Ds 2005:57

# The Swedish Report on Demonstrable Progress

Under the Kyoto Protocol

REGERINGSKANSLIET

Ministry of
Sustainable Development
Sweden

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# Contents

# 1 Introduction

This document constitutes Sweden's report on the demonstrable progress that the nation has made towards fulfilling its commitments under Article 3 of the Kyoto Protocol.

An important cornerstone in the Swedish climate strategy is an ambitious national climate policy, and the first climate policy objective for Sweden was adopted as early as 1988. Sweden's ambition is to be at the forefront of the transformation required to achieve the extensive reductions in emissions that are needed in the long term. As Sweden has long worked with climate policy instruments that aim to reduce the nation's impact on the climate, Sweden can now present the clear and tangible results of the policy pursued. At the same time, Sweden believes that international co-operation is of decisive importance in the effort to achieve acceptably low levels of greenhouse gases, and is therefore participating actively in this.

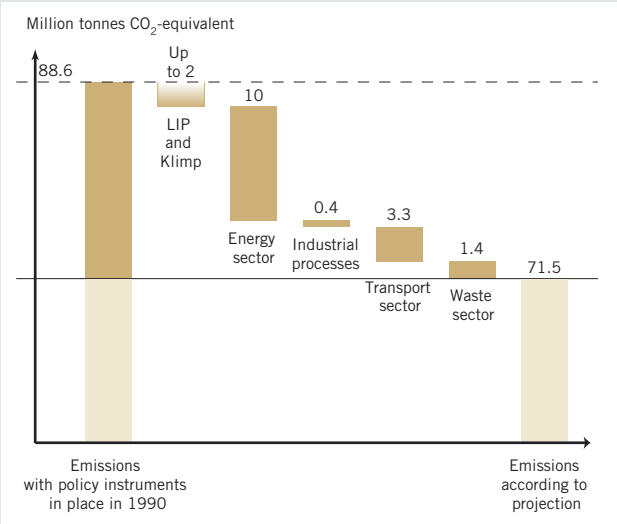
Sweden is already able to show that the link between economic growth and the emission of greenhouse gases can be broken, and can also present one of the lowest emission levels per capita among the industrialised countries. Over the last five years, emissions have been below the level recorded in 1990 by an average of over 4 %.

In the latest projections on the emissions and removals of greenhouse gases, it is estimated that total emissions of greenhouse gases *excluding* the sector Land Use, Land-Use Change and Forestry (LULUCF) will be 1 % lower in 2010 than in 1990 without the application of additional policy instruments. This indicates that Sweden's commitments under the Kyoto Protocol and the European Union (EU) burden-sharing agreement can be met using the already introduced policy instruments. When Sweden includes emissions and removals from the LULUCF sector in line with the compulsory Article 3.3 of the Kyoto Protocol, additional emissions are recorded and net emissions may then reach the level of Sweden's commitment. If Sweden also chooses to include emissions and removals from LULUCF in accordance with Article 3.4 of the Kyoto Protocol, Sweden can instead report a reduction in emissions and net emissions then lie significantly below the level set in the nation's commitment.

A number of policy instruments in the Swedish climate strategy are contributing to this positive trend. These are mainly economic instruments in the energy sector in the form of energy and carbon dioxide taxes, electricity certificates ("green certificates") promoting electricity production based on renewables and the European Union Greenhouse Gas Emission Trading Scheme (EU ETS). In the transport sector, energy

and carbon dioxide taxes are helping to mitigate the increase in total emissions and tax reductions, together with other policy instruments, are also stimulating the introduction of transport biofuels. Grants to the municipalities for climate investments complement the general economic instruments and have led to reduced emissions in several sectors. Legislation and economic instruments in the waste field are also important. Assessments of the overall effect of the policy instruments in the Swedish strategy indicate that emissions in 2010 would be in the range of 20 % higher if the instruments had not been applied.

*Figure 1.* Contributions from the various sectors and the cross-sectoral instruments LIP (Local Investment Programme) and Klimp (Climate Investment Programme) in 2010 to the total effect of the policy instruments implemented after 1990 compared to what the level of emissions would have been in 2010 with the instruments in place in 1990. There may be a certain overlap between the respective effects of sector-specific and cross-sectoral instruments, but it has not been possible to quantify this.




Sweden can thus present demonstrable progress in the effort to fulfil the nation's commitment to reduce emissions under the Kyoto Protocol. In order to achieve the objectives of the United Nations Framework Convention on Climate Change (UNFCCC), however, extensive international co-operation is required. Sweden is therefore providing significant support for development, capacity development and technology transfer in the developing countries.

The more long-term climate objectives that have been formulated and are under discussion in Sweden, in the EU and in the UNFCCC will, however, require additional measures and more far-reaching efforts on the part of Sweden and other signatories to the UNFCCC.

# 2 Description of Swedish climate policy – strategies and instruments

## 2.1 Development of the climate strategy

The climate has been a policy issue of the highest priority in Sweden for many years. The first climate policy objectives for Sweden were adopted already in 1988. The Swedish climate strategy has been gradually developed since then, primarily within the framework of policy decisions on the environment, energy, taxation and transport. A carbon dioxide tax was also introduced as early as 1991.

Of central importance to the strategy is that Sweden has signed and ratified the UN Framework Convention on Climate Change and the Kyoto Protocol.

Sweden's work on the climate is also affected by its membership of the European Union (EU). The 15 Member States that constituted the EU when the Kyoto Protocol was negotiated together committed themselves to limiting emissions of the six greenhouse gases covered by the Protocol to 92 % of the emission levels in 1990. The internal division of the burden represented by this commitment (the EU burden-sharing agreement) was determined in 1998.

