



## **Ecopower lowers investment costs in new district heating because of Package deal Danish DH REScoop**

**RESCOOP of origin:** Danish DH REScoops via EBO Consult

**Uptaking RESCOOP:** ECOPOWER – Flanders-Belgium

**Best practice:** Package Deal for individual households as new DH clients

**Budget for implementation:** 210 000 euros for the first phase of pre-implementation, and for a first group of large consumers.

**Start date:** 1/3/2018

**End date:** 31/12/2020

**Expected savings in energy units:** 22 000 000 kWh/year

**Expected financial savings:** 500.00 €/year (not really savings: all heat customers together will pay this amount annually for the heat supplied, instead of paying this amount for natural gas)

**Number of households in Eeklo expected to connect by the end of 2020:** 350 households

### **Short description:**

Ecopower started in 2018 with the development of a large district heating (DH) project in the city of Eeklo (North of Ghent, Flanders, Belgium). The project has the ambition to valorise 15 MW of heat dumped by a waste incineration plant. This project is in the phase of study of the technical and economic feasibility. The total heat demand of these parties should justify to launch the investment in a DH backbone infrastructure. In case this backbone of DH infrastructure can be realized, all private households along the itinerary of the DH pipes will be approached for connecting to the DH system. Thus, at this very moment the implementation of the best practice “package deal approach” is not possible yet, when considering the connection to the DH system of private households. The actual planning of the project foresees the connection of private households in the course of 2020, at the very earliest.

### **Situation previous to the implementation (problem) and measure (solution) implemented (technology and/or methodology)**

Individual heating per household, commercial building, office building, industrial building or installation. In the city centre the energy source is mainly natural gas. However, many households, public buildings and industries still use heating oil for space heating and domestic hot water production. Over the year 2016 a total energy consumption of 36 GWh (36.000.000 kWh) for heating by natural gas was measured in the part of the city where the backbone of the DH network is planned. The goal is to meet 2/3 of this heating demand by heat from the DH



The backbone infrastructure of the DH system actually considered is meant to supply heat to the areas of the city where major economic activities are concentrated. Apart from a handful larger industries, mainly SME's are located in these zones. Importantly, a large hospital, serving the whole "Meetjesland" region has been taken in operation in 2017.

In this first phase of the DH development, a limited number of households will be able to connect (estimated less than 1000 households in the period to 2025). Expansion of the DH network to the centre of Eeklo, planned for the period 2025-2030, would allow up to 30% of households of Eeklo to connect. In addition, all major public buildings would get heat from the DH system.

### **Feedback for the post-implementation period**

The district heating system is actually only in the development phase. The package approach is foreseen to be implemented for attracting additional heat clients by expanding a DH system being well in place and operational.

### **Challenges and Barriers identified on the implementation**

A decision on launching the investment phase will depend on heat supply contracts that can be concluded eventually with a sufficient number of large heat consumers (large buildings, industry).

The process of planning and eventually realizing a district heating takes years.

### **How to overcome them**

In this case we cannot start with the package approach because there is no district heating built yet. First, we have to "overcome" the planning and development phase of the plan. Factors that shorten the planning phase and make the process easier is having the support of the local authority. We invested a lot of time to gain the support of city of Eeklo. This led the city to launch a public tender procedure for the rights to use the public underground for a DH system on the whole territory of Eeklo. Ecopower, in consortium with an experienced industrial player, has won this tender.

Also, very helpful is being able to work together with a large non-profit heat consumer like the hospital in Eeklo. This hospital is considered an important "stepping stone" in the planned DH infrastructure. Not only due to its considerable heat demand with a flat profile throughout the year, but also due to considerable capacity to provide back-up heat to the DH network (both CHP and condensing boilers on natural gas). Having them on board helps convincing companies and industries to join the project.

In the phase of planning and development of a district heating large investments are necessary. We are able to decrease the investment costs by taking the Package deal approach into account, well in advance, in the engineering phase of the project. If we would not have planned working with the package deal in advance, we would have to consider the heat demand of the hospital and the industry *plus* the heat demand of the households that would be connected in the later phases. We thus would have projected a larger heat supply capacity of the network, basically needing bigger pipes thus bigger investments to be able to serve the households as well.

Now we consider the expected energy savings that will result from the package deal. Households will take efficiency measures because of the package deal and also because of

expected regulations on energy savings by the Belgian government. The heat demand of the households will be decreased so much by the time we are able to connect them that we can count with a reduced heat supply capacity, using pipes with a smaller diameter. This means we save on capital investment costs and consequently we improve the economic feasibility of the project.

In the phase that the houses can be connected, having taken energy saving measures will be one of the conditions to connect.

Pictures:

Project website “warmtenet Eeklo” [www.warmteneteeklo.be](http://www.warmteneteeklo.be)

