

Recycling plant in Högbytorp

A sustainable energy solution
for the entire Stockholm region

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"The world's resources are under enormous pressure. We need to move forward in a sustainable way to make sure that there will be sufficient resources for the planet's increasing population. Everything that is produced must be re-used several times. Ideally, nothing should be wasted. A circular economy – that is what the recycling plant in Högbytorp is about."

Stefan Håkansson, CEO E.ON Värme

Stockholm – one of Europe's fastest growing metropolitan regions

Stockholm is one of Europe's fastest growing metropolitan regions. Since the year 2000, the county's population has increased by more than 400 000 people. In five years' time, the County of Stockholm is expected to have more than 2.5 million inhabitants.

This fast growth bestows opportunities, but also presents major challenges. There is increasing demand for housing, energy and infrastructure – and to meet these needs, new, smart, well-thought-out solutions are imperative.

With the recycling plant in Högbytorp, we are contributing to sustainable growth in Sweden's most expansive region. Here, we convert the municipality's ever increasing quantities of waste into resources that are in demand.

We provide residents with heating, electricity and biogas from recovered energy, and contribute to environmental stress reduction. In Högbytorp we are constructing a recycling system that converts what no one wants into something that everyone needs – completely in accordance with the principles of a circular economy*.

Clean 2025

E.ON aims to have all our energy derive from recycled or renewable sources by the year 2025. With the recycling plant in Högbytorp, we will increase our production of renewable and recovered energy in the Stockholm area by 50 per cent.

*The circular economy is an industrial economy that promotes business opportunities in which recycling dominates, as opposed to linear processes.



Recycling plant of the future – for an expanding Stockholm

We are building a recycling plant in Högytorp for the future. Here, we are integrating material and energy recovery in a unique, efficient and sustainable way.

And it is here we will generate electricity and produce heating and biogas from rejected residual products. Everything that has reached the final stage of its life-cycle journey, and which cannot now be recycled, will be converted into energy. In addition, there will be material recovery where nutrients are returned to agriculture in the form of biofertiliser. In the CHP (Combined Heat and Power) plant, 99 per cent of the energy from the waste will be put to efficient use.

The plant is dominated by two large buildings – the biogas plant and the CHP plant. Both are close to Ragn-Sells' recycling and treatment plant, which has been operating for quite some time now.

Our biogas plant will receive food residue and other organic waste from municipalities and companies in the region, which will decay and form biogas. The gas is a renewable alternative to petrol and diesel, and effectively contributes to reducing the amount of carbon dioxide emission from vehicles.

Closed recycling loops

In the production of biogas, biofertiliser is also produced. It can be used to enrich the soil in both ecological and conventional

agriculture. The use of fertiliser from the biogas plant gives new nourishment for food production – and the cycle is complete.

In the CHP plant, we will generate electricity and produce heat from what at present has no alternative use. The ash from the combustion will go back to Ragn-Sells. Because combustion causes substances to concentrate in the ash, Ragn-Sells can recover the metals and phase out the hazardous substances that remain.

The biogas plant will be operational in the summer of 2018 and the CHP plant will be completed in 2019.

Did you know that ...

Combustion in the CHP plant and the dry ash output enable metals to be recovered. This reduces the need for new extraction of raw materials.

The combustion helps reduce the amounts of hazardous substances in society.

The biogas that is produced in Högbytorp each year will be enough to provide fuel for 4 500 vehicles.

The energy in a bag of waste food is enough to drive a gas car 2.5 kilometres.

The biofertiliser that is formed in the production of biogas can be used instead of mineral fertiliser. This promotes the development of ecological agriculture.

If you drive with biogas instead of petrol, you reduce your emission of carbon dioxide by approximately 70 per cent.

