

APPLICATION FOR GLOBAL DISTRICT ENERGY CLIMATE AWARDS 2009

# Göteborg Energi's district energy system

Covering the City of Gothenburg, municipalities of  
Ale, Kungälv, Mölndal and Partille



Göteborg Energi AB – Municipal corporation.  
Wholly-owned subsidiary of Göteborgs Kommunala Förvaltnings AB  
[www.goteborgenergi.se](http://www.goteborgenergi.se)

**CONTACT PERSON:** Karin Ekh, District Heating Strategist  
[karin.ekh@goteborgenergi.se](mailto:karin.ekh@goteborgenergi.se), +46-31-62 74 68  
Göteborg Energi AB, Box 53  
S-401 20 Göteborg, SWEDEN

 **Göteborg Energi**





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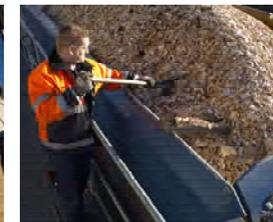
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1. RYA COMBINED HEAT AND POWER PLANT, RYA
2. HÖGSBO COMBINED HEAT AND POWER PLANT, VÄSTRA FRÖLUNDA
3. RENOVA WASTE INCINERATOR, SÄVENÅS
4. SÄVENÅS COMBINED HEAT AND POWER PLANT, SÄVENÅS

# The first step towards a common, resource-efficient and environmentally friendly energy system in Gothenburg was taken back in 1953



## **Investing in a better environment**

District heating was started in Gothenburg in 1953 with the opening of the Sävenäs combined heat and power plant, delivering district heating to the Kortedala district. The second plant was opened the following year in Rosenlund. Both facilities continue to be essential to Gothenburg's district heating network. Behind the initiation of district heating was the desire to provide the residents of Gothenburg with a safe, reliable heat supply. We were simultaneously able to supply electric power to the energy-intensive manufacturing industry. Through this effort, the city was able to reduce individualised heating of apartments and replace inefficient and polluting coal-fired condensing production. The city's waste incinerator plant in Sävenäs began delivering waste heat to the district heating network in 1972.

## **An interconnected system that utilises industrial waste heat**

By the end of the 1970s, the system had grown to encompass eight large "district heating islands" in Gothenburg. All power and heating plants were fed by oil-fired hot water stations.

At this time, electricity prices were low and oil prices had reached record heights. The situation for district heating operations in Gothenburg was not economically sustainable. Göteborg Energi decided to make a change.

The eight "district heating islands" were linked together, producing a connected network. The next major step was receiving large amounts of waste heat, chiefly from the city's refuse companies and also from Shell's oil refinery at Hisingen. At the same time, Göteborg Energi invested in a major heat pump facility. The idea was to profit from low electricity prices while recycling heat in the treated waste water. Taken together, these measures allowed us to drastically reduce the city's dependence on oil while we simultaneously recycled energy and resources that would otherwise have been lost. This laid the groundwork for our modern district heating network. Natural gas was first used in Gothenburg in 1988. Neighbouring municipality Partille joined the district heating network in 1995. Waste heat from Preem's oil refinery at Hisingen was connected to the system in 1997.



### From district heating to district cooling

In the mid-1990s we started selling district cooling to our customers. Cooling was initially supplied to customers from several small refrigeration plants. For the past few years, cooling has been produced by the Rosenlund plant using free cooling, collected from the cold water of Göta river, supplemented by absorption cooling. Absorption is a process which uses waste heat from inter alia waste incineration and refineries during the summer months to convert heat to cooling. The method is extremely reliable and environmentally correct, since it saves electricity and minimizes noise. District cooling is distributed to central Gothenburg in an enclosed tunnel and buried pipeline system.

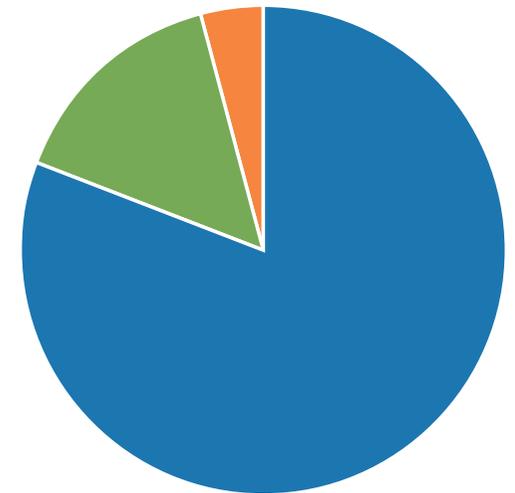
### Major efforts in the 2000s

Our major bio-fuel efforts began in the early 2000s. Rya heating plant's hot water boiler was converted from natural gas to wood pellets in 2003. The following year, the hot water boiler at Sävenäs (which previously used coal and pine pitch oil) was converted to use bio-fuel.

An important milestone for Göteborg Energi's district heating system was the opening of the highly efficient Rya combined heat and power plant in 2006. The plant satisfies approximately 30% of the Gothenburg's electricity requirements and approximately 35% of the city's district heating needs.

Overall, Göteborg Energi's district heating system supplies over 60% of the Gothenburg residents with heat and hot water.

