

# Our destination: a better environment.



A subsidiary of Borås Stadshus AB



**Pauline Salomonsson**

works as environmental coordinator  
at Borås Energi och Miljö



## Time for new routes

### Has the weather gone mad?

Researchers are now seeing evidence of a fundamental shift in the world's climate. And it's we who are responsible, primarily because of our emissions of carbon dioxide. The increase in greenhouse gas emissions is causing the earth's temperature to increase more rapidly than forecasted. Our world's climate is changing, and the consequences of this will be serious.

**So we need a new approach.** Sweden does its part by using renewable fuel, decreasing energy consumption and reducing car usage. But Sweden is only

responsible for 0.2 percent of the world's total carbon dioxide emissions. So surely our country's efforts are insignificant.

**It's actually the opposite.** Sweden can show the world how growth and carbon dioxide reduction can be combined. We in the city of Borås have the competence and the commitment to illustrate that by working together we can help build the infrastructure of the future with the smallest possible environmental impact. The first step has been taken, with the formation of our new company, Borås Energi och Miljö. Now the journey starts,

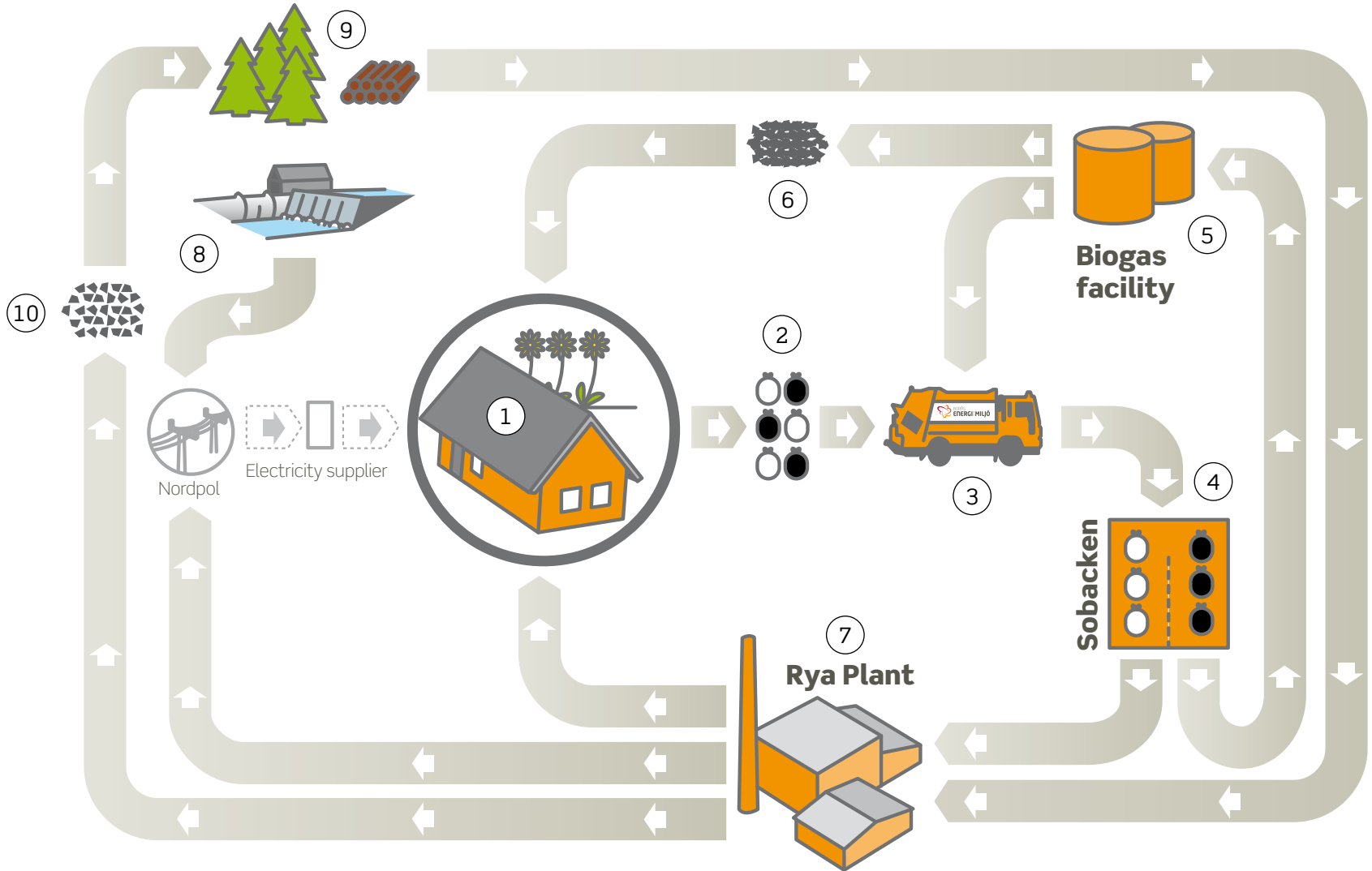
where we will show how we can minimise energy use by harnessing the city's energy flows.