When the Swedish parliament decided to ratify the Kyoto Protocol in 2002, Sweden accepted an internationally-binding commitment to ensure that the mean value of greenhouse gas emissions in Sweden in the period 2008 to 2012 would not exceed 104 % of the level in 1990.

At the same time, the current Swedish climate strategy was adopted. This strategy comprises national objectives in both the short term and the long term. The short-term national climate objective is that the level of greenhouse gas emissions in Sweden in the period 2008–2012 should be at least four per cent lower than the level in 1990. This target should be achieved without taking into account compensation for removals in carbon sinks or flexible mechanisms. The long-term Swedish climate objective is that Sweden should act to stabilise the atmospheric concentration of the six greenhouse gases mentioned in the Kyoto Protocol at a level lower than 550 ppm of carbon dioxide equivalent. Sweden shall act internationally to direct global efforts towards this objective. By 2050, therefore, total per capita emissions in Sweden should be lower than 4.5 tonnes of carbon dioxide equivalent per year, and should decline further thereafter. International co-operation and measures in all the countries concerned will be a decisive factor in achieving this objective.

In addition to its efforts to reduce greenhouse gas emissions nationally and within the EU, Sweden also participates actively in various ways

in the international work on the climate issue. Working with the flexible mechanisms of the Kyoto protocol falls within the framework of this commitment.

The climate strategy adopted in 2002 states that Sweden's climate work and the national climate objectives should be followed up and evaluated on an ongoing basis. Checkpoints were stipulated for 2004 and 2008 for this purpose.

Central parliamentary decisions relating to Swedish climate policy are presented in Facts 1 below.

## 2.2 Policy instruments in the current Swedish climate strategy

**Facts 1. Parliamentary decisions of importance to climate policy in Sweden**

- 1988: The first climate policy objective for Sweden was adopted. The objective related to carbon dioxide alone, and stated that emissions should be stabilised at "the present-day level".
- 1991: An addition was made to the objective adopted in 1988. The new objective covered all greenhouse gases and all sectors.
- 1993: A national climate strategy was adopted in line with the objectives of the Climate Convention for the stabilisation of emissions in the industrial countries. The new national objective stated that carbon dioxide emissions from fossil fuels should be stabilised at the level recorded in 1990 no later than 2000, and that emissions should subsequently decrease.
- The parliamentary energy guidelines set in 1997 included a climate strategy for the energy sector.
- One of the objectives in the parliamentary decision on transport policy adopted in 1997 was that carbon dioxide emissions from the transport sector should be stabilised at the 1990 level by 2010.
- 1999: The government decided to introduce a system comprising 15 environmental quality objectives, including an objective that addresses the greenhouse effect; the environmental objective "*Reduced impact on the climate*".
- 2002: The bill "Sweden's Climate Strategy", which sets out current Swedish climate policy and the current climate objectives, is adopted.
- 2002: Parliament decided to further develop the system for environmental quality objectives with regard, for example, to the responsibility of various players for achieving the objectives.
- 2002: A decision on energy policy included an energy-related climate strategy.

Most of the policy instruments in Swedish climate policy have been introduced and gradually tightened up since the start of the 1990s. Some of the policy instruments that have an impact on greenhouse emissions were introduced partly with other objectives in mind. The 2002 decision on climate policy is partly based on instruments that had been introduced earlier, but also comprises instruments more specifically-oriented towards the climate in the form of funds for information on the climate and investment grants for climate measures. In recent years, the national climate policy has been increasingly affected by the development of the common EU policy instruments, primarily the EU ETS. A selection of the most important decisions on policy instruments for Sweden's climate policy is presented briefly in Facts 2.

**Facts 2. Important policy instruments for Sweden's climate policy introduced in the period 1990–2005:**

**Energy and carbon dioxide taxes**. The first carbon dioxide tax was introduced in 1991 and has subsequently been increased several times at the same time as reduction regulations have been introduced for sectors exposed to competition. In 2000, a strategy for a "green tax switch" was adopted, under which there was a switch between increased carbon dioxide taxes and reduced taxes on labour.

**Support for electricity production based on renewable sources of energy**. Since the start of the 1990s, several systems have been in place to support electricity production based on renewables. The energy policy decision adopted in 1997, for example, included this type of support.

**Support for the more efficient use of energy, 1998-2002**. 1997's energy policy decision also included the allocation of funds for information, technical procurement, municipal energy advisers and the labelling of high-consumption equipment. In addition, the decision covered grants designed to reduce the use of electricity – for example for the expansion of district heating, the conversion of electrically-heated buildings and investments in solar energy.

**Grants to local investment programmes**. The decision to launch the LIP scheme was taken in 1996 and the scheme came into operation in 1998. Under the scheme, municipalities can get support for local measures designed to improve the environment and create jobs.

**Legislation and economic instruments in the waste sector**. In 1997, parliament decided that a ban on the landfill disposal of combustible waste would be introduced in 2002, and that a ban on the landfill disposal of organic waste would follow in 2005. In 1999, it was also decided that a tax on the landfill disposal of waste would be introduced in 2000.

**Tax relief for green cars and transport biofuels** was introduced in the climate policy decision adopted in 2002 and has since come into force. Since 2004, carbon dioxide-neutral transport biofuels are exempt from tax in Sweden.

**A climate information campaign** was introduced as a part of the Swedish climate strategy adopted in 2002 and was conducted in 2003 with the aim of increasing knowledge about climate change.

