

e-harbours

WP 3.7 Application of Smart Energy Networks

Organisational and Legislative Analysis
Summary results of showcase City of Malmö

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1 Introduction

Smart energy networks are intelligent and flexible solutions which combine flexible energy consumption, local generation of (renewable) energy and energy storage on different levels. In any smart energy network, the presence of both technical/economical and organisational/legislative conditions is crucial.

The e-harbours report 3.5 focuses on the *technical and economical aspects* of smart energy solutions. The scope of WP3.5 is the translation of the 6 universal business cases (e-harbours report WP3.4) on the level of every case study. It gives an overview of the potential for the exploitation within the existing local (national) rules and regulations.

This e-harbours report 3.7 focuses on the *organizational and legislative aspects* of smart energy solutions. A long list of general barriers has already been composed (deliverable 3.3). This report 3.7 addresses the analysis on a local level, and gives an overview of barriers which hamper the exploitation of smart energy systems.

1.1 Description case study

The Northern harbour is the node for energy production for City of Malmö and the region of Skåne. EON and Sysav are the large producers of electricity, heat and biogas, which is distributed to the harbour and the city net for district heating, electricity and gas. The harbour area is 230 ha and now locates about 85 companies and is undergoing an expansion of another 450 ha.

The challenge for the City of Malmö and the region as a whole is that there is a lack of electricity production while there is an excess of heat, and that the energy mix is mainly based on conventional energy carriers. But, there exists a big potential in better matching production and demand, reusing excess heat and making capacity available for electricity production, as well as increasing the share of renewables of the energy mix.

The scope of this case is to show how collaboration between companies in the Northern harbour and the City of Malmö can generate increased reuse of excess energy, capacity for electricity production and a greener district heating. The method is based on investigations and collaboration between the City of Malmö and companies in the Northern harbour, such as E.ON (energy producer and owner of the district heating grid), SYSAV (energy producer of district heat and electricity) and Norcarb (industry and producer of excess heat).

1.2 The strategy/approach

In order to distinguish the organisational and legislative barriers, the following steps have been taken.

Identification of the organisational and legislative barriers of the Northern Harbour has been done with the following steps:

1. Interviews with EON, SYSAV and Norcarb
2. Interviews with stakeholders in the Northern Harbour area, such as Cementa AB, Finnlines, OKQ8, Stena Recycling AB, VA Syd etc.
3. Desktop research, on internet and telephone with institutions such as Energimarknadsinspektionen, Svensk Energi etc.

1.3 Scope of the e-harbours case study in the Northern Harbour.

The deliverables of this case study are:

- The report "Studie om industriell samverkan i Norra hamnen" (EN: Study on industrial collaboration in the Northern harbour), City of Malmö, Sweden, published by City of Malmö.
- The report "Utveckling av industrisamverkan i Norra hamnen, Malmö - sammanställning av arbete, data och resultat under 2012" (EN: Development of industrial collaboration in the Northern Harbour, Malmö – compilation of work, data and results 2012)", published by the City of Malmö.

2 SUMMARY RESULTS

2.1 Northern harbour

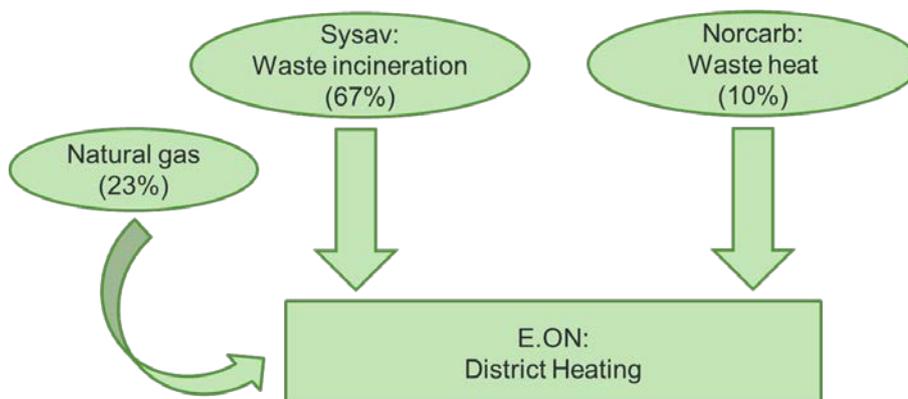
2.1.1 Introduction

The Northern harbour is the node for energy production for City of Malmö and the region of Skåne. EON, Sysav are the large energy producers of electricity, heat and biogas, which distributed to the harbour and the city net for district heating, electricity and gas. The harbour area is 230 ha and now locates about 85 companies and is undergoing an expansion of another 45 ha.

