Optical sorting of waste, introduction of AWCS in an existing neighbourhood & waste collection statistics for individual households / businesses

Smart solution 7

Smart waste collection, turning waste into energy

Measured impacts

71%
reduction in CO_2 emissions

90%
reduction of waste collection traffic

66%
reduction of unsorted waste

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What is it?

An automated waste collection system (AWCS) in residential areas using differently coloured bags for efficient sorting of waste and less effort for the residents. The aim is to improve the quality of life for residents and increase recycling rates as well as resource efficiency.

What did GrowSmarter do?

Nine newly designed waste inlets were placed in the housing area Valla Torg in Stockholm with approximately 300 dwellings. The residents can sign in at the individual inlets before depositing their colour-coded waste. The waste is weighted when deposited and the system registers what kind of waste is being deposited using the colour-coding. From the individual inlets the waste is transported to a central collection station by pressurized tubes, which allows collection of waste from a single location.

The control system is brand new and the installation of a fibre network instead of copper allows for increased data traffic and greater possibilities for system control and operational statistics. Waste sorting has increased to include food waste, and the sorting rates are better than comparable areas.

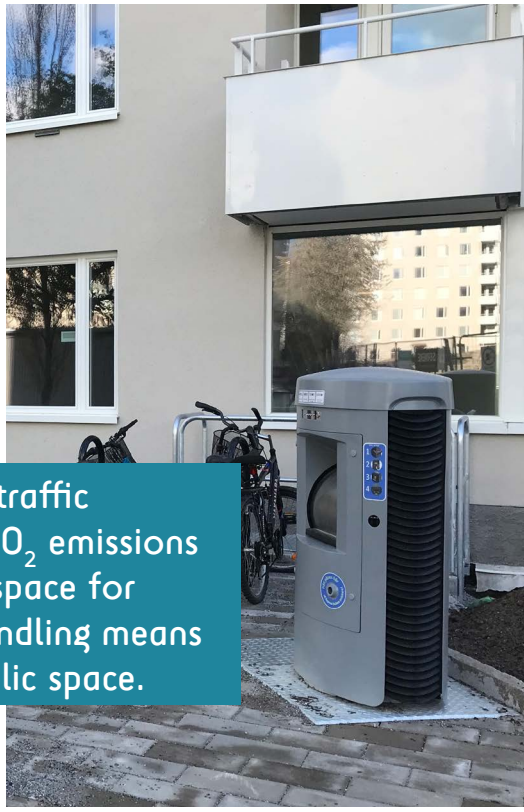
Lessons learnt

Understanding judicial restrictions about who can collect and where the waste should go as well as the topic of tenant consent (GDPR) are essential. Energy consumption for operating the installation is higher than expected. However, a substantial reduction of the energy consumption is expected after preforming a minor upgrading of the technology. The upgrading will have a positive impact on the CO_2 emissions as well and reduce them even further.

The measure reduces traffic related to garbage collection, which results in CO_2 savings. Less space for waste handling also means more shared recreational spaces. Incentives for and feedback from tenants improves the outcome of the solution and patience is needed to encourage tenants. Technology is sophisticated and requires trained staff.

Upscaling & replication potential

As the technical installation of the system is straight forward, the most important factor is securing the infrastructure for the waste sorting once it has been collected. GDPR, and possibly other judicial restrictions, must be understood in order to build up a database on waste deposited in the AWCS. Tenant information campaigns help with the acceptance. The follower cities of Porto and Suceava are looking into replication.



Reduced traffic reduces CO_2 emissions and less space for waste handling means more public space.

How did the measure work?

Technical feasibility

The system is technically feasible with sophisticated technology. Improvements, such as replacing minor technical components, could increase the end user experience and reduce energy use.

Economic feasibility

The system is economically and financially feasible, with an impact in job creation, not just during the deployment phase but also during the operation phase.

Replication potential

Scale advantage is high for areas with an existing sorting facility and recycling industry. Otherwise costs and benefits escalate proportionally to the area covered by the service. The follower cities of Porto and Suceava are looking into replication.

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