Support for **Climate Investment Programmes**, Klimp, which gives municipalities, companies and others the opportunity to apply for grants for measures that reduce greenhouse gas emissions was also introduced in the Swedish climate strategy of 2002, and the system began in 2003.

**The electricity certificate system** was included in the energy policy decision taken in 2002 and the system came into operation in 2003. The system replaced the previous investment grants for electricity production based on renewable sources of energy.

**New support for the more efficient use of energy in the period 2002-2007**. The energy policy decision adopted in 2002 also included a new five-year programme with support for information, training and the market introduction of energy-efficient technology.

**Work with the flexible mechanisms of the Kyoto Protocol**. Funds for international climate policy measures were allocated within the framework of the energy policy decision of 1997.

In 2004 and 2005, parliament decided on the national regulations that are required to enable the implementation of the EU Emission Trading Scheme (EU ETS) in Sweden, including a decision on the implementation of **the linking directive** that links the project-based mechanisms of the Kyoto Protocol to the EU ETS.

**A programme for increasing energy efficiency** in industry was introduced in 2004 to increase the efficiency of electricity utilisation in the energy-intensive industrial sector.

The principle of *sector integration*, i.e. that environmental work, including work to limit impact on the climate, should be integrated into all sectors of society and involve all the players, has long been one of the central pillars of Swedish environmental policy. State authorities such as the Swedish Energy Agency and the National Road Administration also have a so-called *sector responsibility* for the implementation of environmental policy in their areas. When the system for environmental quality objectives was introduced in Sweden, the sector responsibility of authorities, municipalities and county administrative boards was clarified, and their players were allocated particular responsibility for ensuring that the environmental quality objectives are achieved. This means that the environmental objective of reducing impact on the climate, one of the 15 environmental quality objectives, should permeate the work done in many different areas of society, for example the work on physical planning and infrastructure development and much of the work of the municipalities. Together with the policy instruments highlighted in the climate strategy, this division of responsibility should also in itself contribute to a reduction in total emissions in a cost-effective way[1].

The policy instruments in the Swedish climate strategy are also affected by Sweden's membership of the EU. In the EU, a common action programme has been drawn up to reduce total emissions in the Union, the European Climate Change Programme (ECCP). By adopting the ECCP, the Member States have agreed to introduce a number of common policy instruments (i.e. Common and Coordinated Policies and Measures, CCPMs) and the most important of these is the EU ETS. When implementing these policies and measures, Sweden has in some cases adjusted already existing instruments, while in other cases the CCPMs represent entirely new instruments for Sweden. A list of how the CCPMs relate to the Swedish instruments is presented in Appendix 1 of this report.

International co-operation on climate issues within the framework of the UNFCCC is, however, crucial to the effort to stabilise the concentration of greenhouse gases in the atmosphere and thereby avoid dangerous human impact on the global climate system. Sweden is contributing to funding, capacity development and technological transfer in non-Annex 1 countries in accordance with the regulations of the Convention and the Kyoto Protocol. Sweden also wishes to take action so that reductions in global greenhouse gas emissions can be achieved at as low a cost as possible. The climate strategy therefore also covers work to develop the flexible mechanisms of the Kyoto Protocol. By co-operating internationally within the framework of the CDM, Sweden is also working to ensure that climate measures contribute to sustainable development in developing countries.

[1] Government bill 2001/2002:55.

# 3 Trends and projections regarding the emissions and removals of greenhouse gases

## 3.1 Trends regarding the emissions and removals of greenhouse gases

During the period 1990 to 2003, greenhouse gas emissions varied between a lowest level of approximately 67.5 million tonnes (2000) and a highest level of around 77.2 million tonnes (1996). The variation is mainly due to differences in temperature (heating requirements) in different years and to the supply of hydropower in the Nordic electricity system, which is affected by precipitation in the region. In 1990, emissions totalled just over 72 million tonnes. A slight downward trend has also prevailed during the period, and total greenhouse gas emissions in recent years, i.e. 1999-2003, have in every year been below the level for 1990. See figure 2 below:

*Figure 2.* Emissions and removals of greenhouse gases from different sectors.

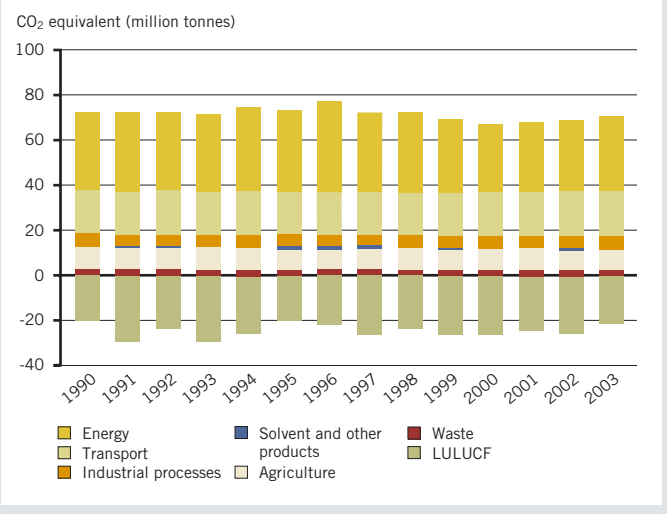
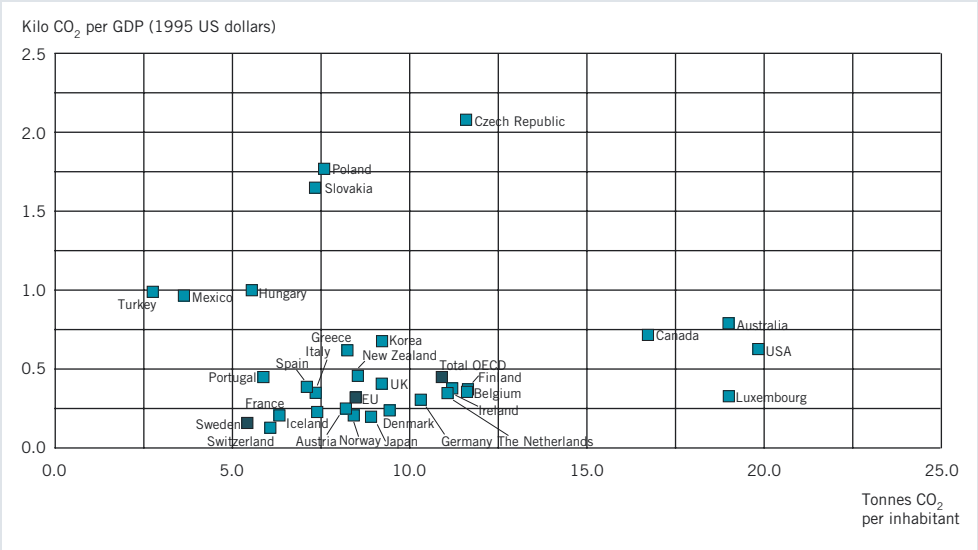