### Energy used for district heating output, 2008



- **Waste heat 81%**  
(Waste heat includes heat from:  
Refuse incineration 27%  
Refineries and other industry: 30%  
Electricity production: 19%  
Wastewater: 5%)
- **Renewable resources 15%**  
(Biomass and renewable electricity)
- **Fossil resources 4%**  
(Oil, fossil electricity and natural gas)

## Over 80% of the heat in our district heating system is recycled energy that would otherwise be lost



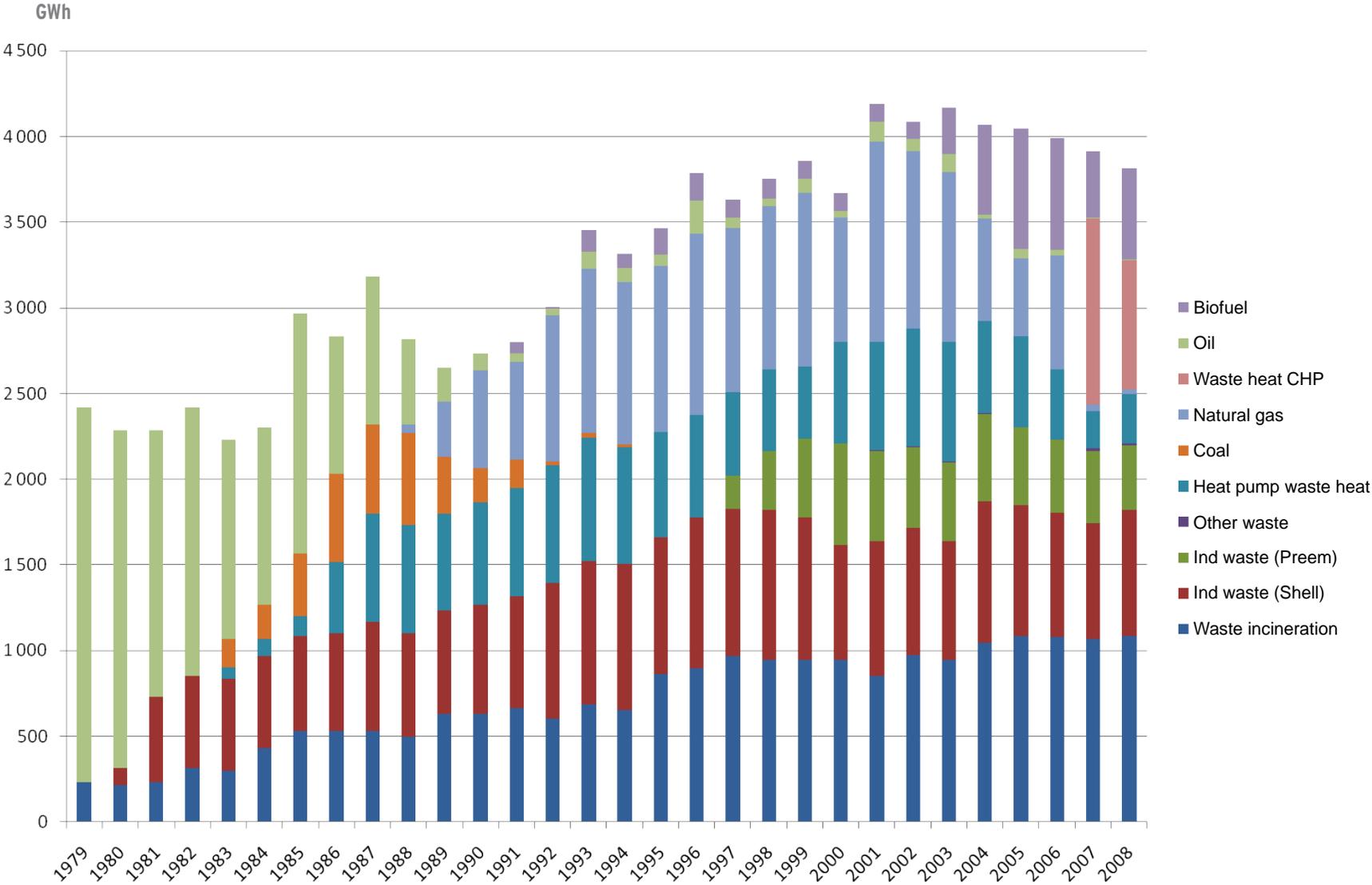
### **Great environmental benefits with utilised waste heat**

Our production facilities include combined heat and power plants, hot water plants and heat pumps that recycle waste heat from Gryaab's treated waste water. In addition to waste heat generated by electricity production in our own plants, we recycle waste heat from two large refineries and from the region's waste incinerator at Renova. Waste heat recovery by Göteborg Energi's district heating network produces great environmental benefits – our own heat production is reduced correspondingly, resulting in reduced emissions. Today, over 80% of our district heating is based on waste heat. During 2010 Renova will increase their waste heat delivery by 20%.

### **Entirely fossil free by 2050**

The predominant fuel used in our production process is natural gas. We use natural gas chiefly in our combined heat and power plants to recycle heat from electricity production. Approximately one-fifth of our production's fuel mix consists of bio-fuels (wood-chips, wood pellets, bio-oil); the rest is electricity for heat pumps. Only around 0.1% comes from fossil oil, and each year we reduce the use of fossil resources in our district heating production. Biogas production will amount to 1 TWh by 2020. Our long-range goal is to be entirely fossil free by 2050.

# Heat output per raw material, 1979-2008



# Primary production facilities for the district heating system



## **Year-round waste heat from refineries and other industries**

Throughout the year, we buy industrial waste heat from Shell's refinery and Preem's refinery at Hisingen and from smaller industries. Waste heat is pumped onwards to our district heating customers - meaning that we can decrease production at our own facilities.

## **Rya area**

At our heat pump plant, we collect heat from treated waste water received and treated at Gryaab's waste water treatment plant from Gothenburg and environs. The nearby Rya heating plant fires chiefly with wood pellets, with natural gas as reserve fuel. The Rya combined heat and power plant is a modern combined gas plant with three gas turbines and a shared steam turbine. The Rya combined heat and power plant uses natural gas, and can use light oil as a reserve fuel.

## **Sävenäs area**

The Sävenäs plant is one of our largest facilities. It has four hot water boilers for heat production, two of which have flue gas condensation which enables us to extract additional heat from

flue gases. We chiefly use wood-chips as fuel at the Sävenäs plant, and also bio-oil and natural gas. Energy is recovered from waste at Renova's waste-fired combined heat and power plant in Sävenäs, and this is also energy we collect and distribute to Gothenburg residents as hot water in the district heating network. We are also converting the main hot water boiler to a combined heat and power plant that will produce 40 to 50 GWh of renewable energy per year.

