

Don't waste your waste!

Increasing recycling - and revenue - in a semi-regulated market



HANS
ANDERSSON
RECYCLING

Hans Andersson Recycling

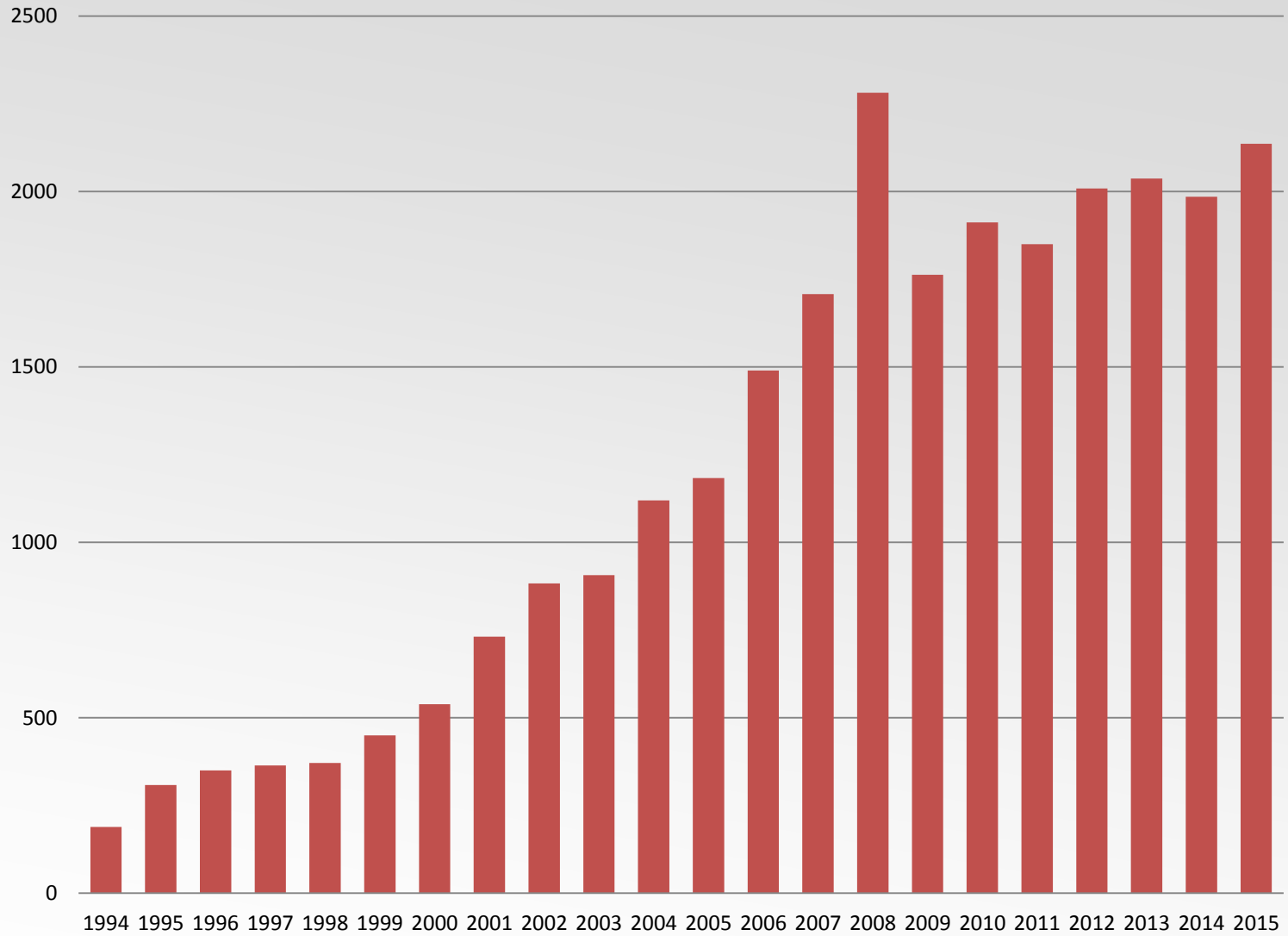
- Founded in 1948
- Family owned
- Recycling service provider
- Own plants for refining recycled materials
 - Mainly paper, plastic and metals
- Trades in recycled materials

Hans Andersson's environmental goals

- Become fossil free by 2020
- Increase the percentage of material recycled from our customers compared to landfilling or incineration
- Optimize transportation by better planning routes and distances
- Optimize volumes to better utilise transportation resources

