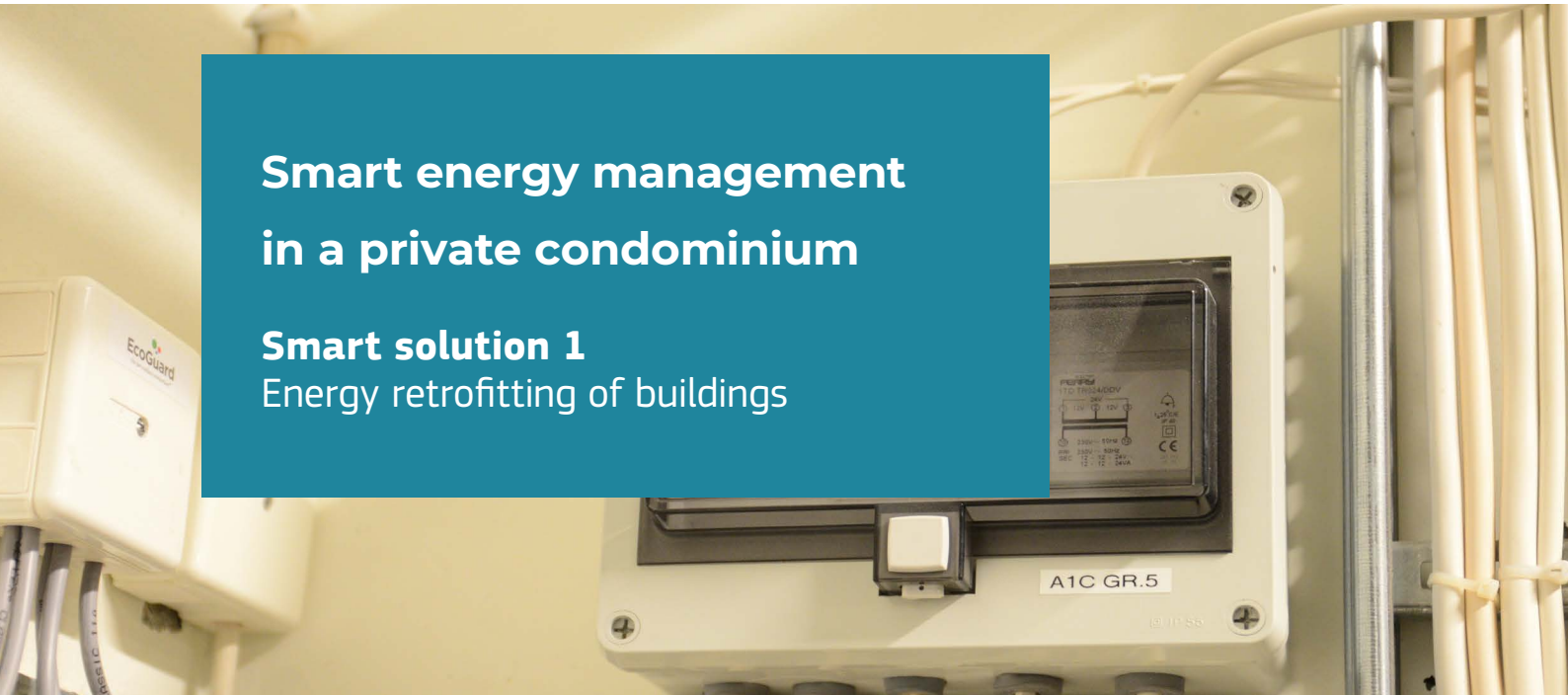


## Smart energy management in a private condominium

### Smart solution 1 Energy retrofitting of buildings



#### Measured impacts

**11%**

Savings on heating

**19%**

Savings on electricity

**14%**

Total energy savings



## Stockholm

#### Technical partners

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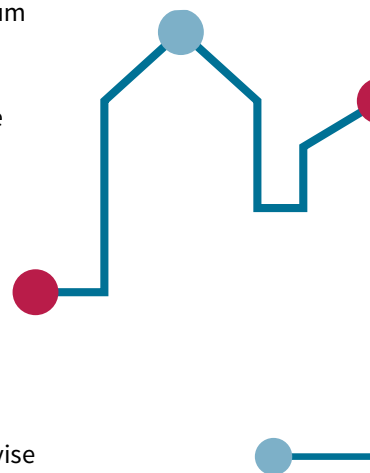
## What is it?

