



***'Energy savings and conversion from steam to district heating'***



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## Elimination of steam

In 1947, the manufacturer Johannes Rasmussen founded Graasten Salads in a former dairy in Graasten. At that time the goods could be counted on one hand: "Italian", "Curry", "Russian", "Mackerel" and "Fruit" Salad. Up through the 90s, Graasten Salads had a strong growth in the market shares; there are currently about 90 employees who annually produce 17,000 tons of food, which counts more than 290 product codes - among others Graasten Remoulade, which for generations has been the Danish favourite.

In connection with energy consultancy, the heating consumption, including the heating generation systems were investigated. Space heating in the office areas and heating of the HVAC systems were before supplied by heat from a hot water boiler. Hot water for cleaning purposes was produced by help of steam from the steam boiler – both boiler systems were fired by natural gas.

Heat recovery, water/energy savings and an option for a conversion from natural gas fired boilers to district heating where possible (on applications with temperature below 70 degrees), generated a project with a simple payback time of only 3 years.

### Investment

€120.000

### Savings

€40.000

400 MWh/Year

### Other benefits

Supply security  
Resource efficiency –  
CO<sub>2</sub> neutral

[www.graasten.as/graasten-salater](http://www.graasten.as/graasten-salater)



## BEST PRACTICE FACTSHEET

### Why we did it?

It started as an agreement on an energy audit between the power utility company AURA and Graasten Salads.

A review of the steam system showed energy and cost saving potentials as the steam was several places used for "low-temperature" purposes.

### What was changed?

Basically you should not produce hot water by help of steam unless there are special circumstances, so it was obviously a "low temperature" solution we were looking for. A modification of the steam system could furthermore result in a number of changes with the aim to optimize the energy consumption.

### The solution

It turned out to be supply of heat from the nearby district heating company, which was chosen as the solution. The gas boiler for heating purposes was decommissioned and heat exchangers were installed for the use of heat from the district heating network.

### Win Win Win

**First:** Graasten District Heating Company operates their plant by help of sun panels and biomass such as wood and straw. All heat produced on this plant is considered to be 100% CO<sub>2</sub> neutral. Thus, the conversion from natural gas to district heating is a 100% CO<sub>2</sub> neutral solution.

**Second:** The sun supplies in average around 28% of the total heat of the district heating system, of course mainly supplied in the summer time. For that reason it is of great interest to get customers like Graasten Salads connected to the system as they have a constant demand for heat throughout the year, e.g. for heating of water for cleaning purposes; in contrast to the

typical heat consumer, which only have a very small need for heating during the summer time.



**Third:** The heat has become cheaper for Graasten Salads, and according to the staff, the hot water supply is now more stable during the cleaning.



Overall, it is good for the District Heating Company, good for Graasten Salads and good for the environment.