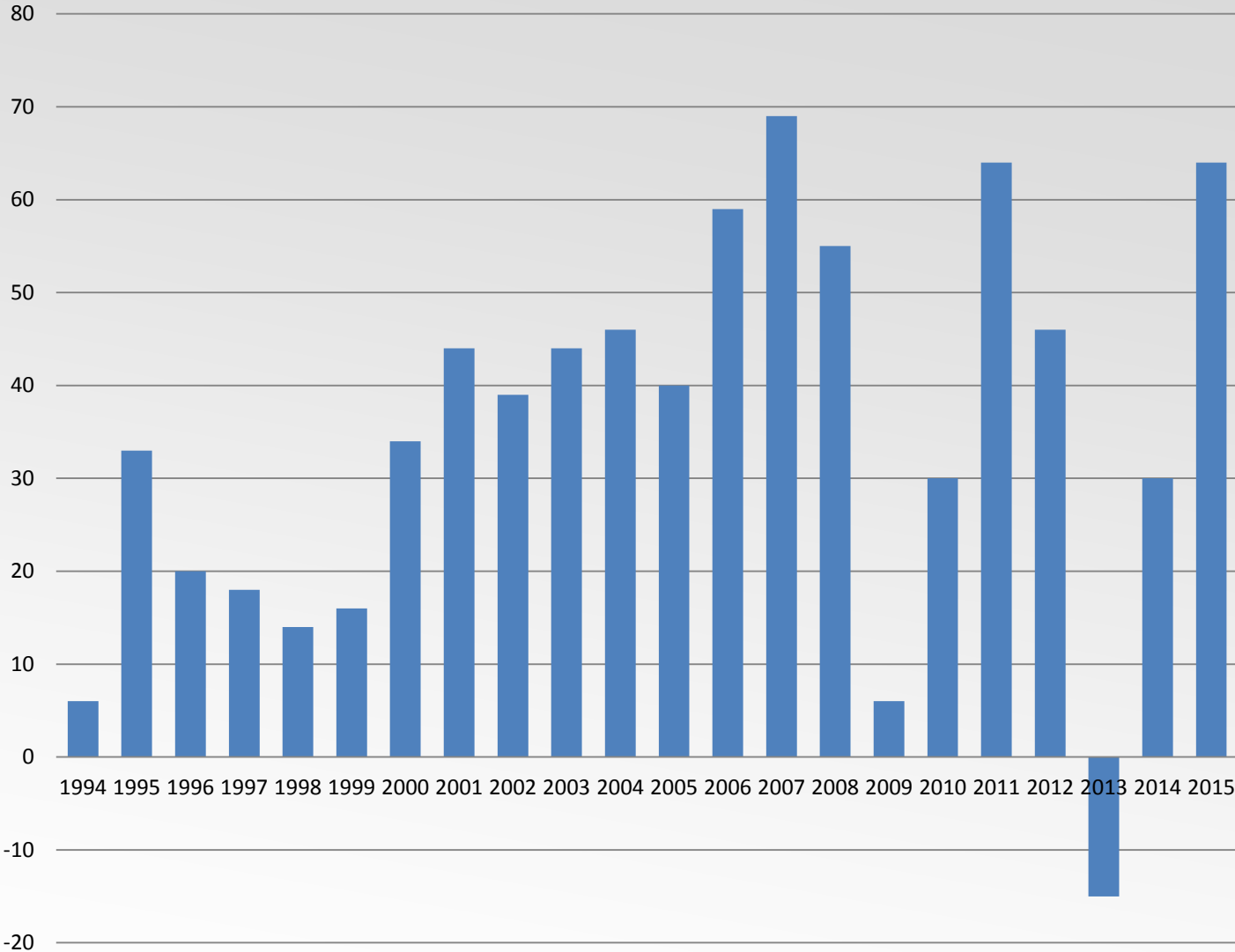
Turnover

[MSEK]



Profit

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An underwater photograph showing a large, tangled pile of marine debris on the seabed. The debris includes various types of coral, sea fans, and other marine life, all appearing dead and bleached. The water is clear blue, and sunlight filters down from the surface, creating a bright, hazy atmosphere. The text "Why recycle?" is overlaid in white on the right side of the image.

Why recycle?



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What becomes of this recycled/collected material?