*Figure 3.* Emissions per capita and per GDP (Source: OECD).




In 2003, Swedish emissions of greenhouse gases amounted to 70.6 million tonnes of carbon dioxide equivalent, which is approximately 2 % lower than the level in 1990. The net removals of carbon dioxide from the LULUCF sector in 2003 amounted to 21.5 million tonnes of carbon dioxide. Removals varied during the period.

The population of Sweden increased from 8.59 million to 8.98 million between 1990 and 2003. This means that per capita emissions fell from 8.4 till 7.9 tonnes of carbon dioxide equivalent per person and year during the period. Swedish emissions per capita are low in comparison with other industrial countries (see figure 3 above), but significantly higher than in many developing countries.

The growth of GDP averaged 1.9 % per year in the period 1990-2003. GDP declined in the early 1990s, but since 1994 it has averaged 3 % per year. *Total* emissions of greenhouse gases have not increased, despite the fact that the Swedish economy grew during the period. The link between increases in emissions and economic growth has instead been broken.

Trends regarding greenhouse gas emissions in the various sectors did, on the other hand, differ in the period 1990 to 2003. The largest reductions in emissions were noted in the residental and service sector and in the agricultural and waste sectors. Increases primarily took place in the transport sector.

*Figure 4.* Greenhouse gas emissions and the development of GDP 1990-2003.

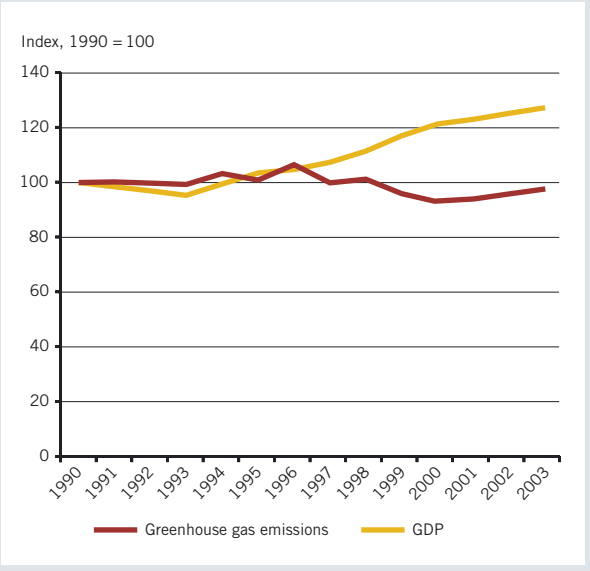
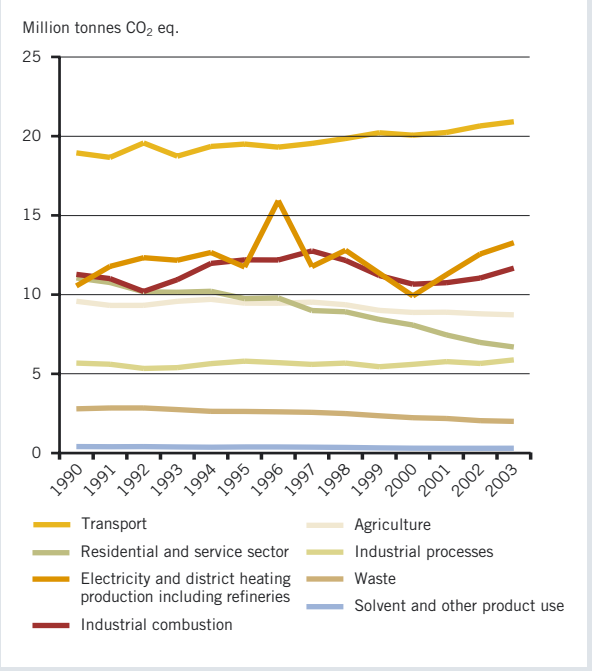
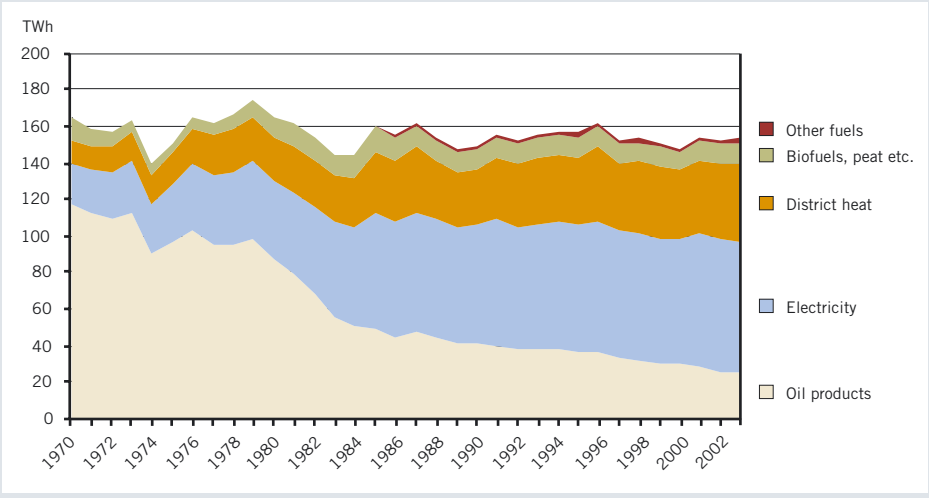



