



Skandinaviens nordligaste tekniska universitet
Forskning & utbildning i världsklass

Project Seeds and Contribution to DHC related calls

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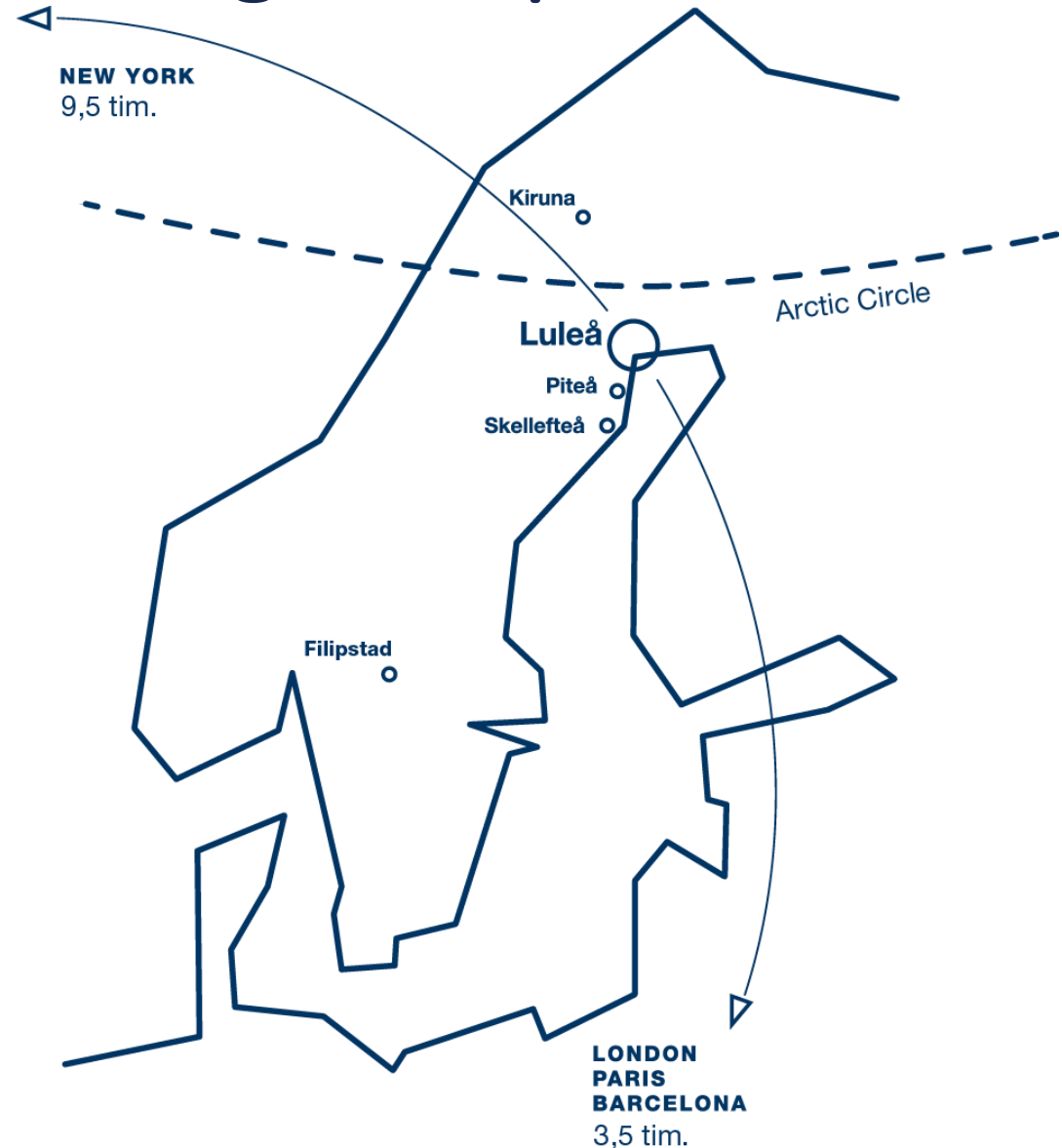


LULEÅ
TEKNISKA
UNIVERSITET

The logo of Luleå University, a stylized white letter 'L' on a dark blue background.

Short on the Control Engineering Group

- Expertise
 - Modeling & Simulation
 - Monitoring
 - Fault detection
 - Optimization
 - Integrated control systems
- Interests
 - Energy systems
 - Process industry
 - Data centers
 - And: integration of those
 - H2020 Coordinators:



- Call Scope:

- Scope: The proposal is expected to address one or more of the following aspects:
- **Optimisation of the different components** of a renewable heating and cooling system;
- Development of tools and systems to **optimize the design and monitoring** of the different components of a heating and cooling system;
- Development of **integrated control systems** for the smart operation of a heating and cooling system.

- Our role:

- Contributing partner
- Focussing on optimisation, monitoring and control
- Re-use results from H2020 OPTi (EE)

- Pilot partner:

- Luleå Energy HQ (PVs, Bio boiler, etc)



LC-SC3-RES8

- Call Scope:

- Support will be given to cost-effective solutions for district heating and/or cooling systems which allow satisfying at least 50% of the energy demand of the system by the use in the district of one or more renewable energy technologies. The **integration** of sources of otherwise **wasted excess heat is in the scope**.

- Our role:

- Contributing partner
- Optimization and control

- Partners & Pilots

- Luleå Energy (DHC system)
- SSAB (waste heat recovery in the form of surplus gas)
- SICS-ICE (research data center)



- Call Scope:

- Proposals should develop **integrated cost-benefit simulation tools** that, based on the characterization of processes, heat/cold streams and other relevant variables, can **determine the best utilisation options** of recovered waste heat/cold and/ or surplus renewable energy from industrial and eventual other sources (when available). Proposals should also consider the possibility to contribute to efficient use/system integration of renewable energy sources through e.g. heat/cold storage and flexible production.
- The proposals are expected to put forward simulation tools that would **allow industrial sites/parks** to determine the most financial attractive option for using their recovered waste heat/cold and/or surplus renewable energy
- The simulation tools should be **validated through demonstration in real operating conditions** in industrial facilities.

- Our role

- Coordinator
- Re-use results and expertise from H2020 projects OPTi (EE), DISIRE (SPIRE)

- Partners:
 - SSAB (Industry)
 - Luleå Energy (DHC)
 - AUEB (Business models)
- Needed partners
 - Energy systems
 - Park/site with no recovery at the moment
 - Simulation tools supplier
 - Exploitation partner
 - Cloud service provider (e.g. iGW Europe)



- Additional competence from projects:
 - H2020 NobelGrid + WiseGrid (LCE) => AUEB
- Some conceptual idea:
 - Flexible and adaptable simulation tools as a cloud service
 - Automated model generation for the industrial case
 - Extended recovery in existing recovery solutions
 - Explore potential of new waste heat sources (data centers)
 - New recovery solution