

# Is there a way to make district heating more eco-friendly?

It turns out that integrating a heat pump into district heating system can provide a more sustainable solution for heating our homes. These days, most heat sources in district heating systems emit greenhouse gases resulting in fast-tracking climate change. To combat that, we need to find ways to replace fossil-fuel-based heat sources with more eco-friendly ones. Then again, it is hard to make successful transitions towards more sustainable solutions, and a lot of money is needed to do so. In order to save money, only projects that are physically viable and economically attractive should be pushed beyond the brainstorming phase. This presents the problem of how to determine if a project is promising.

One of the solutions that could help in that is creating a model of the project first. Think of it as rearranging your apartment. You could just go with the flow and buy whatever you think would fit, or you can plan it in an Ikea room planner first and check if the solution works for you. The same thing goes for energy systems, except a different software is used.

The study “Development of an integrated energy system model for cloud deployment” does exactly that. With the use of Modelon Impact Platform it checks if a heat pump could possibly be used as a heat source in a district heating system, what other necessary equipment is required for that, and how to optimize it. The results are very promising. They demonstrate that it is possible to provide heat in an eco-friendlier way. Additionally, the study shows that by using the right controllers, thermal energy storage can help to optimize the system’s operation and gain additional earnings from offering grid control services. The outcomes of the study could potentially contribute to the development of more efficient and sustainable energy systems.