*Figure 5.* Greenhouse gas emissions from different sectors.



Carbon dioxide emissions from the *residential and service sector* during the period 1990-2003 fell by almost 40 %, which corresponds to approximately 4.3 million tonnes of carbon dioxide equivalent per year. This dramatic reduction, which began already in the 1970s, is mainly due to the major transition from oil-fired boilers to district heating, but also to the increased use of heat pumps (which has contributed to the increased use of electricity in the sector) and the small-scale use of biofuels. See figure 6 below.

*Figure 6.* End use of energy in the residential and service sector per energy carrier.

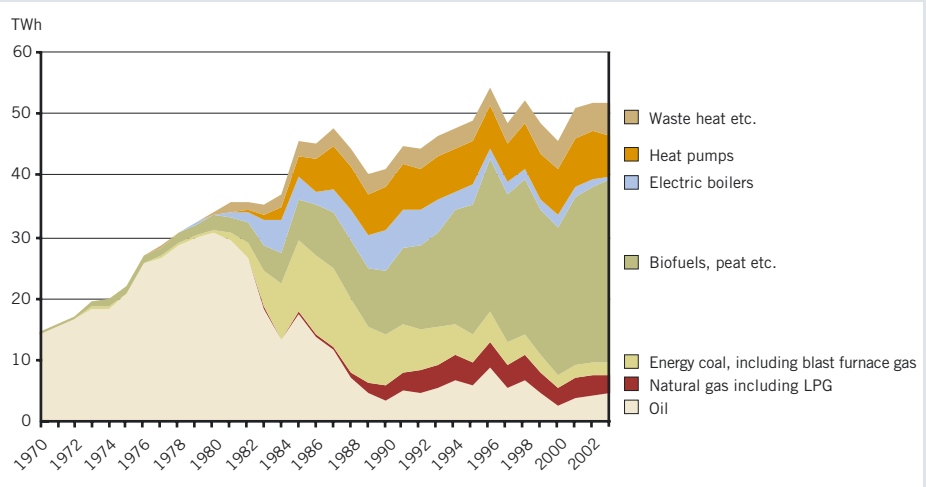



Emissions resulting from *electricity production and the production of district heat* have varied greatly from year to year due to variations in precipitation and temperature. The fluctuations are clearly illustrated by the high level of emissions[2] from this sector in 1996, which was the only year during the period which was both colder and drier than normal. Another example is 2003, when the supply of hydropower was very reduced due to the low level of precipitation. This led to emissions resulting from electricity production being higher than in a normal year. Despite the fact that the use of district heating increased dramatically during the period, emissions from the production of district heat declined. This is because the expansion has mainly been based on the strong increase in the use of biofuels. See figure 7 on next page.

There is no clear-cut trend for emissions from *industrial combustion and industrial processes*. These emissions vary depending on the state of the economy but also on other factors such as price differences between different energy carriers (mainly electricity and oil) and ongoing restructur-

[2] In recent years, the use of auxiliary power generation capacity in connection with shortages of electricity has declined in Sweden compared to the situation in 1996, when any shortage was largely met by using such capacity – instead, electricity imports have increased in such periods more recently.

*Figure 7.* Energy input for district heat production.




ing processes in the industrial sector. The emissions come above all from a few energy-intensive industries, such as the iron and steel industry, which means that the development of these particular industries influences the overall picture to a great extent.

Emissions from *the transport sector* have increased steadily. In total, they have increased by approximately 10 % since 1990. This increase is mainly due to an increase in transport mileage for the transportation of heavy freight, which in turn is due to trends in the industrial and business fields such as increased trade and centralised and specialised production. Emissions from automobile traffic have not, on the other hand, increased to the same extent (approximately 4 % between 1990 and 2004[3] despite an increase in mileage). The main explanation for this is that today's vehicle fleet has a lower average fuel consumption than was the case in 1990, while motor biofuels have come into use over the last two or three years.

*Emissions of methane and nitrous oxides from the agricultural sector* fell by approximately 9 % between 1990 and 2003. The reduction in methane emissions is due to a reduction in animal husbandry, while the reduction of nitrogen dioxide is mainly due to a reduction in the use of both commercial fertilisers and animal manure.

*Emissions of methane from landfills* fell by 32 % during the period as a result of the collection of gas at landfill sites and a dramatic reduction in the amount of organic material deposited.