**We want you to take part** in the development of a local biological cycle that can be used globally to create a better environment for future generations. *Change the earth's climate - get on board now!*



Gunnar Peters, Managing Director

# We harness all the energy flows



1. At home in your kitchen you sort the waste into black and white bags. This is the start of a chain of events that is beneficial to both you and the environment.
2. You place the black bags containing biodegradable waste and the white bags containing burnable waste together in your rubbish bin.
3. Borås Energi och Miljö collect your waste and transport it to the Sobacken waste facility.
4. At Sobacken the black and white bags are sorted in the sorting station.
5. The biodegradable waste in the black bags stays out at Sobacken and is fermented, turning into biogas at the biogas facility. When the gas has been cleaned to make vehicle fuel, it is used to power buses and waste disposal vehicles.
6. In addition to gas, the biogas facility produces a residual product that is mixed with garden waste from recycling stations and stable manure from the Borås Zoo. The result is Borås Compost, which you can buy at the recycling stations, to enrich the soil in your garden.
7. The white bags are crushed and used as fuel in the combustion facility at the Rya Plant. Here the burnable waste is incinerated, transforming it into district heating, district cooling and electricity.
8. We at Borås Energi och Miljö also make use of the energy in the water flows in hydro-electric power stations, to generate electricity. The electricity from the Rya Plant and the hydro-electric power stations is sold to the Nordpol electricity exchange, and through your electricity supplier it can reach your home.
9. When district heating, district cooling and electricity are produced at the Rya Plant, biofuel is also used.
10. Since the ash that is left after the biofuel is incinerated contains lots of nutrients, it is returned to the forest.

## Join us on a journey where everything goes in circles

**Today Borås city** is a pioneer when it comes to working in accordance with the biological cycle. This means that we see burnable household waste as a valuable energy resource – energy that otherwise would have been lost. Here you can play an important role. When you sort your

household waste, travel on the biogas buses, relax in your home with comfortable district heating or spend time at the office with its pleasant district cooling, you are part of the biological circle.

*So how do you fit in? See the illustration.*

**Andreas Ulveström**

works with business intelligence  
and research and development  
projects at Borås Energi och Miljö



## First-class cooperation

**Borås Energi och Miljö** isn't just a company that works with the biological cycle, it's also a knowledge company. Because knowledge is crucial for the city's waste to be managed as a quality energy product with minimal environmental impact.

**This is why** we work with a knowledge centre called *Waste Refinery*, which is a cooperation between *SP Technical Research Institute of Sweden*, the *Univer-*

*sity College of Borås* and the *business community*. The centre has the resources to conduct research projects that can reduce the environmental impacts and the costs of waste management. In this respect we're working on numerous fronts to make waste management more efficient and to spread knowledge about how ecologically and financially sustainable waste management can be implemented.

**Borås residents are making** a big effort for a better future by sorting their household waste into black and white bags. But there is still much more to be done, in order to reduce emissions of gases that affect the climate. Together we can become even better at sorting waste and at learning how to manage waste as a valuable energy product.

# The last stop for your household waste

Smart management of the city's household waste is crucial in making Borås part of the biological cycle. In this sense we do our part by making use of the waste, turning it into energy for district heating, district cooling and biogas for our customers.

## → District heating

District heating is hot water that is distributed via underground pipes to residential homes and other properties in Borås. Inside the properties, the water is used partly to heat the water that circulates in the radiators, and partly to heat the hot water that comes out of the tap.

To heat up the water that circulates in the district heating pipes, we use different types of fuel, which are incinerated at the Rya Plant. Today most of the thermal energy comes from sorted household waste and from biofuels from the forestry industry.

District heating is good for the environment, it's an inexpensive way to heat a property and it saves space. You get more room

left over in the basement, as well as an indoor environment that is clean and odourless.

## → District cooling

District cooling is used by our customers to create a good working environment at workplaces, in workshops and in commercial spaces. Studies show that the optimal temperature in a working environment is 22 degrees. At just two degrees above that, people's performance suffers. With district cooling you can easily control the temperature, to maintain a comfortable level during the warm months.