Högbytorp in figures

Total investment: 265 million euros

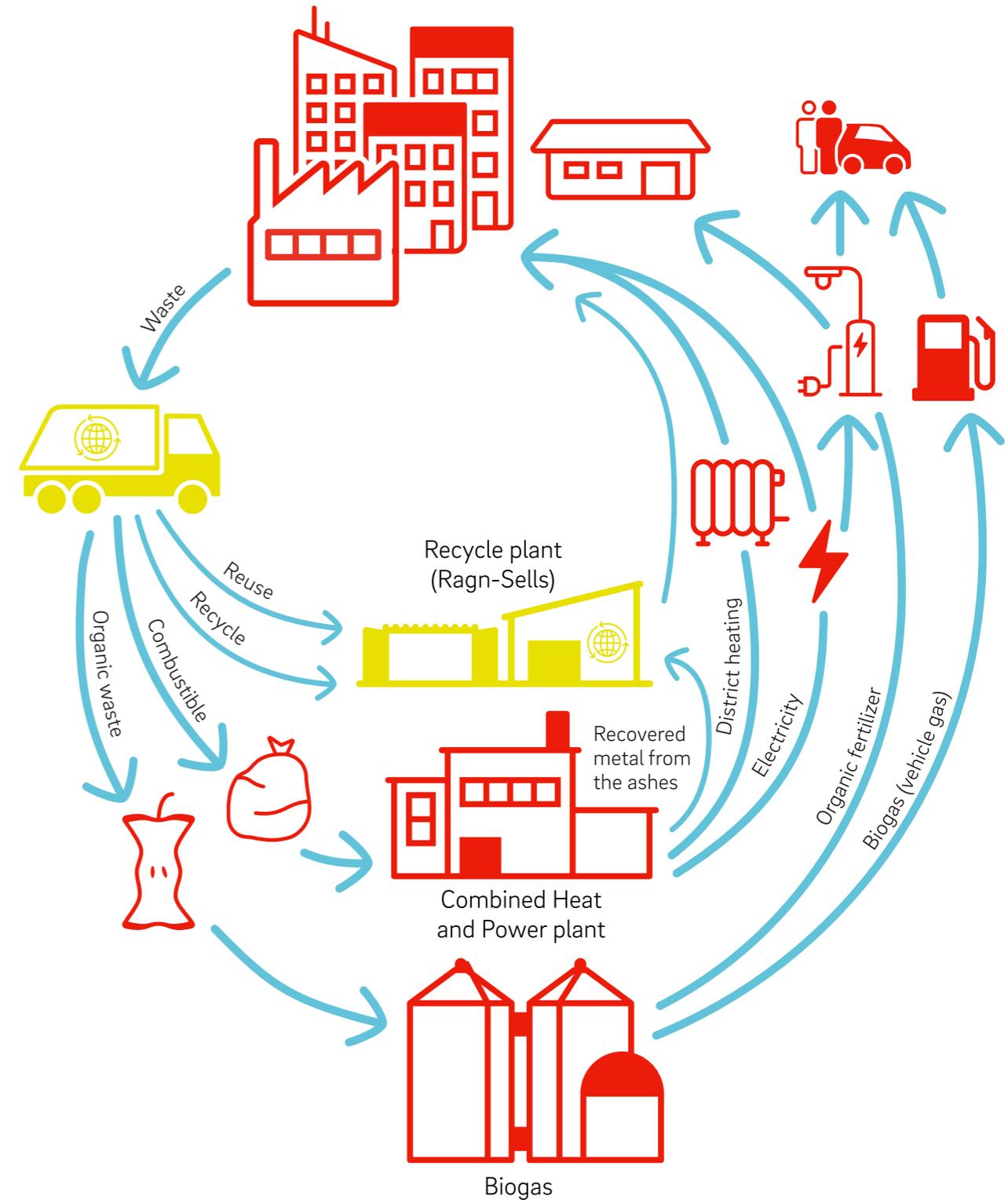
Total annual output: 650 GWh

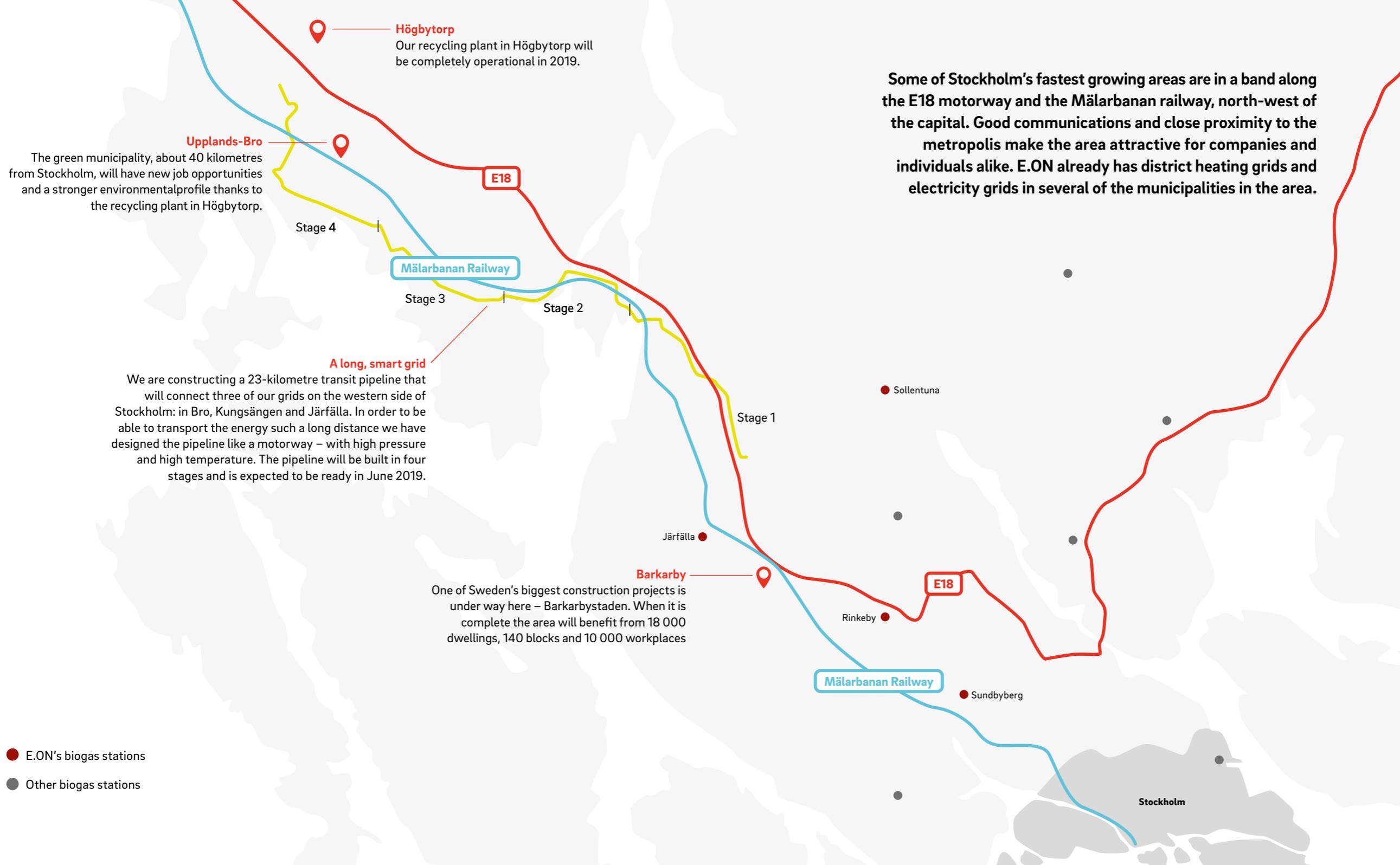
– of which heating: 425 GWh

– of which generation of electricity: 165 GWh

– of which biogas: 60 GWh

Total annual production of biofertiliser: 60 000 tonnes





Some of Stockholm's fastest growing areas are in a band along the E18 motorway and the Mälardalen railway, north-west of the capital. Good communications and close proximity to the metropolis make the area attractive for companies and individuals alike. E.ON already has district heating grids and electricity grids in several of the municipalities in the area.