[3] National Road Administration, 2005

## 3.2 Projections on greenhouse gas emissions

A projection on greenhouse gas emissions in the years 2010 and 2020 has been produced.[4] In addition to the projection, four sensitivity alternatives have been analysed which are described in the fourth National Communication. The projection is based on the decisions that applied regarding energy and climate policy at the turn of the year 2003/2004. In other words, none of the policy instruments that have been discussed, planned or introduced since then have been included in the projection. Facts 3 below summarises the most important assumptions in the main projection:

The projection is the result of many different assumptions and assessments, all of which carry a certain degree of uncertainty. The results should therefore be interpreted with this in mind.

**Facts 3. Assumptions in the main projection:**

- All of Sweden's 10 remaining nuclear power stations will be closed 40 years after they were commissioned.
- The effects of the EU ETS are included. The price of an emission right is assumed to be EUR 10.
- The electricity certificate system is assumed to lead to the addition of 10 TWh of new electricity production capacity based on renewables by 2010. The system is not assumed to lead to further increases in such capacity in the period 2010-2020.
- $CO_2$ taxation will remain in place at the same level in those sectors covered by the trading system.
- Other assumptions are current taxes and policy instruments, the IEA's assessment (2002) of price trends for fossil fuels, the Swedish Energy Agency's assessment of price trends for biofuels and the assessment of the National Institute of Economic Research of the development of the Swedish economy.

| | 1990-2000 | 2000-2010 | 2010-2020 |
|---|---|---|---|
| GDP growth | 1.9 %/year | 1.7 %/year | 1.8 %/year |
| Private consumption | 1.5 %/year | 2.6 %/year | 2.6 %/year |
| Industry's production value | 4.4 %/year | 2.6 %/year | 3.3 %/year |

| | 2000 | 2010 | 2020 |
|---|---|---|---|
| Crude oil. USD/barrel | 28 | 21 | 25 |
| Coal. USD/tonne at harbour | 35 | 39 | 41 |
| Natural gas USD/Mbtu | 3.0 | 2.8 | 3.3 |

[4] Swedish Energy Agency, ER 2004:20 and the Swedish Environmental Protection Agency, Report 5393.

*Table 2.* Historical and projected emissions of greenhouse gases by 2010 and 2020 excluding LULUCF (million tonnes $CO_2$ equivalent)

| | 1990 | 2003 | 2005 | 2010 | 2015 | 2020 | 1990-2010 | 1990-2020 |
|---|---|---|---|---|---|---|---|---|
| Energy* excl. transport | 34.8 | 32.7 | 32.9 | 33.2 | 33.7 | 36.2 | -5 % | 4 % |
| of which | | | | | | | | |
| – electricity and dist. heat | 10.6 | 13.3 | 13.6 | 14.3 | 15.2 | 18.2 | +36 % | +73 % |
| – residential and service sector | 11.1 | 6.7 | 6.2 | 4.9 | 4.2 | 3.4 | -56 % | -69 % |
| – industrial combustion | 11.3 | 11.7 | 11.8 | 12.1 | 12.2 | 12.3 | +8 % | +9 % |
| Industrial processes** | 5.7 | 5.9 | 6.0 | 6.1 | 6.2 | 6.4 | 8 % | 12 % |
| Transport | 18.9 | 20.9 | 21.4 | 22.6 | 23.8 | 25.0 | 19 % | 32 % |
| Waste | 2.8 | 2.0 | 1.8 | 1.2 | 0.9 | 0.7 | -56 % | -76 % |
| Agriculture | 9.6 | 8.7 | 8.5 | 8.1 | 8.1 | 8.1 | -16 % | -16 % |
| Solvents | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | -41 % | -41 % |
| **Total emissions** | **72.2** | **70.6** | **70.8** | **71.5** | **73.1** | **76.6** | **-1 %** | **6 %** |

* Energy includes electricity and district heat production, industrial combustion, residential and service sector, refineries, fugitive emissions and other emissions.

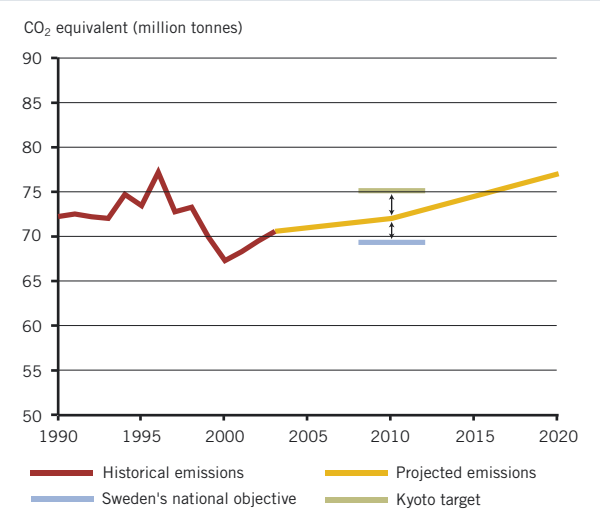
** Industrial processes comprise process emissions and fluorinated greenhouse gases.

### 3.2.1 Overall result

In table 2, the result of the projection is presented by sector. As mentioned above, total emissions of greenhouse gases varied during the period 1990-2003, but over the last five years emissions have been below the level recorded in 1990 by an average of over 4 %. The projections indicate, however, that emissions will increase up to 2010 compared with the level in recent years, but that emissions in 2010 (excluding emissions from the LULUCF sector) will still fall below the 1990 level by 1 %. Sweden's commitment according to the EU burden-sharing agreement under the Kyoto Protocol is that net emissions in the period 2008-2012 should be less than 104 % of the emissions in 1990. The projections thus indicate that Sweden's commitment under the Kyoto Protocol and the EU burden-sharing agreement can be met by means of the already introduced policy instruments alone. Annual per capita emissions will fall, according to the projections, to 7.7 tonnes of carbon dioxide equivalent per person and year by 2010.

