

Sort correctly

APRIL 2025

What does it take for us to get better at sorting plastic?



Plastic in Residual Waste: A Challenge That Requires Collaboration

Citizen engagement as a platform for reducing plastic in residual waste

Partners

ElectriCITY Innovation, Stockholm Exergi, Stockholm Vatten och Avfall, (SVOA), Envac, Localife, Hållbara Reimersholme, Sjöstadens Västra Sopsug Samfällighetsförening

Funding

Vinnova

THE USE OF PLASTIC continues to increase each year, yet the proportion of plastic collected for recycling remains low compared to other packaging materials. Plastic that ends up in household waste is incinerated for energy recovery rather than being recycled into new materials. This leads to emissions of fossil carbon dioxide and results in valuable resources being lost when plastic is not reused. The entire value chain needs to collaborate to address this challenge.

Approximately half of the fossil emissions from the incineration of household waste are caused by incorrectly sorted plastic. If all plastic packaging from households in Stockholm were sorted correctly, emissions from Stockholmers' residual waste could be reduced by 40,000 tons per year. This corresponds to half of the fossil emissions generated by household waste, according to figures from Stockholm Exergi. By improving plastic sorting, households in Stockholm can help reduce climate impact, increase recycling rates, and lower costs related to emission allowances.

PROJECT TO REDUCE PLASTIC IN RESIDUAL WASTE

To promote this development, a collaborative project was launched in 2022, bringing together representatives from various sectors of the waste management chain: *Stockholm Exergi*, *Stockholm Vatten och Avfall (SVOA)*, *Envac*, *Localife*, the citizen initiative *ElectriCITY*, *Hållbara Reimersholme*, and *Sjöstadens Västra Sopsug Samfällighetsförening*. The goal was to increase household knowledge and motivation for sorting plastic while also testing whether different types of incentives could change behaviors and reduce plastic in residual waste.

Another important part of the project was to develop and test methods for measuring waste quantities at the household level. The project was funded by Vinnova as part of the 'Initiatives for Civil Society Transformation' program.

HOW HOUSEHOLDS WERE MOTIVATED TO SORT PLASTIC

To understand household challenges and behaviors, interviews were conducted with residents, property owners, and other stakeholders in the waste chain. Based on these insights, solutions were developed and tested in a housing cooperative in Hammarby Sjöstad.

The project in Hammarby Sjöstad combined an existing infrastructure—the pneumatic waste collection system—with modern digital technology, clear information, and motivating incentives.

Households received targeted information mailings, including sorting tips and explanations of how waste management functions in their building. Through the *Envac ReFlow* app, each household could see its own sorting statistics and compare them with other households in the cooperative.

Technical measurement was carried out by registe-

The digital measurement of waste chute openings was a customized solution developed for the pilot.



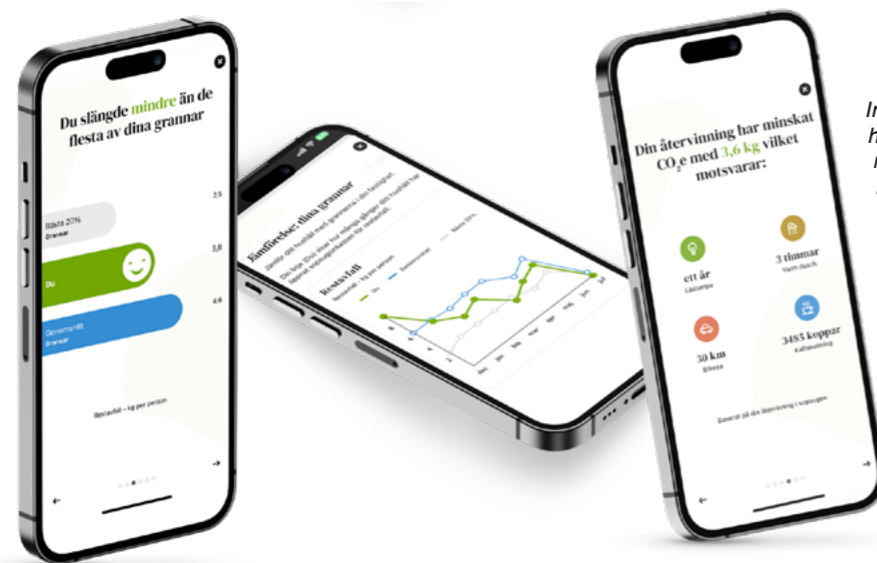
ring how often households opened the waste chutes for plastic, food, and residual waste. These data were then transferred to the app, which provided continuous information, education, monthly reports, and comparisons with neighbors.

THE EFFECT OF MOTIVATION AND REWARDS

To explore how financial incentives influence beha-

avior, two campaigns were conducted. They included two types of rewards: individual and collective (for the best-performing apartment stairwell). The prize in the first campaign was a dinner for two, while in the second campaign it was a Swedish "fika" for two at a café.

The first campaign lasted for three weeks in June 2024, while the second campaign took place from September to October 2024.



In the *Envac ReFlow* app, residents have received information, monthly reports, and comparisons with their neighbors, among other things.

90% Has used the app to track their sorting statistics.

84% Thinks the best feature is receiving feedback and statistics on how much waste is being disposed of.

42% Thinks one of the best functions is the tips on how to improve sorting and reduce waste.



We need to make it **easier and more motivating** to sort correctly. If we also provide households with **clear feedback** showing that their efforts actually make a difference, we can achieve a **significant impact**.