"Upplands-Bro is a green municipality, and of course we welcome this sort of investment. Therefore, I am extremely pleased that cooperation between the municipality, E.ON and Ragn-Sells has worked so well."

Camilla Janson (S), Chairperson of Upplands-Bro Municipal Executive Board

Högbytorp places Upplands-Bro on the map

Högbytorp in Upplands-Bro is the optimal place for a recycling plant with its sights set on the future.

Because we have both the recycling company Ragn-Sells and the Upplands-Bro Municipality on-board in the process, we have been able to set in motion a cooperation which focuses on both the customers' requirements and societal needs. The result? We have provided the basis for the next generation's sustainable system solutions.

Strengthens the municipality.

For the Upplands-Bro Municipality, the recycling plant is an exciting new addition. Högbytorp will strengthen the attractiveness and environmental profile of the municipality through its offer of sustainable, recycled energy. The plant will also contribute with new job opportunities and will attract other companies to the municipality that have recycling and resource efficiency on their agenda.

With our recycling plant inside the municipal boundary, Upplands-Bro will be seen as a standard bearer when it comes to defining a circular economy. Our cooperation can serve as an example for other companies and regions that wish to create conditions for sustainable eco-cycle solutions.

Upplands-Bro is located in the County of Stockholm, about 40 kilometres from the centre of the capital. More than 25 000 people live here, and there are over 2 000 companies. The municipality is working actively to create a sustainable society of which ecological sustainability is part and parcel.

We heat Barkarbystaden

In Järfälla, which is located less than 20 kilometres from Stockholm, one of Sweden's biggest construction projects is ongoing – Barkarbystaden. When it is complete, what was previously an airfield will have been transformed into a dynamic new district with 18 000 dwellings, 140 blocks and 10 000 workplaces.

Sustainability all the way

Barkarbystaden is being built on the principles of sustainability. Among other things, this means that the dwellings will enjoy low energy consumption, and refuse collection will be smart, sustainable and aimed at recovery.

This also means that public transport and environmentally friendly traffic solutions are given priority. In a couple of years, long-distance trains, commuter trains and underground trains will connect Barkarbystaden with the rest of the region and Sweden as a whole.

