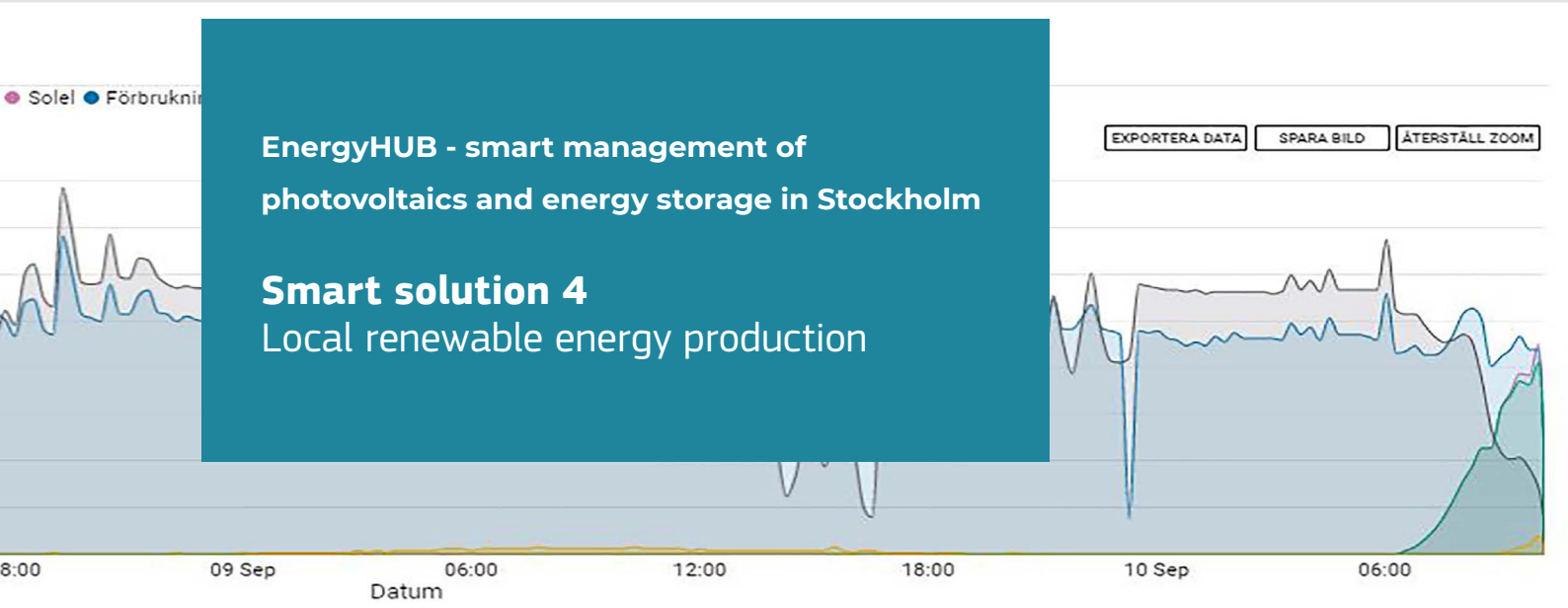


EnergyHUB - smart management of photovoltaics and energy storage in Stockholm

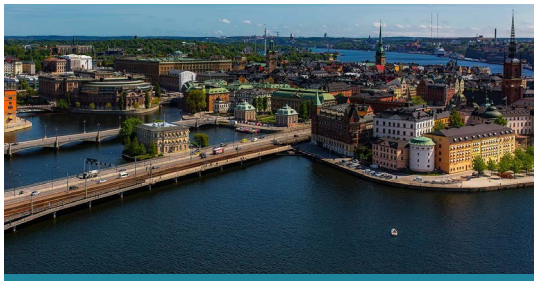
Smart solution 4
Local renewable energy production

Measured impacts

17%
of Årstakrönet's electricity supplied by EnergyHub

9%
of Kylhuset's electricity supplied by EnergyHub

5%
of Slakhuset's electricity supplied by EnergyHub



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What is it?

Installation and management of photovoltaic units and electrical storage with smart energy management software in both tertiary and residential buildings. The management software gathers relevant information and optimizes the energy flow among solar panels, energy storage and the grid in order to maximize battery usage and perform peak shaving strategies.

What did GrowSmarter do?

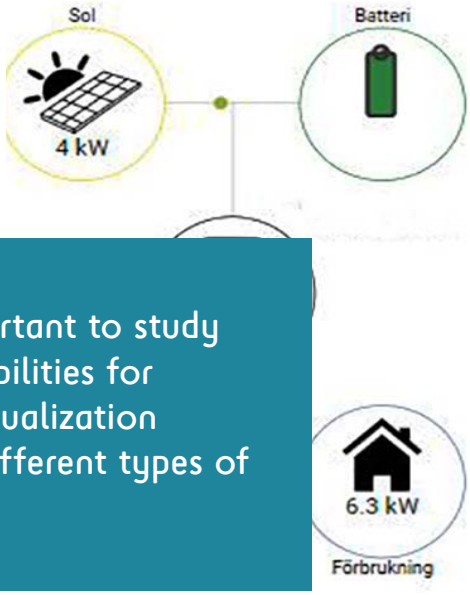
The service company L&T has installed photovoltaics, electrical storage and an inverter under the control of the so-called EnergyHUB management unit in both tertiary buildings retrofitted by the City of Stockholm (Slakthus 8 and Kylhuset) and in the private residential buildings of Brf Årstakrönet and the social housing of Valla torg.

Among several benefits the EnergyHUB works as a converter of electric current from DC to AC and AC to DC AC to DC and

Adaptive Current Equalization enables a lowering of the size of main fuses reducing the cost of the fixed fee.

Lessons learnt

The installation of the management software in different types of buildings (residential and tertiary) allows observation of how electrical power is used over time and finding possibilities for power equalization between different types of buildings. The analyses also provided information which was useful for the installation of the, photovoltaic cells ,in that they should be directed, not in the optimal direction, but where they can deliver optimal result when the use of electricity in the building reaches its peak, around 4pm.



It is important to study the possibilities for power equalization among different types of buildings.

The buildings had different groups of residents with different approaches to power consumption over time. Multi-family houses, industrial buildings and office buildings were all included in the Energy Hub. There is clear proof, that the power used in the multi Family house peaks at different times than the office buildings. This needs to be further analysed but show the potential for peak shaving between different types of building is large. This would enable an overall improved use of the power grid.

Upscaling & replication potential

One of the main goals of the energy optimization in this measure is peak shaving, which is considered to be a major topic in the near future due to the forecasted congestion of the electrical grids in cities. In this sense, it is expected that the measure has a high potential for upscaling and replication.

How did the measure work?

Technical feasibility

Using an EnergyHUB ensures that different systems involved in energy production consumption are synchronized. This optimizes the outcome of energy used and reduced the power load.

Economic feasibility

Reducing the amount of bought energy in combination with lower peak loads enable this technology to be self-financing. The need to lower peak loads is increasingly providing opportunities to share free loads between different types of buildings.

Replication potential

All buildings with the potential for and ambition to install PV cells, battery storage, EV charging stations and an interest of lowering the peak loads, could benefit from a solutions as EnergyHUB to monitor and control their energy use..

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