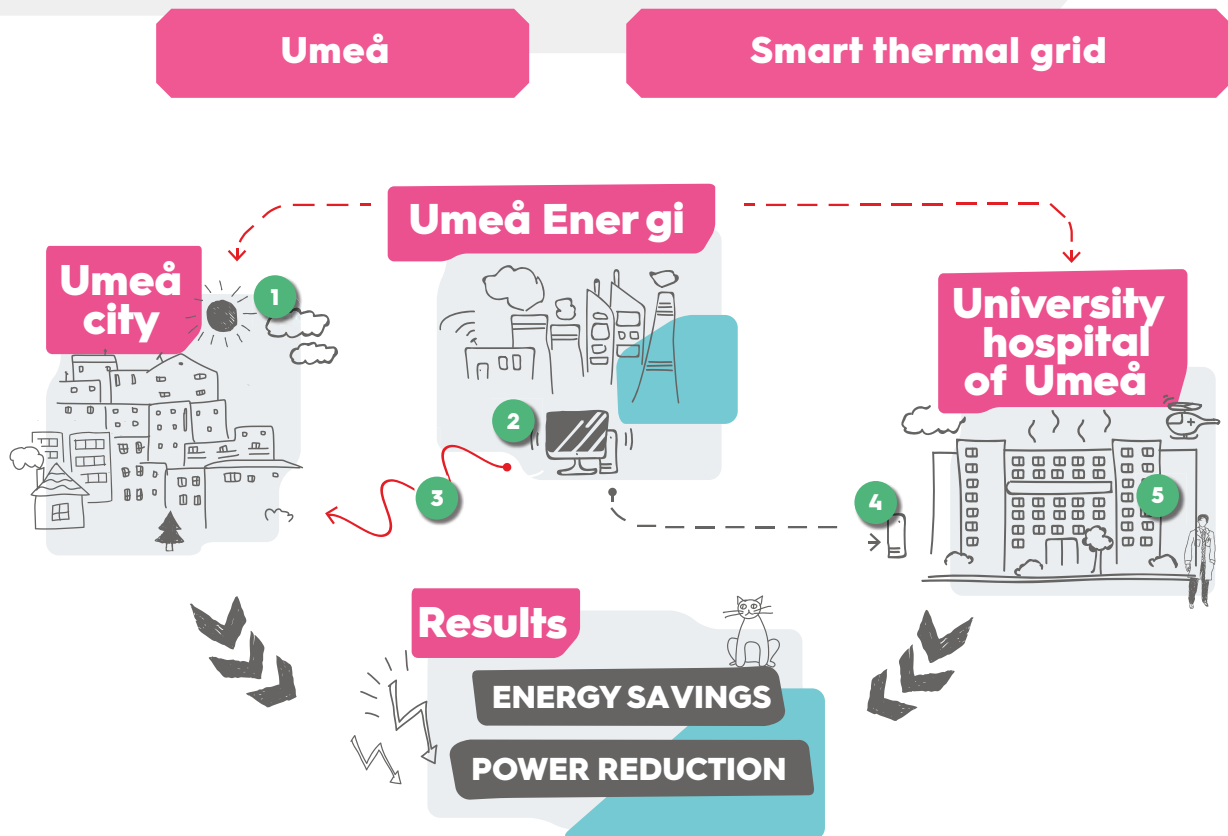


Peak load variation management and peak power control



1. Outdoor temperature 2. Smart energy system 3. Redistributed heat 4. Power control unit - turns down the heat 5. Building store heat.

The solution is based on an automated peak load management system that is developed and tested on campus at Umeå University. By using buildings as thermal energy storage hubs, the stored energy can be used at peak periods when the need for energy is at its highest. Through this approach, it becomes possible to even out peak loads and reduce the use of fossil fuels, in order to secure a consistent heat supply throughout the city.

Main partners involved:



FACTSHEET U2

Peak load variation management and peak power control

How does it work?

By using the buildings as thermal energy storage it is possible to even out peak load variations of the buildings, whose structure itself functions as an accumulator of heat (energy). Depending on the composition of the structure of buildings, more or less heat can be stored and used for "load shaving". The energy management units will be configured to communicate with other buildings in an open network cluster where a web-based information platform will be developed, and results shared for benchmarking purposes.

Umeå campus rooms vary from dry offices and teaching facilities to the energy-intensive wet labs and computer rooms. Tests with manual control simulating automated energy management have shown that the peak power demand at Umeå campus can be reduced by at least 15 % with smart energy management. Automated power controls with ICT tools will be implemented, thus leading to less fossil fuel consumption during peak load time.

Estimated impacts

Reduction of greenhouse gases due to better use of energy resources in the district.

Replication potential

Power controls are installed in all of the campus buildings - some 265,000 m² of premises - and have the potential to become standard in all properties in the innovation area and beyond.

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