

Accelerating the Heating and Cooling Transition



Joint Call 2021
Kick-off meeting of granted projects

Project presentation pitch

17 November 2021

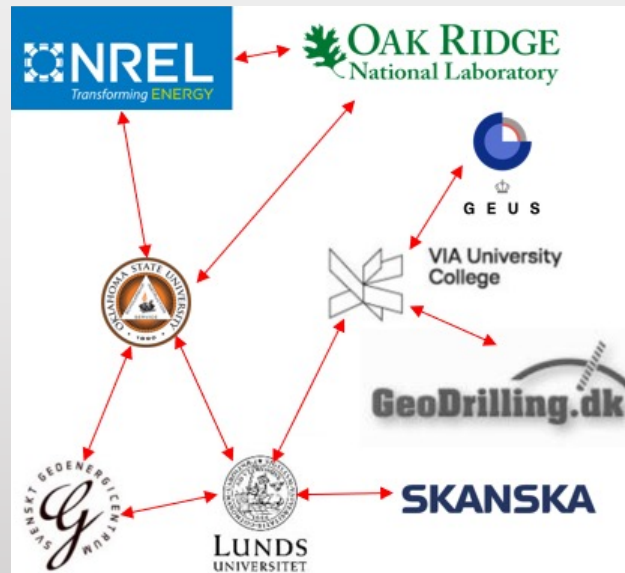


The Cooling and Heating transition Acceleration via Network Geothermal Energy

The CHANGE
Automating Design of Geo5GDHC Systems

Intro

- Saqib Javed
 - Associate Professor at Lund University, Sweden
 - Coordinator of The CHANGE Project
- Consortium



Challenges

- Modelling difficulty and excess time required to develop workable designs and optimal solutions
- Design Engineers, Consulting Firms, 5GDHC system providers
- Pain points include:
 - ✓ Forecasting of heating and cooling loads of the buildings on the district network
 - ✓ Development of candidate designs and evaluation of the designs using simulation tools
 - ✓ Lack of automated methods for designing ground heat exchangers
 - ✓ Capital expenditure
- Holistic design of optimized Geo5GDHC systems with tools that speed both preliminary and final design

Solution to be provided

- Design tool for automated design of Geo5GDHC systems.
- Data sets based on measurements from various Geo5GDHC systems.
- Validated models for components including geothermal heat exchangers, heat pumps, horizontal piping, and the grid.
- Standalone designs programs for:
 - ✓ Estimating heating and cooling demands of district and community systems
 - ✓ Automated borehole design
 - ✓ Thermal and hydraulic calculations of grids with reversing flows
 - ✓ Automated grid designs.
- Demonstration of 5GDHC systems as case studies.