*Josefin Danielsson,
Project Manager
ElectriCITY Innovation*



Increasing plastic sorting is crucial for **achieving our environmental goals**, and we look forward to building on this great initiative. This way of **collaborating truly delivers results**.



*Lars-Olov Andersson,
Head of Pneumatic Waste Collection
Stockholm Vatten och Avfall*

Results:

- Households increased their plastic sorting by up to 44% during the campaign periods.
- After the campaigns, the behavioral change remained at an improvement of around 20% compared to before the project started.
- Incentives and feedback motivate people to change their habits.

The most interesting outcome was that between the campaigns, the sorting level did not return to its original state but remained at an improvement of around 20% compared to before the project started.

Linking household waste sorting to the energy system and carbon emissions has been an important aspect. Residents felt they gained a better understanding of both how the pneumatic waste collection system works and which types of packaging are suitable for recycling.

The results show that households are receptive to new technological solutions. They also confirm that increased knowledge, competitions, and locally adapted rewards can have a clear impact on behavior and create a sense of collective success.

EXPANSION AND FURTHER DEVELOPMENT

Following the positive results in Hammarby Sjöstad, the goal is to scale up and further develop the

method. Stockholm Vatten och Avfall has run a similar project in Norra Djurgårdsstaden. The results from both projects clearly show that further implementation in 2025 is justified. Another direction is to adapt the method to achieve more accurate measurements and also explore solutions in properties where other types of digital measurement methods are necessary.

An important future issue is economic incentives. Sjöstadens Västra Sopsug Samfällighetsförening has decided to develop a system where the waste fee is based on the amount of waste generated per property, which could lead to long-term sustainable behavioral changes.

While waste sorting and recycling are crucial, it is equally important for producers to be involved in designing packaging that is easier to recycle. To build on the project, the involved stakeholders plan to expand collaboration and include more partners, including producers, to create more comprehensive and sustainable long-term solutions.

By continuing to measure, evaluate, and refine the solutions, the goal is to ensure more effective plastic sorting—not just in Hammarby Sjöstad but in other areas where similar systems can be implemented.

LESSONS LEARNED AND INSIGHTS

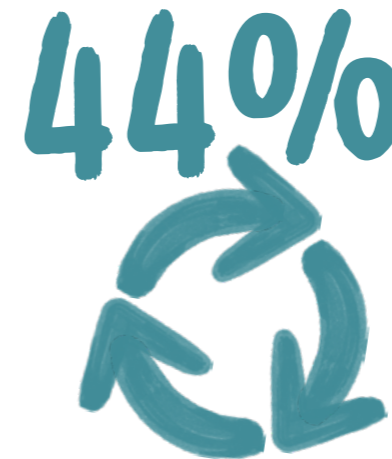
The project demonstrated that digital feedback and locally adapted rewards can have a significant impact on household sorting behavior. Most participating households felt they gained a better understanding of how their waste system works and became more engaged in sorting. Receiving regular and concrete feedback increased motivation and helped house-

holds maintain a high level of sorting even after the campaigns ended.

Collaboration between property owners, housing association boards, waste collection experts, and energy companies also created a sense of legitimacy and long-term commitment. These factors contributed to lasting changes and strengthened engagement over time.

During the project, some technical and practical challenges also emerged. Since the digital measurement of waste chute openings was a customized solution for the pilot, extra adjustments and maintenance were required to ensure reliable data. Some residents requested more detailed information, such as weighing the waste at the collection points, to feel confident that their sorting behavior was accurately reflected in the app.

The collection rate increased by up to



Key lessons from the project:

- Clear and regular feedback to households creates engagement and can contribute to long-term behavior change.
- Competitions and rewards can be effective drivers for improving sorting.
- Digital solutions make it easier for households to understand, track, and improve their sorting habits.
- Technical systems must be reliable and continuously maintained to maintain user trust.
- Support from the entire value chain strengthens legitimacy and enables long-term changes.
- Linking the waste system to the energy system can increase households' motivation to sort correctly.



It is fantastic to see how we can work together to **eliminate the climate impact of plastic** in residual waste. The **collaboration** has shown that **achieving real impact** requires an entire value chain.



*Hossein Shahrokni,
Head of Research
LocalLife*



We are proud to be part of this groundbreaking **collaboration** to increase plastic recycling and the important steps taken toward a **sustainable and circular future** that can enhance resource efficiency in cities.



*Klas Leksell,
Product Expert, Envac ReFlow
Envac*

Partners



Project Manager/Contact Person: *Josefin Danielsson*
josefin.danielsson@electricityinnovation.se

Contact Person: *Richard Ljungberg*
richard.ljungberg@electricityinnovation.se
www.electricityinnovation.se



Contact Person: *Cornelia Malder*
cornelia.malder@stockholmexergi.se
www.stockholmexergi.se



Contact Person: *Lars-Olov Andersson*
lars-olov.andersson@svoa.se
www.svoa.se



Contact Person: *Klas Leksell*
klas.leksell@envac.se
www.envac.se



Contact Person: *Hossein Shahrokni*
hossein@locallife.se
www.locallife.se



Contact Person: *Camilla Pontén*
camilla@ponten.nu
www.hallbarareimersholme.se



Contact Person: *Yuan-Chen Qian*
yuan-chen.qian@ikanobostad.se
www.sopsughammarbysjostad.se

ELECTRICITY

WWW.ELECTRICITYINNOVATION.SE