

Final report

1.1 Project details

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| Project title | IEA Heat Pump Programme Annex 47 – Varmepumper i fjernvarme og fjernkølesystemer |
| Project identification (program abbrev. and file) | EUDP-2015 I |
| Name of the programme which has funded the project | Systemintegration |
| Project managing company/institution (name and address) | Teknologisk Institut Kongsvang Alle 29, 8000 Aarhus C |
| Project partners | Johnson Controls Dansk Fjernvarme/grøn Energi |
| CVR (central business register) | 56976116 |
| Date for submission | 29-09-2017 |

1.2 Short description of project objective and results

IEA Annex 47, got the final acceptance by the IEA HPT ExCo in spring 2015. A kick-off meeting was held in Nuremberg in October 2015, where Sweden, Austria and United Kingdom agreed on participation in the Annex. Every participating country had to get their funding for the participation agreed afterwards, and this has taken longer time than expected.

Start-up meeting in Annex 47 was held in May 2016 in Taastrup, where Sweden, Austria and United Kingdom participated. The project content, time schedule, work packages and task leaders was decided at the meeting. In May 2016 was the project presented at the IEA DHC "district heating and Cooling" ExCo meeting. It is agreed that the work in Annex 47 will be coordinated with the IEA DHC program. Austria, UK, Sweden and Denmark is participating in the IEA DHC program.

Task 1 and task 2 is finalized for the Danish part.

IEA Annex 47, fik endelig godkendelse af ExCo i foråret 2015. Der blev afholdt kick-off møde i Nürnberg i oktober 2015. Hvor Sverige, Østrig og United Kingdom gav deres tilkendegivelse om deltagelse i projektet. De enkelte medlemslande har skullet have deres finansiering på plads, hvilket har taget længere tid end ventet.

Der blev afholdt opstartsmøde i Annex 47 i Maj måned 2016 i Tåstrup, hvor Sverige, Østrig og United Kingdom deltog. Projektindholdet blev fastlagt, tidsplan, arbejdsplaner samt task leaders blev fastlagt.

I maj måned blev Annex 47 præsenteret på IEA DHC ExCo mødet "District Heating and Cooling". Det er aftalt at arbejdet i Annex 47 koordineres med IEA's DHC program, dette giver god mening, da der både fra Østrig og UK og Sverige og Dansk side er deltagelse i IEA DHC Programmet. Projektets task 1 og 2 er afsluttet fra Dansk side.

1.3 Executive summary

Task 1: Market and energy reduction potential:

Task 1 is finalized and it shows that there is a large potential for implementation of Heat Pumps in District Heating Systems. Heat savings can cost effectively reduce the total heat demand in Europe by approximately 30-50 %. District heating can capture excess heat, which is currently wasted, and replace natural gas for heating in EU cities. It should increase from today's level of 10 % up to 50% in 2050. Heat Pumps plays a major role in in the conversion of excess heat to district heating.

Task 2: Description of existing DHC systems and demonstration and R&D projects with heat pumps.

In task 2 is existing DHC systems and demonstration projects where heat pumps are used for heating or cooling in DHC systems described on country basis. The task describe and present an idea and inspiration catalogue, with more than 20 different cases. The intention is that the catalogue should be used for planners and project developers for new projects.

Task 3, task 4 and task 5, will be covered by the following EUDP project which would be finalized in 2018.

1.4 Project objectives

Today is the Annex 47 regarding heat pumps in District heating systems one of the most important annexes under the IEA Heat Pumping Technologies program. Because more and more countries have realized that district heating is a way to phase out fossil fuel. The interest in Heat Pumps for District Heating is also growing in Denmark where several systems has been implemented.

In task 2 has 20 cases been described, where heat pumps are implemented with different sources and in different District heating systems.

Overall has the objectives in the project description been fulfilled, and the project will be finalized in following EUDP project which would be finalized in 2018.

It has taken more time and effort to start up the project than expected, but there is a wide interest in the project.

1.5 Project results and dissemination of results

The project has been disseminated several times, in South Korea in a IEA workshop, but also in Nuremberg in in 2015 and in 2017, to the IEA DHC Executive Committee in Denmark.

The project fulfils its objectives and will be finalized in 2018 in the second part of the project.

Hopefully will the project lead to increased interest and inspiration for new projects where heat pumps are implemented in District Heating Systems.

1.6 Utilization of project results

As the project is the first part and the second part will be finalized in 2018, has the project not been leading to any implementation plans or increased turnover at the moment. The main aim in the near future is to disseminate the project results and to gain interest in heat pumps for District heating systems.

The project is supporting the political goals regarding the phase out of fossil fuels, both on national level and on EU level as on international level.

1.7 Project conclusion and perspective

The objectives of the project is fulfilled and task 1 and task 2 are finished. The project will be finalized in 2018.

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Final dissemination of the project will be done in 2018.