

Finland has the world's most energy-saving supermarket

June 13 2017

Under VTT's leadership, Finland has the world's most energy-efficient supermarket, which consumes only 40% of the energy of a normal grocery store. A new solution is saving the retailer around EUR 180,000 in energy costs. The technology is now ready for use on commercial premises in general.

"On a sunny day, half of all electricity consumed by the low-[energy](#) supermarket is coming from the solar panels installed on the roof," says Project Manager and solar power plant designer Klaus Käsälä of VTT Technical Research Centre of Finland.

In addition, energy use can be managed by levelling out consumption peaks on the power grid. Renewable solar energy even enables the occasional disconnection of the shop's cold chain from grid electricity. For example, the mornings, when energy prices are low, are the best time to store kilowatts for later use.

"In this energy-saving pilot supermarket, annual electricity consumption totals 240 kWh per square metre, which is close to the consumption of a normal residence, whereas a normal grocery [store](#) consumes 600 kWh a year," says Seppo Jakola, Premises Manager of the regional retail firm, Osuuskauppa Arina.

"If all grocery stores in the S Group chain consumed 240 kilowatt hours, their electricity consumption would halve," says Käsälä.

The pilot supermarket in Oulu is part of S Group, whose stores use a total of around 1.1 terawatt-hours (TWh) of [electricity](#) per year, whereas the state railway company, VR, uses around 0.76 TWh on its trains. Total [electricity consumption](#) throughout Finland is around 85 TWh, of which S Group uses around 2%. If the same concept were introduced in all S Group grocery stores, this would have a major effect on Finland's energy balance.

The project is part of the larger VIRPA project and will end in April next year. In addition to VTT, the University of Oulu and, from the private sector, Fingrid, S Group, Rejlers, Jalecon, Jetitek, Green Energy Finland, Fidelix and Emtele are involved. The overall size of the project amounts to around a million euros.

The next step will involve bringing more commercial premises into the [project](#).

Click here to see the energy [consumption](#), in real time, of the supermarket S-market Tuira: smartgrid.vtt.fi/s-market/tuira/

Provided by VTT Technical Research Centre of Finland

Citation: Finland has the world's most energy-saving supermarket (2017, June 13) retrieved 25 April 2024 from <https://phys.org/news/2017-06-finland-world-energy-saving-supermarket.html>

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