Implementing a series of energy-efficiency measures and a home energy management system to decrease the overall consumption levels of a private residential condominium. This makes the private apartments more environmentally sustainable.

## What did GrowSmarter do?

The service company L&T has installed different technologies and tools for smart energy management in the private condominium Årstakrönet with 56 dwellings.

These technologies include an adaptive control system for heating, indoor temperature meters in all apartments, smart ventilation control of the garage, water saving equipment, installation of electricity meters, district heating meter, water measurement equipment and photovoltaic installations and battery storage. An EnergyHUB was also installed to supervise the electrical usage (See factsheet 16).



All solutions implemented are monitored through L&T's Energy Saving Center (See factsheet 14).

## Lessons learnt

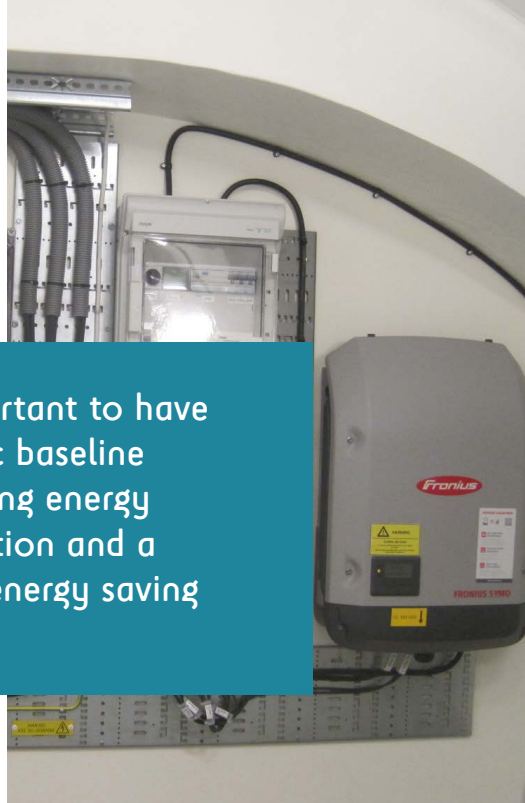
A single installation of the smart technology equipment is not enough to guarantee the energy savings. In order to guarantee success, on-going work involving people living in the building is required, as well as proper maintenance and surveillance. It is advantageous in terms of lowering costs and benefitting from existing knowledge to make sure the industrial partner in charge of installing the equipment is the same as the technical facility manager of the building after the installation.

When implementing energy efficiency actions in the private residential sector, it is recommended to have a really good communication with tenants' representatives (i.e. Board) and make them responsible for the contact with all the tenants/owners in the building. It is easier to reach a good communication/acceptance with a group of representatives rather than all the tenants in the building.

## Upscaling & replication potential

In order to succeed in replication, it is important to measure building energy performance prior to implementation. This will ensure a realistic baseline for the energy consumption of the building and a realistic energy savings target, since techniques are installed with promised savings that have to be proven. It is also important to coordinate the different solutions and techniques to avoid sub-optimisation.

When looking at achieved level of energy saving one have to take into consideration that this building is almost new where installed equipment is expected to have good function. Energy saving is in that way started from a higher level than from an older house.



It is important to have a realistic baseline for building energy consumption and a realistic energy saving target.

## How did the measure work?

### Technical feasibility

Installation of the control and monitoring function is an established technology. It is an easy way to supervise installed solutions and ensure that theoretic values are achieved in actual savings.

### Economic feasibility

The installation of these smart ad-on-technologies is self-financed with reduced heating and electricity costs.

### Replication potential

Several different approaches to for optimize heating, electricity and indoor climate were tested at the same house. Each building has its own qualification making it important to select the right approach for each. it can all be supervised by Energy Saving Center.