## **Centre at Rosenlund plant**

The Rosenlund plant is our largest district heating production facility in terms of capacity, but now mainly serves as a peak-time and reserve facility. Here, we produce electricity and heating using two steam boilers with individual back-pressure turbines fuelled by natural gas. The steam boilers in the Rosenlund plant also have flue gas condensation, so we can extract additional heat from flue gases generated by steam boiler operations. In addition to the steam boilers, the plant has three hot water boilers fired with natural gas and oil, though these are only used when the temperature is  $-7^{\circ}\text{C}$  or below or as reserve for other production facilities.

## Our primary production facilities

| Production facility             | Year of construction  | Description  | Fuel  | Heat output 2008 (GWh) |
|---------------------------------|---|--|---|------------------------|
| Högsbo Power & Heating Plant    | 1998  | Gas engines produce both electricity and heat  | Natural gas                                     | 42                     |
| Rosenlund Plant                 | 1953, rebuilt and upgraded several times, most recently in 1989 | A prominent, major, centrally-located producer of heat, electricity and cooling. Fires are stroked in Rosenlund Plant's boiler over a period extending from November to March  | Natural gas                                     | 64.0 (12 GWh cooling)  |
| Rya Combined Heat & Power Plant | 2006  | Rya Combined Heat & Power Plant is Sweden's largest electricity production facility since the introduction of nuclear power. Heat is captured as electricity is produced, so total efficiency amounts to approximately 92 per cent | Natural gas                                     | 656                    |
| Rya Heating Plant               | 1985, rebuilt and upgraded several times, most recently in 2003 | During the winter Rya Heating Plant is one of the base loads for the district heating system   | Wooden pellets.<br>Natural gas in reserve       | 41                     |
| Rya Heating Pump Plant          | 1985  | Here we extract heat from treated sewage from Gryaab wastewater treatment plant  | Energy from treated sewage and electricity      | 145                    |
| Sävenäs Plant                   | 1985, rebuilt and upgraded several times, most recently in 2008 | Our main plant for heat output. Also includes operational centre with monitors and controls the entire district heating system   | Wood chips (90%),<br>natural gas and<br>bio-oil | 472                    |

The average age of our production facilities is just over 11 years.

# One of Sweden's largest district heating networks produces economies of scale in the entire region

## **A system that also supplies neighbouring municipalities with resource-efficient heating**

The district heating system's distribution system is a complex system built in different stages. Today, the system consists of a connected network that spans the city of Gothenburg – over 1,000 km long. We are also connected to the municipalities of Mölndal in the south, Partille in the east and both Ale and Kungälv in the north. These connections have significantly reduced the oil consumption to meeting the heating needs of neighbouring municipalities.

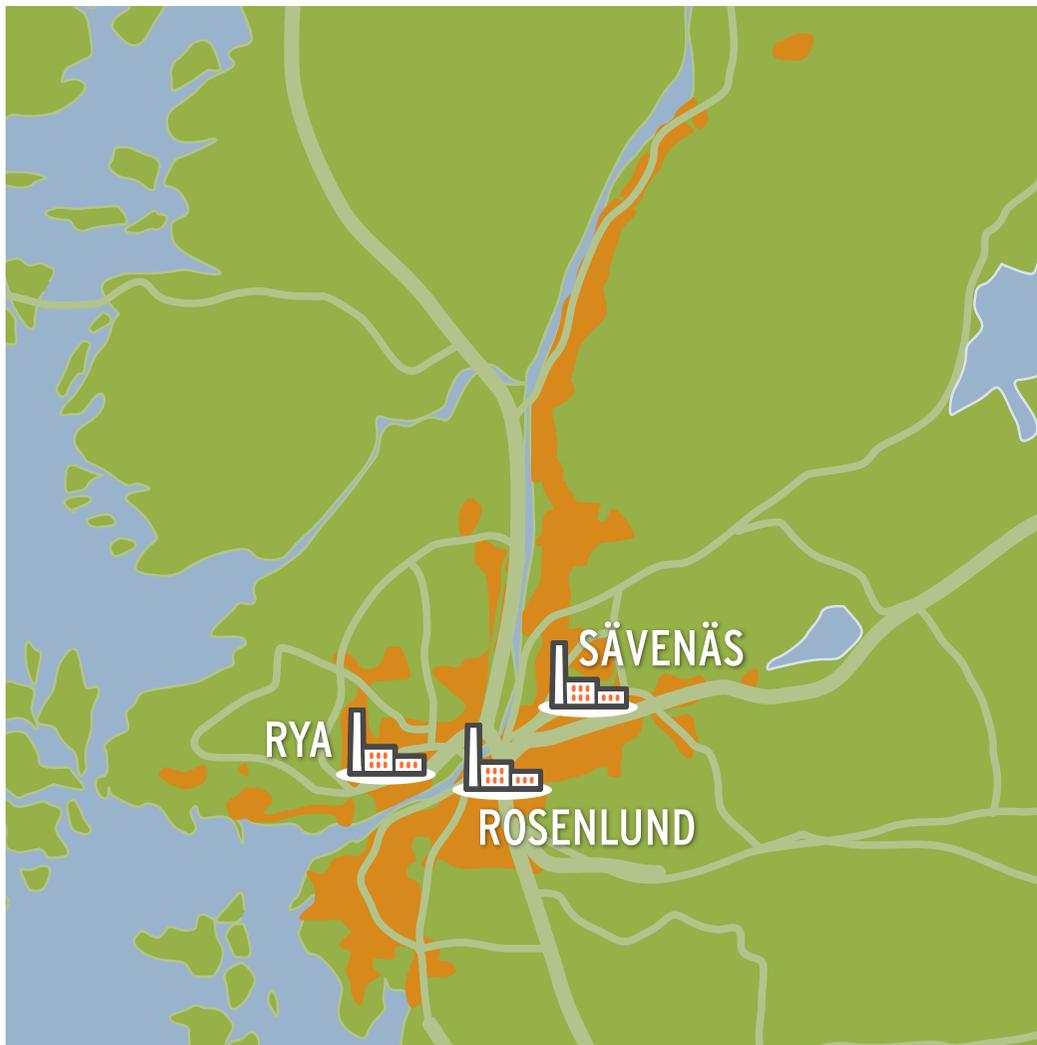
## **Average age of over 16 years**

It is difficult to assess an average age of the distribution system, since expansion has been underway since the 1950s. Based on the rateable expansion per year, the average age of the district heating system as a whole is over 16 years.

