district heating companies produced 98% of all delivered district heating in Sweden (Andersson and Werner, 2003). In 1998, after the commercial actors had entered the sector, mainly by buying municipal energy companies, these new actors delivered about 25% of Swedish district heating (Andersson and Werner, 2005). In 2011 commercial actors owned about 35% of Swedish district heating systems. Among these, three actors were dominant: Vattenfall, which is owned by the Swedish state, Fortum, which has mainly Finnish owners and operates only in the Stockholm area, and E.ON, which is mainly German-owned and operates mainly in southern Sweden. There were also a number of smaller private companies within the sector. However, 65% of the district heating was still delivered by municipal companies (Swedish Energy Markets Inspectorate, 2011).

In spite of this restructuring, it has been clear for most of the involved actors – suppliers, customers and authorities alike – that competition within district heating systems is weak, and the government has initiated two major public investigations with the aim to find ways to increase competition in the industry or at least decrease the negative effects of weak competition for consumers (Swedish Government, 2004; Swedish Government, 2005; Swedish Government, 2011). The most important proposal from the first of these investigations was to suggest a new legislation for mandatory negotiations on price changes between producers and customers. In July 2008, this new legislation was put into effect. The 2011 investigation received a specific task to further analyse the conditions for introducing *third party access* (TPA) to the grids – that is open the grids for other producers of heat – and in that way increase competition. It concluded that this was possible, but only at the cost of large investments. In practice no steps towards a realization of TPA have been taken since 2011.

Discussions considering deregulation and increased competition within district heating industries are by no means a unique Swedish phenomenon. Grohnheit and Mortensen (2003) discussed the legislative policy for the European Union in order to secure fair competition between district heating and natural gas. Gatautis (2004) presents a scheme for the liberalization of the previously state-owned Lithuanian district heating industry. Gatautis concludes that district heating production, sales, and maintenance should be commercially operated, while distribution needs to be regulated, similar to the discussion for introducing TPA in Sweden. Also, according to Gatautis one actor should not be allowed to gain dominant market power in a district heating system. Linden and Peltola-Ojala test electricity market deregulation and regional market structure effects on district heating prices using an econometrical model. The authors conclude that

deregulation of the electricity industry has lowered district heating prices permanently. However, district heating markets are local and vertically integrated, which means that strong regulation and market monitoring might be necessary (Linden and Peltola-Ojala, 2010).

Because of the weak competition within district heating systems, the question of whether district heating should be subject to price regulation has repeatedly been raised. For example, since 1997 the Swedish Competition Authority has suggested that the implementation of price regulation would be appropriate (Andersson and Werner, 2001). The Swedish District Heating Association (here denoted SDHA), which organizes almost all district heating companies, has responded to this challenge – as it sees it – by taking a twofold position: a) it has introduced systems of voluntary self-regulation in order to meet the demands for price regulation¹, and b) it has argued that price regulation is not needed since district heating operates not on a market for district heating, but on a market for heating, where also other technologies, e.g. heat pumps, compete with district heating (ERA - Energinyheter, 2009; Swedish District Heating Association, 2014; Dagens Nyheter, 2005).

So, by broadening the perspective in this way, according to the reasoning of the SDHA, the total demand for space heating and domestic hot water in Swedish buildings can be considered to constitute a national market for heating. The existence of such a national market can be used to argue against price regulation, and it can furthermore be argued that the possibility for real estate owners to choose between different heat supply options puts a strong restraint on excessive price hikes.

1.1. The aim of this paper

To sum up, the deregulation of electric power in 1996 was supposed to create an integrated market for the production and sale of electricity. The consequences of this reform for the district heating industry were more ambiguous. But the fact that pricing on district heating was liberalized and that municipal district heating was from 1996 and onwards allowed to be commercial, indicate that also for district heating some kind of market situation was supposed to emerge. In theory tougher competition would lower prices. This was the fundamental *raison d'être* for the whole deregulation. The aim of this paper is to analyse the complex situation that has developed, and to answer the following broad question:

What kind of market situation has emerged for district heating since the deregulation in 1996, and how have different types of companies, with different types of owners, responded to this situation?

This question will be specified into more detailed questions after we have presented our theoretical assumptions.

Policy implications: Price-setting (and price-levels) lie at the heart of the debate on the deregulation of district heating, particularly since most district heating systems actually constitute local monopolies. Several measures to restrain companies from raising prices excessively have been discussed and/or practiced. From a policy perspective it is therefore of importance to analyse what possible restraints exist that might prevent companies setting price levels in an excessive manner. In particular we will discuss whether prices need to be controlled, and in that case whether any

¹ “REKO fjärrvärme” – a voluntary certification system for district heating companies introduced 2004, “Prisdialogen” – a voluntary collaboration for trial pricing for district heating between SDHA, SABO (the Swedish Association of Public Housing Companies), and Riksbyggen (a company owned by the building unions, housing associations (local housing associations) and by other national co-operative associations)

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