The challenge for the City of Malmö and the region as a whole, is that there's a lack of electricity production while there's an excess of heat. But, there exists a big potential in matching production and demand, reusing excess heat and making capacity available for electricity production.

The case study Northern Harbour will show how capacity for electricity production can be made available through collaboration between companies in the Northern harbour and the City. This is supposed to be done through cooperation between E.ON (owner of the district heating grid), SYSAV (produces heat from waste incineration) and Norcarb (produces excess heat from oil incineration).

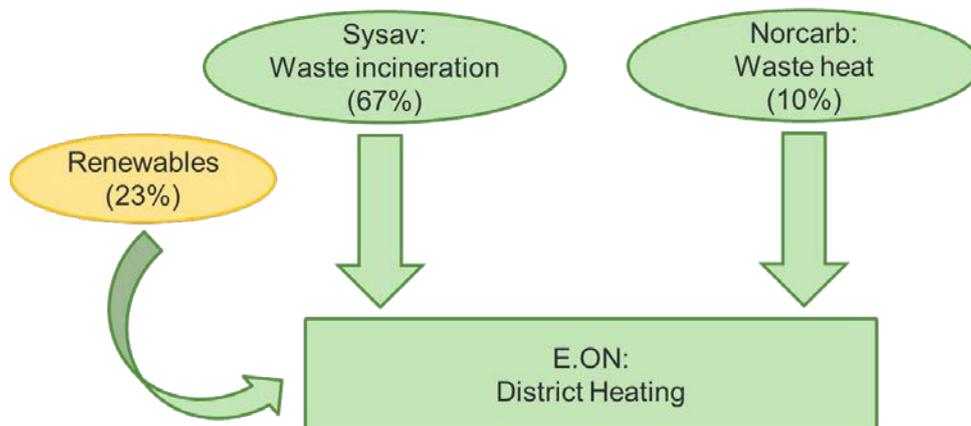
The first step in this cooperation is illustrated in the picture below.



WP 3.7 Template for all Showcases

The excess heat from Sysav and Norcarbs plants are transferred into E.ONs district heating grid. Sysavs part is 67%, Norcarbs part is 10% and the remaining part (23%) consist of natural gas from Öresundsverket.

The next step in this cooperation is illustrated in the picture below:



The part of natural gas is supposed to be switched to renewable energy sources. This part is supposed to come from wood-based incineration.

A part from this, it will also be investigated how the heat generation from SYSAV and Norcarb can be made even more efficient. For example, SYSAV wants to invest in an accumulation tank to save heat during the day and use it during the night.

2.1.2 Investigation results

Legislative barriers

Legislative barriers in the present context of the Northern Harbour are related to that EON has geographical monopoly on both the district heating grid *and* the delivery of district heating in Malmö. This means that even if an industry produces large amount of heat and wants to transfer it to the grid, E.ON has the right to deny this.

However, this monopoly also makes it possible to achieve the target of 23% renewables in the district heating grid. Without this monopoly, it would be impossible to control the amount of renewables since any fossil fuel based incineration could transfer their heat to the grid.

Organisational barriers

The organisational barriers are the result of the legislative barriers since E.ON's monopoly affects the relationship between the heat producers and the grid owner. Hence, this section refers to the one above.

3 Overall conclusions

3.2 General Overall Conclusions and recommendations

- Legislative barriers are related to the monopoly of the district heating grid.
- Organisational barriers are the result of the legislative barriers.

4 Lessons learned

4.1 Organisational issues

See below.

4.2 Legislative issues

The case study (1.1) made in the Northern Harbour in Malmö will be possible to implement in other countries as long as there is a district heating grid available. However, barriers could occur if there is any monopoly on the grid.

4.3 Ideas for further investigation

Develop the efficiency of SYSAVS waste incineration and Norcarbs excess heat production.

5 References

[1] The report “Development of industrial cooperation in the Northern Harbour, Malmö”