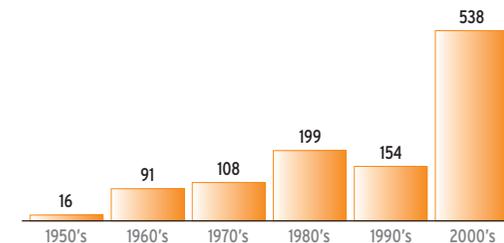
## **Great differences in altitude demand innovative solutions**

Gothenburg's topography means that there are great differences in altitude in the district heating network. From the lowest point under the Göta river to the highest point in Partille, the difference in altitude is 280 metres. Despite these altitude differences, few portions of the system are separated with heat exchangers. Instead, we use a pressure exchanger which makes it possible to maintain an even temperature level despite altitude differences.

The Greater Gothenburg district heating network is over 1,000 kilometres long. The orange shading represents areas where district heating is available.



### Number of kilometres of district heating pipes per decade, 1953-2009



### 6 of 10 Gothenburg residents use our district heating to heat their homes

Göteborg Energi's district heating reaches 90% of all blocks of flats and commercial premises, and 20% of all houses and terraced houses in Gothenburg. The table below shows the estimated scope of district heating in Gothenburg.

|              | Total housing units | Residents per dwelling (no. of people) | Residents (no. of people) |                       | Percentage of Gothenburg residents with district heating |
|--------------|---------------------|--|---------------------------|-----------------------|--|
|              |                     |  | Total                     | With district heating |  |
| <b>Flat</b>  | 197 296             | 1,6                                    | 315 674                   | 284 000               | 90%  |
| <b>House</b> | 52 866              | 3,4                                    | 179 744                   | 35 000                | 19%  |
| <b>Total</b> | 250 162             | 1,9                                    | 495 418                   | 319 000               | 64%  |

Percentage of Gothenburg residents with district heating



## In 36 years our district heating has reduced CO<sub>2</sub> emissions by over 90%

Our district heating efforts are the most significant contributing factor to improved air quality in Gothenburg over the past 36 years. Carbon dioxide emissions decreased by over 90%, despite the fact that we doubled our heating supply during the same period. Also during the same period, sulphur emissions decreased by 99% and nitrogen oxide emissions by 94%. The reason behind these reductions is that we were able to stop using energy produced by coal and oil.

# Gothenburg's district heating takes responsibility for the climate

In determining the efficiency of an energy system, the entire production chain (not just consumption as shown by energy metres) must be taken into account. All of our environmental work is based on the following three principles:

### 1. Attitude towards resources is fundamental to sustainable growth

We act forcefully for a resource-efficient energy system – in terms of production, distribution and our own and our customers' energy use.

### 2. Climate change is global

National borders are irrelevant in terms the impact climate gases have on the earth. We strive to reduce the effects of our operations from an overall, global perspective.

### 3. We develop together with our customers

Through collaboration and active choice, our customers have an impact on our business and our development. Customers can make an active choice to impact the way our products are produced through voluntary input. This serves as an engine for the development of new products and services.

### Our district heating is ISO 14001-certified and EMAS-registered

We EMAS-registered the Sävenäs Plant back in 1999, becoming the first in Sweden to EMAS-register a district heating plant. Today, all of our production facilities are EMAS-registered. Since April 2001, we have an environmental management system certified in accordance with ISO 14001. EMAS registration signifies that we perform comprehensive environmental accounting, e.g. regarding our emissions, above and beyond ISO 14001 certification requirements.

### Ongoing work with local environmental quality goals

Gothenburg's municipality is working to formulate proposals for local environmental quality goals, based on the 16 national environmental goals adopted by the Swedish parliament to be achieved by 2020. To date, Göteborg Energi has participated in the "Limited Climate Impact" and "Clean Air" proposals. Through this work, environmental goals are linked to local targets and action plans. With its overall view, district heating enhances opportunities to attain a sustainable community, e.g. by creating a resource-economical system that recycle waste

heat and waste products for fuel. We work systematically to reduce the negative environmental impact of our operations.

### We utilise emission rights and participate in one of the World Bank's CDM funds

Göteborg Energi offers to take care of all of our customers' practical management, and ensures that all of their district heating consumption is climate compensated. This not only increases opportunities to access emission credits at an attractive price, but also increases awareness of the negative impact on the Earth when the climate is disturbed. We have elected to implement climate compensation for district heating by purchasing emission rights from two systems: EUA (European Union Emission Allowance), traded through the EU's emission trading system; and CER (Certified Emission Reductions), certified emission reductions from CDM projects in developing countries. These reduction units are approved by UN and EU regulations. Emission rights are cancelled annually as they are entered into an cancellation account with the Swedish Energy Agency.



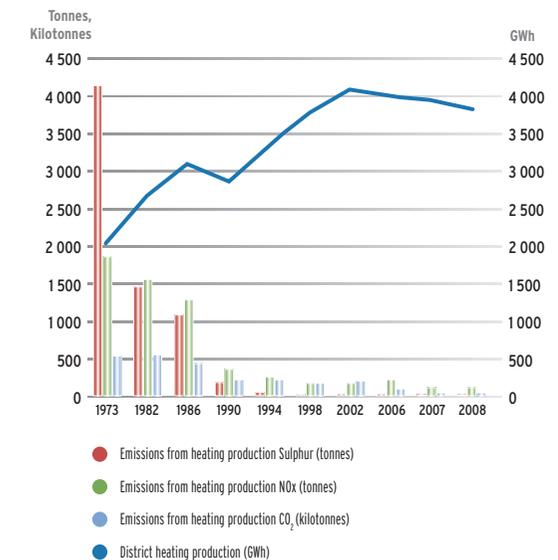
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### Our customers have the option of buying ecolabelled district heating.