Other benefits of district cooling are that it saves space, is quiet and requires minimal maintenance. And if it replaces an

air conditioning unit, it can cut your energy consumption. Most of all it solves the problem of environmentally harmful freons, which are often found in air conditioning units.

## → Biogas

Biogas is formed when a household's biodegradable waste is decomposed in an oxygen-free environment. It consists mainly of methane (65-80%) and carbon dioxide (20-35%), and it can be used for the heating of buildings, for electricity production or as a fuel.

Biogas is the most environmentally friendly vehicle fuel in existence. Its many advantages include cheaper fuel, low emissions that don't increase the greenhouse

effect, and local benefits such as free parking for residents.

Biogas is a renewable source of energy, so there is no net increase of carbon dioxide in the atmosphere when it is combusted. The emissions of nitrogen oxides are considerably lower than for fossil fuels like petrol, and the emissions of hydrocarbons are almost nonexistent. Also, cars that run on biogas are equipped with a petrol tank. This makes it possible to use the vehicle where biogas is not yet available.

On April 29, 2002 we started to operate our first biogas-powered waste collection vehicle. On May 23, 2003 the public filling station at Gässlösa Road in Borås was opened. 75 percent of all waste collection conducted by Borås Energi och Miljö is done using biogas-powered vehicles, and 20% of all bus trips on local public transport in Borås are made in biogas-powered buses.

**Ulf Martinsson** works with biogas production at Borås Energi och Miljö



# Central station for energy, climate and waste services

Save money, improve the indoor climate and do the environment a big favour. With our energy and waste solutions, this can become a reality.

## ➔ Energy status

An *Energy status* is a compilation of your property's specific energy consumption, based on existing data, and we assess the property's potential for energy savings. You can use the results for your continued energy- and climate-related work in the property.

## ➔ Energy analysis

In an *Energy analysis* the property's energy consumption is plotted, and we give suggestions for cost-efficient measures aimed at energy savings and climate improvement. If you want, we can ensure that the measures are implemented. You can use the results when making ongoing energy- and climate-related decisions with regard to the property.

## ➔ Energy follow-up with KeepAnEye

The *KeepAnEye tool* ensures that you always have the most up-to-date energy statistics. It allows you to continuously monitor the costs and consumption of heating, cooling, electricity and water. With *KeepAnEye* you are perfectly positioned to follow and analyse how the property is functioning.

## ➔ Climate service

Through ongoing monitoring and maintenance you can rectify faults, damage and leaks before acute problems arise. So with *Climate service* your facility can operate optimally, without hassles. What's more, with *Climate service* you can reduce your operation and maintenance costs!

## ➔ Climate contract

In a *Climate contract* we work together with you, to optimise your facility. The focus in a *Climate contract* is always on financially sound resource utilisation in combination with a healthy indoor climate. We can also offer incentives that guarantee cost savings.

## ➔ Energy declaration

Sweden has legislation whereby all properties must have energy declarations. We already have knowledge of your facility, which means we can help you with your energy declaration in an efficient way.



**Lars-Olof Dahlqvist** works with the collection of household waste at Borås Energi och Miljö

### → Waste services

Borås Energi och Miljö carries out virtually all existing services in the waste management field. We have the waste solution for you, whether you run a preschool or a nursing home, a clothing store or a supermarket, an engineering business or a slaughterhouse.

### → Corporate services

At Borås Energi och Miljö we offer different types of solutions for your company's waste management. We transport your waste to our facility, where we take care of it in accordance with sound environmental practices.

We can also provide reports on how your waste was processed, for your own environmental auditing. This allows you to demonstrate that your organisation focusses

on the environment. We also offer advice on all matters relating to waste management at your company.

### → Waste collection plans

We have waste collection plans for apartment blocks of all sizes. The basic plan includes the collection of black and white bags. You can add services such as bins for newspapers and glass, as an extra service for your tenants.

We collect different types of pre-sorted recyclable materials in specific bins, from the same location as the bins for the black and white bags. The price for recyclable materials is much lower than the price for black and white bags. So using one or more of our additional services need not result in much of a cost increase for you.



**Anki Nilsson** works at the Customer centre at Borås Energi och Miljö

## Customer centre

Questions on waste, district heating, district cooling, biogas or our energy services? The Customer centre is happy to help.

Call us on **+46 (0)33 35 81 00**

You can also contact us by email, on: **kund@borasenergimiljo.se**

Visit **www.borasenergimiljo.se** to learn more about what we do. Don't hesitate to contact us if you have any questions or comments.

**You belong to the environmental elite. We create the conditions.**