Each country may choose whether to present emissions and removals from the LULUCF sector solely in accordance with the compulsory article 3.3 of the Kyoto Protocol or in accordance with both articles 3.3 and 3.4. When Sweden presents emissions and removals in accordance with article 3.3 alone, net emissions in the projections and in separate calcula-

*Figure 8.* Historical and projected emissions (excluding LULUCF), the Kyoto target and Sweden's national objective for the limitation of greenhouse gas emissions.




tions for the LULUCF sector will be at the level of the country's commitment. This is because article 3.3, which covers afforestation, reforestation and defor-estation, is expected to represent a net emission for Sweden. If Sweden also chooses to present emissions and removals from forestry in accordance with article 3.4 of the Kyoto Protocol, Sweden can instead present a reduction in emissions from the sector and net emissions will then be well below the country's commitment. This is because article 3.4 corrects for deficits due to distortions in the accounting system concerning article 3.3 and, in addition, allows countries to take into account a share of the calculated annual carbon sink.[5]

The projection also shows that emissions will increase at a higher rate after 2010 if no further measures are taken. This is mainly due to the assumption that the Swedish nuclear power plants will be decommissioned after 40 years of operation and to a great extent be replaced by natural gas-based plants. The assumed continued increase in the road transportation of heavy goods will also contribute to the increase in emissions. The main factor that is expected to contribute to reducing emissions is the projected continued fall in emissions from the residental and service sector. The assumptions concerning relatively low prices for oil and (in comparison with trends thus far) emission allowances in the EU ETS throughout the projected period also contribute to the forecast increase in emissions after 2010. There are, however, factors that may have an opposite effect. The assumption concerning economic growth is, for example, low compared to trends in recent years.

[5] According to the Marrakesh agreement, Sweden may take into account a value not exceeding 0.58 million tonnes C per year, corresponding to 3 % of the annual emissions in 1990 (UNFCCC, 2002).

*Table 3.* Historical and projected emissions of greenhouse gases per gas excluding LULUCF (million tonnes $CO_2$ equivalent)

| Greenhouse gas/yr. | 1990 | 2003 | 2005 | 2010 | 2015 | 2020 | 1990-2010 | 1990-2020 |
|---|---|---|---|---|---|---|---|---|
| Carbon dioxide | 56.3 | 56.0 | 56.6 | 58.3 | 60.0 | 63.7 | 4 % | 13 % |
| Methane | 6.5 | 5.5 | 5.2 | 4.5 | 4.1 | 3.8 | -32 % | -42 % |
| Nitrogen dioxide | 8.9 | 8.2 | 8.2 | 8.0 | 8.2 | 8.3 | -9 % | -7 % |
| Fluorinated greenhouse gases | 0.55 | 0.84 | 0.82 | 0.79 | 0.82 | 0.85 | 43 % | 53 % |
| **Total emissions** | **72.2** | **70.6** | **70.8** | **71.5** | **73.1** | **76.6** | **-1 %** | **6 %** |

Carbon dioxide accounts for 80 % of total greenhouse gas emissions in Sweden, and will also account for the greatest increase according to the projection. Carbon dioxide emissions are estimated to increase by 4 % by 2010 and by 13 % by 2020 compared to the level in 1990. It is therefore reductions in emissions of other greenhouse gases, mainly methane but also nitrogen dioxide, that are expected to significantly mitigate the total increase in emissions, as can be seen in Table 3 above.

### 3.2.2 Results at the sector level

The results of the projection for different sectors are presented in Figure 9 on next page, and factors that will affect trends up to 2010 are commented on.

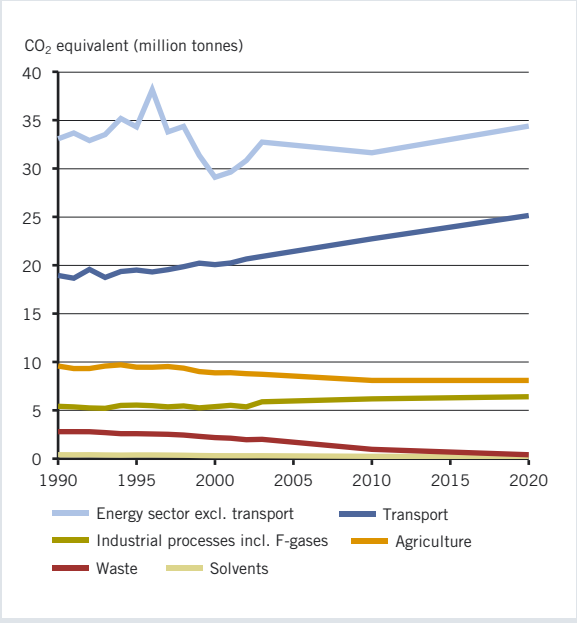
#### *Energy sector excluding transport*

It is estimated that total greenhouse gas emissions from the energy sector, excluding transport, will decrease by approximately 5 % between 1990 and 2010.

Emissions of greenhouse gases from *the generation of electricity and the production of district heat, including refineries* are estimated to increase by 40 % by 2010 compared to the level recorded in 1990. The increase is mainly due to the increased generation of electricity and heat in natural-gas based co-generation plants and, partly, to the increased use of waste for the production of district heat. Emissions from refineries are also expected to increase significantly up to 2010 due to increased production and stricter demands regarding product quality.

It is estimated that emissions from *industrial combustion* will increase somewhat up to 2010 due to the increased use of coal, coke and oil. According to the projection, it is mainly emissions from the iron and steel industry that will increase. Industry's total energy utilisation is expected to increase by 2010, despite the fact that it is estimated that specific energy utilisation will decrease.