Our "Good Eco-choice"-labelled option offers our customers the opportunity to further contribute to a sustainable society.

"Good Eco-choice" is a tool used by the Swedish Society for Nature Conservation to achieve a society that is in balance with nature. "Good Eco-choice"-labelled district heating is produced in accordance with the Society's guidelines. This involves more stringent requirements, including the promotion of ethical considerations and biological diversity. IKEA and Toyota are among the customers who have chosen our "Good Eco-choice" district heating.

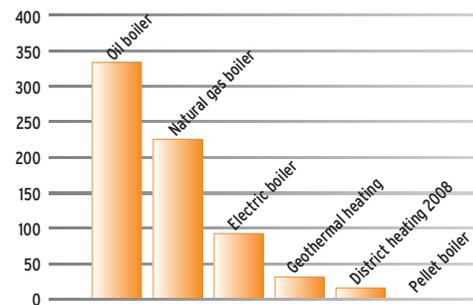
## District heating production and emissions, 1973-2008



# Göteborg Energi concentrates on innovative solutions and carries on research for the future

## Climate impact of different heating alternatives

Emissions kilo CO<sub>2</sub>/MWh heating



An oil boiler emits an average of 2,000% more CO<sub>2</sub> per produced MWh than Göteborg Energi's district heating

The energy industry is in constant development, and climate change issues have taken centre stage. Göteborg Energi strives to be at the forefront and invests in several R&D programmes. We finance external R&D through our Foundation for Research and Development. We run our own large and small development projects, and participate in industry-wide development projects. We seek to shoulder our responsibility for the future and view R&D as a central ingredient in our vision of a sustainable Gothenburg community.

### District heating house reduces need for electricity and oil

In our endeavour to develop environment-saving energy solutions, Göteborg Energi and Växjö Energy have developed a house where as many energy-dependent applications as possible run on district heating. The project aims to demonstrate the house functions that can be run with district heating instead of with electricity or oil. The district heating house also points the way to a society that is less dependent on these energy sources and which is thus more sustainable. Despite the considerably heightened quality of life in the house, the environmental impact of running the various applications is significantly reduced. Emissions of the greenhouse gas carbon dioxide is reduced and

energy use is more efficient. We replaced normal, electricity-driven applications with district heating, the foremost being electrical heating elements. Other applications run on district heating include washing machines, tumble dryers, greenhouses, comfort cooling with absorption machines, and heating for detached garages.

### GoBiGas - our major effort to produce CO<sub>2</sub>-neutral biogas for combined heat and power, etc.

Gothenburg Biomass Gasification Project, GoBiGas, is the name of Göteborg Energi's major effort to produce biogas through the gasification of forestry residual waste biofuel. The project is being carried out in collaboration with E.ON. The CO<sub>2</sub>-neutral gas can be used as vehicle fuel, in industrial processes and combined heat and power production. The facility is dimensioned for approximately 100 MW gas; production will be roughly 800 GWh/year. This corresponds to around 80,000 m<sup>3</sup> of petrol, which could supply over 50,000 petrol-driven cars for one year. The gasification plant is to be built in two stages: the first stage (approx 20 MW gas) will be put into operation in 2012, and the second stage (approx 80 MW gas) in 2016.

### **Biofuel under personal management for a warmer, more beautiful and more secure city**

In collaboration with the City of Gothenburg's department of property and park management, we are developing urban forest utilisation. We take care of the biofuel that is left after the thinning and pruning of city green areas, and use it to produce heat. This benefits our customer, who doesn't have to take care of the left-overs – and also benefits the city's residents who, thanks to our efforts, feel safer in the green areas and enjoy a more beautiful city. Energy production today from the city of Gothenburg totals roughly 50 GWh per year. Our goal is 300 GWh per year by 2015.

### **Research foundation enables development of sustainable energy systems**

Through our research foundation, we finance many exciting university projects. Two of our prioritised areas are development of sustainable energy systems and new energy technology.

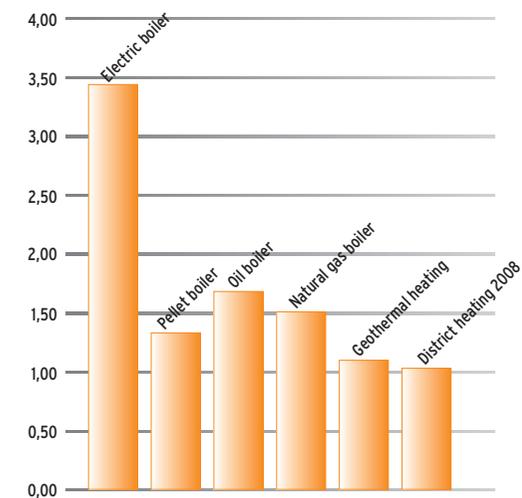
### **Close collaboration with one of Sweden's foremost institutes of technology to identify strategies for the future**

By purchasing heat for our district heating network from Chalmers' research operations, the university is able to perform research in large-scale facilities.

Göteborg Energi has also funded a biogas project at Chalmers with 13 million SEK. A gasifier was built and installed in the university's district heating boiler. The idea is to gasify forestry waste (in the form of biomass) into methane gas. The project goes hand in hand with our vision of contributing to a sustainable Gothenburg community.

In addition, we are partially financing the postgraduate studies of Charlotte Reidhav, a doctoral candidate at the Department of Building Technology. Her primary area of research is district heating in single-family housing areas. Studies within this area include the insulation qualities of flexible district heating piping. Total district heating heat losses in single-family areas are studied, as well as costs to connect single-family houses to district heating. Energy storage in heavy buildings is also being studied. The research consists of experimental measurements and theoretical analyses.