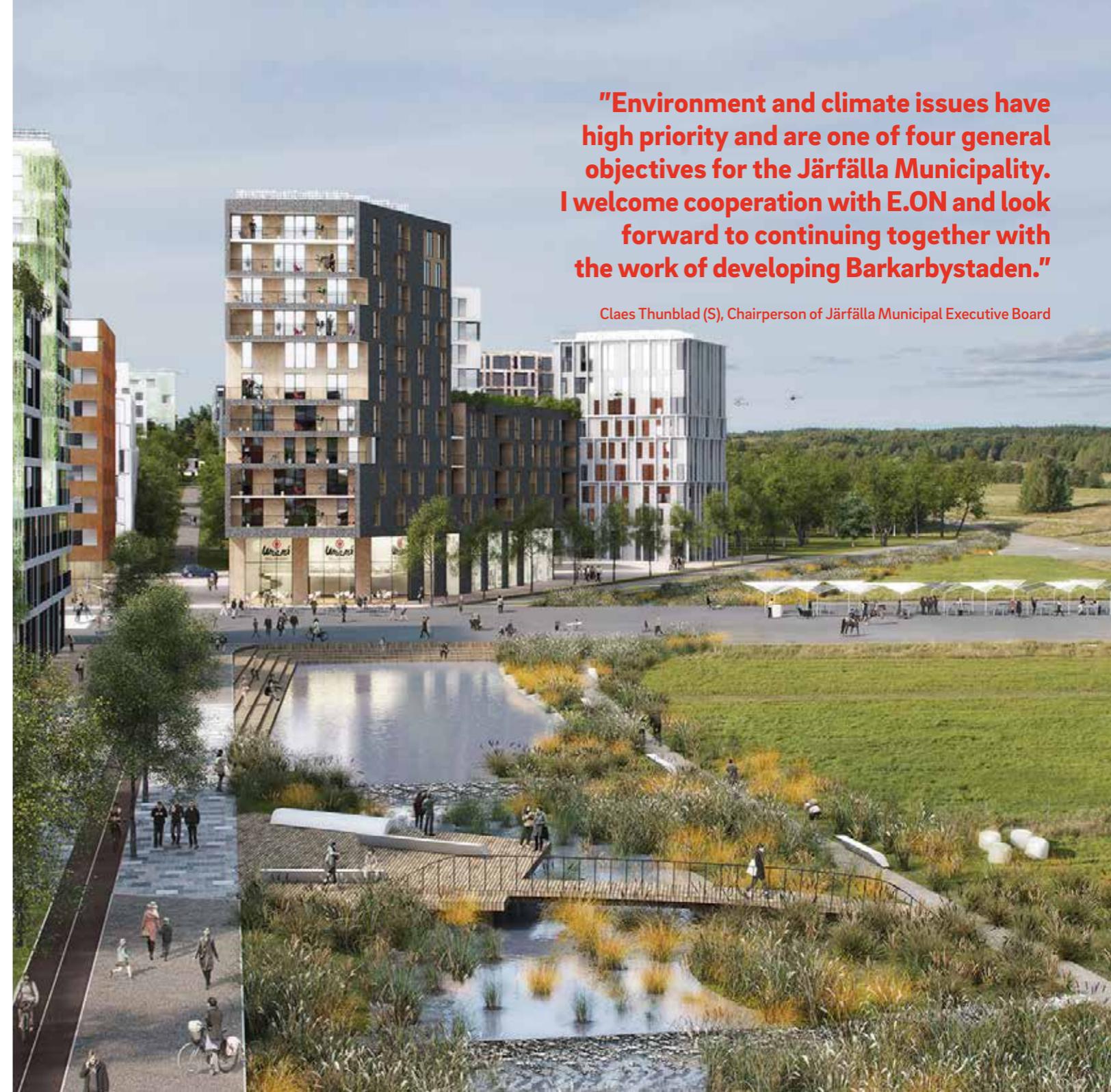
A recycling solution

The goal is that the entire area will be supplied with energy from recovered and renewable energy sources. Through our district heating system, Barkarbystaden will be connected to the recycling plant in Högbyp. This means that latent energy in the waste produced by the residents and workplaces in the area can be delivered back in the form of heat, electricity and biogas.

Sustainable cooperation

E.ON has a long history with Järfälla Municipality. The declaration of intent that we have now signed for sustainable town planning in Barkarbystaden, is a step towards a deeper form of cooperation. It is also a big step into the energy solutions of the future.

Järfälla is located 20 kilometres north-west of Stockholm. 73 000 people live there, and there are about 5 000 active companies. The biggest employers in the municipality include Saab, Arla Foods, IKEA and Dahl.



"Environment and climate issues have high priority and are one of four general objectives for the Järfälla Municipality. I welcome cooperation with E.ON and look forward to continuing together with the work of developing Barkarbystaden."

Claes Thunblad (S), Chairperson of Järfälla Municipal Executive Board



A smarter grid

In the most expansive part of the Stockholm region, where Bro, Kungsängen and Järfälla are situated, E.ON has at present several small district heating grids. As the plant in Högybytorp becomes operational, we hope to connect the grids to a 23-kilometre transit pipeline.

Flexible and efficient

With a larger continuous grid we will be more flexible and efficient, as we will be able to optimise the pressure and temperature in the grid. By lowering the temperature locally we will be able to utilise more of the waste heat that is currently lost.

With a joint grid connected to the plant in Högybytorp, we can also phase out older, less efficient district heating plants. Apart from environmental gains, this also means that attractive sites that are at present occupied by district heating plants can be used for building sought-after residential accommodation.

Smart grids

The new grid will utilise digital technology and will be a next generation smart district heating solution.

A smart district heating grid is not just about transporting heat. It can also receive deliveries from the growing number of customers who themselves produce or recover energy – prosumers. With two-way digitally controlled district heating grids, new business opportunities are opened up – business opportunities that can create added value both for us and for our customers. At the same time we will be better at conserving our joint resources together.

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