- Plastic packaging
- Glass packaging
- Board and paper packaging
- Cans and tins (metal packaging)
- Newspapers
- Organic food
- Municipal waste

Sustainability in Sweden: Revolutionizing Recycling

99% recycling - that's the Swedish way

The Swedish recycling revolution

Sustainability Lessons from Swedish companies

Recycled materials in Sweden 2015

Material	Generated (1000 kg)	Recycled (1000 kg)	Recycled %
Plastic packaging	206 126	95 550	45%
Glass packaging	202 296	189 302	94%
Board and paper packaging	530 667	433 813	82%
Cans and tins	39 575	29 139	71%
Newspapers	300 000	270 000	90%

Source: Naturvårdsverket, Uppföljning av producentansvar för förpackningar och tidningar 2015

Recycled newspapers and paperboard, cardboard and corrugated paper

- Market value in 2017 of ca €140 per thousand kg.
- In 2015 ca 700 000 000 kg was recycled in Sweden, which at today's market value would equate to almost €100 000 000.
- Roughly 130 000 000 kg was not recycled, and at today's market value, this represents lost revenue of ca €18 000 000.

Organic Food Waste

- Organic food waste per capita in Sweden amounted to 127 kg in 2015.
- 1 kg of organic food can produce 1 kWh of bio gas.
- If all organic food waste in Sweden was converted to bio gas, the yearly waste from a single person would be enough to drive a bio gas fueled bus for 23 km.
- Today less then 40% is converted to bio gas.
- The full potential in Sweden would be almost 230 000 000 km for buses fueled by bio gas. The lost km today total more than 130 000 000 km.

Sample solutions for increasing recycling in a semi-regulated market

Constraints for recycle companies in Sweden:

- Collection of general waste and organic food waste is regulated and the different cities award the contracts for a specified period to the company with the winning bid.
- All packaging such as plastic, glass, metal and cardboard is the responsibility of the producers and they all have to pay into a system that then pays the company that recycles the packaging.

1. Incentive - Private housing

- Stockholm city's goal is to increase organic food waste from 16 000 000 kg in 2015 to 66 500 000 kg in 2020.
- As an incentive, the city declared in 2016 that the collection of most organic food waste would be free of charge for households.

1. An approach to increasing recycled materials

- We lower general waste (to be incinerated) volume by up to 40% by separating organic food waste, plastic and metal from general waste.
- This opens up space in recycling rooms for plastic, metal and organic food waste bins. Most apartment buildings already have bins for glass and paper.
- The benefit for customers is having recycling bins for most of the waste generated at home at a price that is up to 20% lower than before.

2. Tailor-made recycling – commercial real estate

- Who is responsible for recycling: the real estate owner or the tenant?
- Space restrictions.
- No financial incentive to separate materials. Often a fixed cost for general waste to be incinerated.
- Separating the materials would increase the cost substantially.

2. Tailor-made recycling – solution

Benefits for the customer (tenant):

- A tailor-made solution for each unique customer.
- Customers have control over the recycling costs as they only pay for the waste they produce.
- Statistics for the recycling of each type of material are available, which is needed for reporting and to obtain certifications.
- Recycling both becomes easier for the customer and the recycling company.

3. Don't waste your waste! – Supermarkets

- A larger supermarket typically handles around 200 000 kg of paper, cardboard and other paper packaging a year.
- If contaminated with organic food waste, paper packaging is usually incinerated.
- At an incineration cost of €80 per 1000 kg, the annual cost would be €16 000.
- If sold to a recycling company, the material could be worth ca €100 per 1000 kg, corresponding to annual revenue of ca €20 000.
- The potential gain for a supermarket would thus be around €36 000.

Lessons learned on how to increase recycling

- We as a company often need to create demand by giving the customer the solution.
- We as a company need to find tailor-made solutions to make recycling easy and understandable for the customer.
- We as a company need to promote change in recycling behaviour. If you we can customers attitude towards recycling and convince them of the benefits, they will continue to recycle. Doing good feels good. It's is just hard to get started...
- Hence incentives works far better than sticks when you want to change peoples behaviour.

Recycling levels in Singapore 2015

Material	Generated (1000 kg)	Recycled (1000 kg)	Recycled %
Plastic	824 600	57 800	7%
Glass	75 200	14 600	19%
Paper/ Cardboard	1 192 200	588 500	51%
Organic Food Waste	785 500	104 100	13%

Source: Singapore's Waste Management System – Summary by SEDC



Making recycling in Singapore greener than Dublin on St Patrick's Day

- A waste truck needs between 7.7 and 8.7 kWh to drive 1 km on bio gas.
- If 70% of all organic food waste in Singapore was converted to bio gas, it would enable 63 000 000-65 000 000 km of Green Recycling with trucks fueled by bio gas from Singapore.