### **Primary energy consumption (PEC)**



An oil boiler's PEC is an average of 335% higher than district heating's PEC.



## We help our customers become more environmentally friendly

### **Ecopartner**

Ecopartner is a network aimed at promoting and accelerating the development of alternative energy sources. We invite our corporate customers actively working with environmental and energy issues to become our Ecopartner.

### **Ecofund**

The Ecofund was established in 1996 to promote projects that contribute to the development of ecological energy alternatives.

The Ecofund manages the membership fees of all of our corporate and individual Ecopartners. Today, we have 39 corporate members and roughly 1,200 individual members.

The Ecofund is run by an independent board consisting of experts in the environmental and energy fields. A certified accountant keeps the accounts. Göteborg Energi pays for the fund's administration – the entire amount of fund resources go to the projects chosen by the board, based in part on members' suggestions.

### **Emission rights and Good Eco-choice**

As previously mentioned, we also offer our customers the opportunity to climate compensate through emission rights trading, as well as the option to purchase "Good Eco-choice"-labelled district heating.

### **Sweden's first CO<sub>2</sub>-free vehicle plant**

In 2005, Göteborg Energi and AB Volvo initiated an exciting joint venture project. The Tuve factory on Hisingen will be Sweden's first carbon-dioxide-free vehicle factory. Volvo and Göteborg Energi jointly drew up a package of measures that will not only make the Tuve factory carbon-dioxide-free, but will also place it at the forefront of development towards a more sustainable industrial society. The package of measures combines electricity from five wind turbines, heat from waste heat and biofuel and far-reaching energy efficiency improvements in the plant. The result will be Sweden's first CO<sub>2</sub>-free vehicle plant.

# Customers have reduced energy consumption by an average of 30% through our energy service agreements

## The right energy in the right amount on the right occasion

Göteborg Energi was early to offer energy service agreements. We link the entire chain, from energy production to consumption, under the slogan "the right energy in the right amount on the right occasion". With the most developed "climate contract" service, customers work towards their climate goals at fixed prices per square metre, while Göteborg Energi has the incentive to take energy-saving measures.

In this way, we've made energy-efficiency measures profitable. We are ahead of the energy and environmental policy of introducing instruments of control in the area of energy efficiency via the EU's energy service directive (e.g., white certificates).

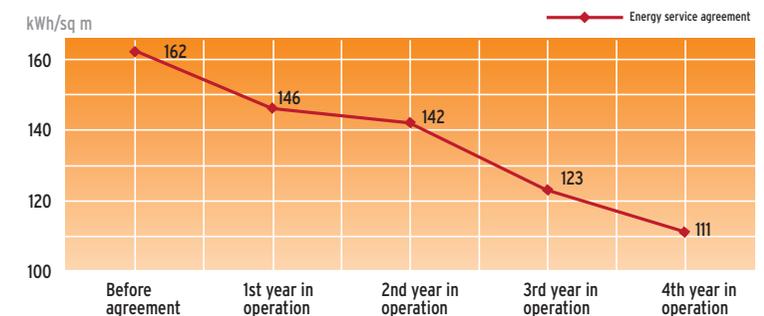
Our customers' response has been very positive. We've become closer and have more personal contact.

Operation and maintenance agreements, on-call property services, and energy declaration for buildings (including proposals for measures and profitability assessments) are among the energy services our customers can choose from our wide assortment. We now have energy service agreements covering an area of 3.6 million square metres, and energy

consumption has been reduced by 20% through our climate agreements. We also offer our customers a developed energy report (E-report). Several of Gothenburg's largest housing companies have already chosen this option. The E-report enables the customer to easily follow-up, monitor and forecast the consumption of district heating, electricity and water. This is done automatically, without the customer having to do readings. Customers can log in to their Göteborg Energi account to see actual consumption, environmental impact and costs – all in the same system. The E-report is greatly appreciated.

**Customers with commercial premises have reduced energy consumption by an average of 30% through our energy service agreements**

District heating for commercial premises





## We also take other steps to build relationships

### **Reko District Heating**

On 1 June 2005, Swedish District Heating launched its Reko District Heating system for grading all district heat suppliers. It was designed after discussions with representatives from the largest district heating customers: Swedish Public Utility Housing Enterprises, HSB National Federation, Cooperative Housing Organisation of the Swedish Trade Unions, Swedish Property Federation and National Tenants' Association. Reko District Heating aims to strengthen and secure the position of customers and to develop relations between suppliers and customers with a focus on transparency, comparability and trust. Reko District Heating demonstrates that the industry takes customer issues seriously – and it must also be viewed as the minimum acceptable level for these issues. It is a dynamic system that is under development. Göteborg Energi was approved as a Reko District Heating Supplier on 1 May 2006. Requirements for approval include separate accounting for our district heating operations, performing an operational analysis and holding annual information meetings. For our customers,

this means clearer and more easily accessible information about e.g. our business and price adjustments, as well as a more open dialogue.

### **Regular information meetings**

We hold regular information meetings with both individual and corporate customers within the Reko District Heating framework.

### **Newsletters to companies and individuals**

We regularly send newsletters to all of our customers, both individual and corporate. The "Efficiency and the Environment" newsletter is distributed approximately five times per year to our corporate customers, and the "Current Affairs" newsletter goes out to both individual and corporate customers. Our newsletters provide information on new products and services and up-to-date news from the energy industry, among other things.

### **Customer service and customer representative**

Our customer service department is always available to answer customer questions. All issues, with the exception of error notices, go through one telephone number. We can therefore easily register all matters brought to our attention, and nothing gets lost in the process. We've also collected information on frequently asked questions on our website.

