

# Case for integrating renewable energy sources to shopping centres, case Lippulaiva

## Short description

- Lippulaiva is heated and cooled by Europe's largest geothermal plant underneath of it. Lippulaiva electricity consumption is followed and controlled by a smart grid solution that provides information in real-time and adapts electricity consumption to demand. Lippulaiva also participates in the nationwide demand response markets to balance the national grid when it needs its own electric battery. The entire usable roof area has been covered with solar panels and horizontal panels to maximise local energy production



## DEMO DISTRICT

Case has been conducted in Lippulaiva shopping mall, Espoo Finland

## PARTNERS INVOLVED



## COMPLETION DATE

04/2023

## KEY NUMBERS

Share of RES (Renewable energy sources): 100%  
 Co2 emission reduction: -308%  
 Total heat and cooling consumption: 79,6 kwh/m2  
 Thermal storage capacity: 5000 MWh  
 Total electricity storage capacity 1,5 MWh

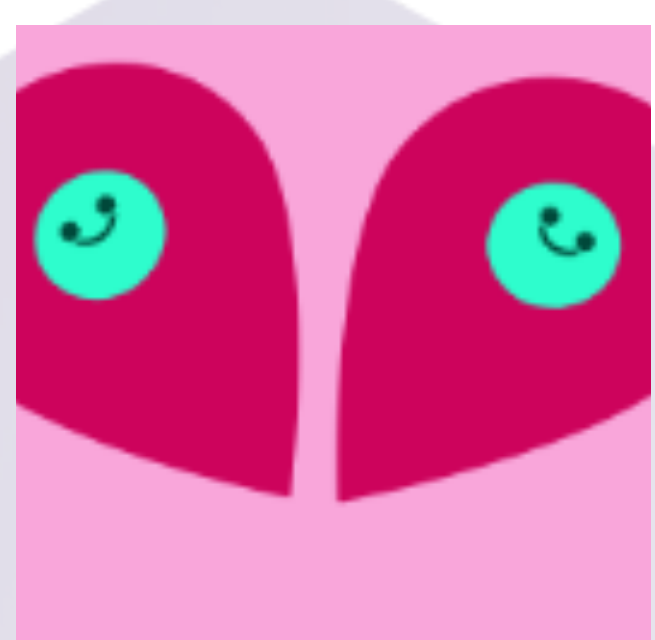
## CO<sub>2</sub> REDUCTION POTENTIAL

Up to 25% compared to energy certification minimum standard. Carbon neutrality can be achieved in terms of energy consumption

## CONTACT PERSON AND LINKS

<https://lippulaiva.fi/sustainability/>

Lippulaiva by Citycon



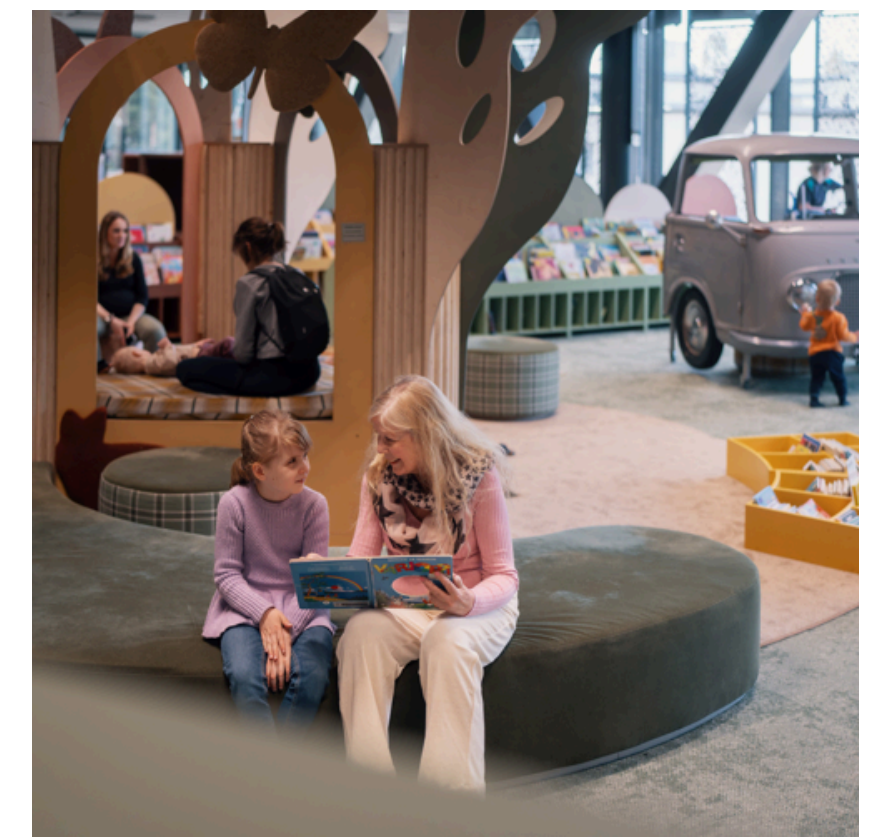
## Key results during the project lifecycle

- Making sustainable and environmental friendly decisions is also financially beneficial
- You can estimate, plan and simulate many things before actual construction phase, but things might vary a lot, when actual premises are ready. Be prepared to modify your suppositions on the way
- Needs for different parties varies significantly; owner, manager, technical staff, tenants etc. Correct data & reports should be available anytime to all of them.



## Insights and learnings

- The electricity demand response market in Scandinavia is active in volatile market. The ability to adapt the electricity base load according to the availability of electricity (pricing) will be crucial in the future.
- As the technical set-up and installation of heating and power systems becomes increasingly complicated, the building manager needs more technically skilled staff to handle these tasks.
- Perfect timing was yesterday. Act sooner rather than later!



## Challenges

- Acquiring the latest technology takes more time than usual. The whole team involved needs to be open-minded and thoughtful.
- At some point it might be unclear if you are acquiring hardware and/or software. This is crucial to understand because it affects negotiations and maintenance.
- There is no such thing as too much time to plan the metering systems. As the basis of a technically modern building is knowing how much energy is being used in real time, metering is complicated.



## Plans for replication



- Citycon as a company is looking for a similar type of investment in green energy sources in existing plants. Lippulaiva will be an example on the European market.
- There has been a lot of interest from the real estate sector in Finland.

## Questions and comments from partners

Comments to be added during poster session at Consortium meeting in Leipzig