In cases where a customer is dissatisfied with the way a matter has been handled and wants someone to look into it from another perspective, a customer representative provides the customer with the opportunity to have his or her complaint heard and the matter reviewed. The crucial characteristic of the customer representative is that he or she is independent and acts in the best interests of the client. Customer representatives primarily represent private customers, and also small companies that do not have their own sales contact.

### **Customer-friendly web service**

Customers have an individualised profile on our website through the free-of-charge "My Energy Page" web service. Customers can easily follow their use of power mains, district heating, gas and cable TV with this service. They can also compare their invoices, make and cancel contracts, and submit their meter readings.

### **Clear, early price information**

We have been keenly aware of our customers' wishes for early notice of price adjustments. We now provide pricing information for the following year to all customers before the "summer holidays.

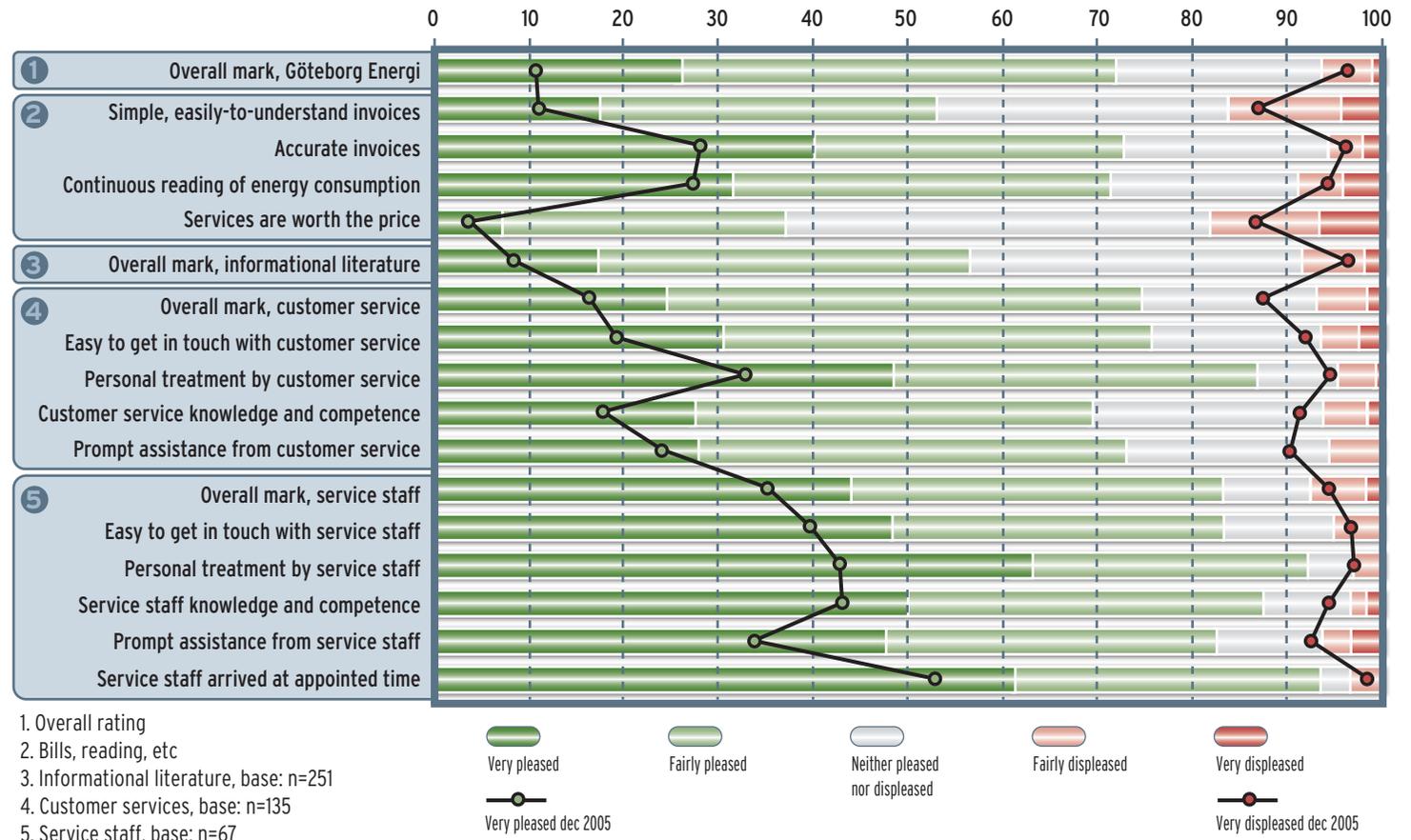
### **Participation in customer dialogue**

We engage in frequent dialogue with Gothenburg residents, including participating in trade fairs.

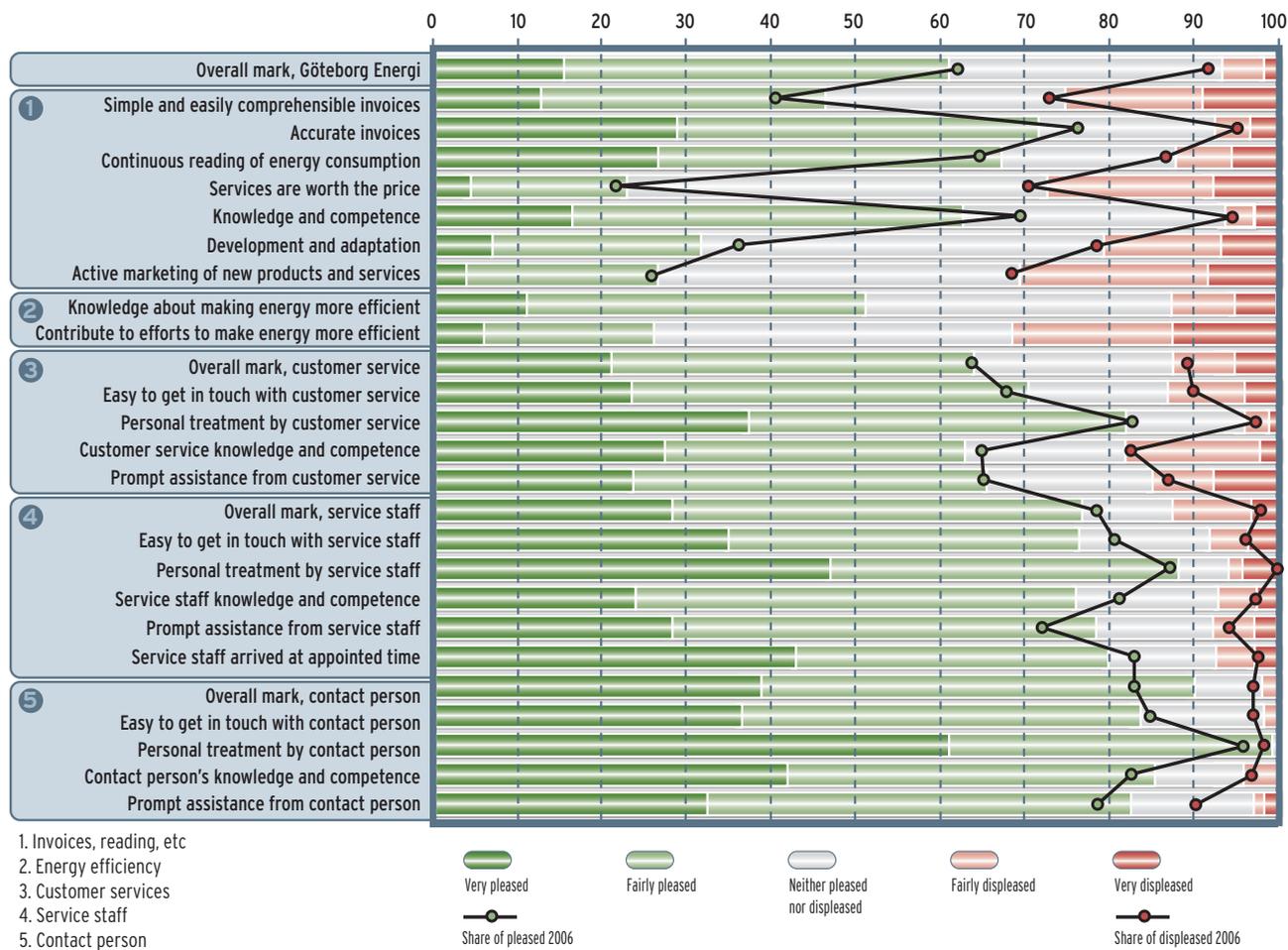
# And our customers are happy with us

Every year Göteborg Energi conducts a Customer Satisfaction survey. Every other year we poll the satisfaction of our consumers and every other year our corporate customers.

In the CSI survey for corporate customers that was conducted in 2008 we were gratified to obtain a higher result than in the previous survey in 2006. The average rating was 61 (59).



Percentage of satisfied individual customers has increased dramatically since December 2005 survey, while percentage of dissatisfied customers has decreased.



Percentage of satisfied corporate customers has increased since 2006 survey.

# Göteborg Energi is firmly established in the local community



Our vision – a sustainable Gothenburg community – is ingrained in our operations. Sparing energy and resources and creating an enduring energy system in Gothenburg are crucial keystones for our business. Gothenburg’s environment is bound up with the environment in Sweden and the rest of the world. Our responsibility to economise on energy and reduce our environmental impact doesn’t end at municipal borders or with next year’s annual accounts. We, like everyone else, must work towards a long-term, enduring energy system that our children will be able to inherit.

## Close cooperation with the community

We strive to remain at the forefront in R&D and operational innovations for the future. We also contribute to the Gothenburg community by financially supporting associations and companies in the field that we feel promote positive social and cultural development within the municipality.

We work together with small and large sports associations, e.g. the Örgryte IS and IFK Göteborg football teams, the Frölunda Indians hockey team and a couple of handball teams. It is important to us that the associations invest in young people,

and we also require involvement in environmental issues.

In the philanthropic area, we work with BRIS (Society for Prevention of Cruelty to Children), the Gothenburg City Mission and the Association for Disabled Persons.

Our work in the cultural area includes collaboration with the Swedish East India Company, the Gothenburg Museum of Natural History and Gothenburg’s Symphony Orchestra.

Education and research are important for the future, and we therefore work with Chalmers University of Technology and the Universeum science centre.

## Energy Kick

Each year, we organise Energy Kick together with IFK Göteborg. This is a football tournament for girls and boys in the fifth class from schools in western Sweden. The main purposes of Energy Kick are to promote camaraderie and fellowship between and within the classes and schools, and that Energy Kick works with the theme ”all are of equal value”. The team that performs most decently – both on and off the pitch – wins a special ”fair play” prize, a sum of money to use for a class activity.

**Other partners**

Göteborg Energi is a member and active participant in several professional trade associations and groups, including:

**Swedish District Heating**

Swedish District Heating is a trade organisation for Swedish companies that produce district heating, combined heat and power, and district cooling. The organisation has over 130 member companies throughout the country. Göteborg Energi has held the post of Swedish District Heating's chairman since 2003.

[www.svenskfjarrvarme.se](http://www.svenskfjarrvarme.se)

**Swedenergy**

Swedenergy is the electricity industry's collective voice and a centre for the development of skills and the sharing of information, both within the organisation and externally. Göteborg Energi has served as chairman of Swedenergy since 2004.

[www.svenskenergi.se](http://www.svenskenergi.se)

**Svebio**

The Swedish Bio-energy Association, Svebio, is a non-profit association founded in 1980 with the goal of increasing the use of bio-energy in an environmentally friendly and optimal way, grounded on facts. Svebio is also a leader in the development of bio-energy and represents all market operators in Sweden. Göteborg Energi has been a member of the association's board since 2006.

[www.swebio.se](http://www.swebio.se)

**The end.  
Time for the next step.**