*Figure 9.* Historical and projected greenhouse gas emissions per different sector, actual emissions and projection.




Greenhouse gas emissions from the *residential and service sector* are expected to continue to decrease dramatically up to 2010. This reduction is mainly due to the replacement of oil for individual heating by electricity and district heating, and to the fact that energy utilisation in the sector is expected to decrease.

### *Transport*

According to the projection, emissions from the transport sector are expected to increase at a somewhat higher rate than previously. The increase is above all due to an increase in transport mileages, which will mainly result in an increase in the use of diesel. It is, however, very difficult to assess trends in this respect.

The use of petrol is expected to increase slightly during the period up to 2010 due to the assumptions concerning the introduction of more fuel-efficient vehicles, an increase in the use of transport biofuels (mainly ethanol mixed with petrol), and the transition from petrol to diesel for light lorries.

The expected increase in the use of diesel can mainly be explained by the expected rapid increase in freight transport using heavy vehicles, which in turn is based on the assumption that there will be a relatively high rate of growth in transport-intensive industries.

### *Industrial processes*

According to the projection, total greenhouse gas emissions from industrial processes (the iron and steel industry and cement manufacturing), including fluorinated greenhouse gases, will increase by 8 % by 2010 compared to the level in 1990. It is mainly carbon dioxide emissions from certain industrial processes that are expected to increase, while it is estimated that emissions of other greenhouse gases will account for a minor part of the increase or even decline.

### *Agriculture*

It is estimated that emissions from the agricultural sector will continue to decrease up to 2010.

This decrease is largely due to the assumption that the extent of animal husbandry will continue to decline. The projection is based on economic impact assessments of the national application of the new reform of the EU's Common Agricultural Policy. Implementation of the reform began in Sweden in 2005.

### *Waste*

Emissions of methane from landfills are expected to decrease dramatically up to 2010 as a result of the implementation of the ban on the landfill disposal of combustible and organic waste. This trend presupposes that landfills will be replaced by some other form of waste management capacity in the form of the incineration of waste with energy recovery and material recycling. According to a projection, the quantity of organic waste taken to landfill sites is expected to fall dramatically up to 2007, and will thereafter stabilise.

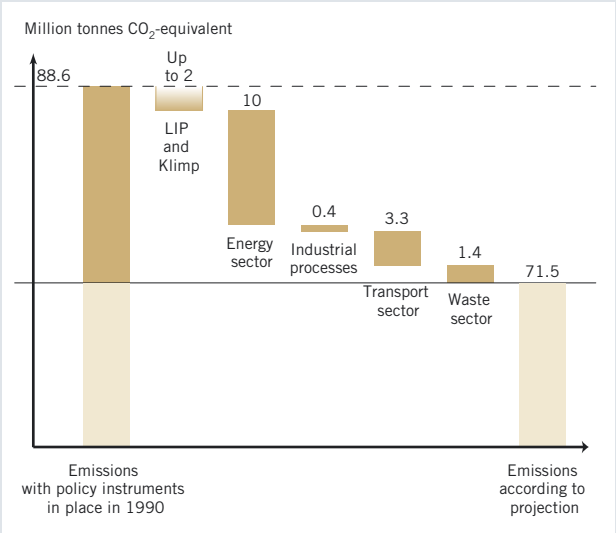
# Effects of policy instruments in the Swedish climate strategy

4

## 4.1 Introduction

As shown in section 3, the latest emission trends and projections indicate that Sweden will meet its commitment under the EU burden-sharing agreement by means of already adopted policy instruments alone. It is believed that the policy instruments in the national strategy have played a major part in making this possible. Assessments of the overall effects of the policy instruments in the Swedish strategy indicate that emissions in 2010 would be in the range of 20 % higher if the policy instruments had remained unchanged since 1990, see Figure 10 below.

*Figure 10.* Contributions from the respective sectors and the cross-sectoral (LIP and Klimp) policy instruments in 2010 to the total effect of the policy instruments introduced after 1990 compared to the policy instruments of 1990. There may be some overlap between the effects of sector-specific and cross-sectoral instruments, but it has not been possible to quantify this.



This section presents the results of evaluations and impact assessments of important policy instruments in the Swedish climate strategy. These results form the basis for figure 10.

It is important to stress that it is difficult to differentiate the effects of an individual policy instrument from the effects of other changes in society.

There is an additional difficulty in evaluating policy instruments that contribute to a reduction in the use of electricity or the development of new electricity production capacity. These do not necessarily affect emissions in Sweden as there is an exchange of electricity between the Swedish electricity system and the systems of surrounding countries. Our assessment[6] is that a decrease in the use of electricity or the addition of new generation capacity in the next few years would lead to a decrease in generation at coal-fired condensing power plants in the Nordic electricity system, but outside Sweden. It is estimated that after 2012, however, electricity utilisation in the Nordic electricity system will reach a level that corresponds to the production volume and that new investments will then be made in natural gas-fired, combined-cycle power plants in or outside Sweden.

Moreover, in many cases, several policy instruments are in place simultaneously in one and the same sector, and it is the combination of policy instruments that provides the total impact. In several cases, therefore, this report presents results from studies of the effects of combinations of policy instruments. To the extent that there are results from the evaluation of individual instruments, these are presented independently. Quantitative estimates are presented where possible, while only qualitative estimates are reported in others.

Important policy instruments in the national climate strategy that are or have been in place in Sweden are presented per sector in Facts 4.

**Facts 4. Important policy instruments in the national climate strategy**

**Cross-sectoral instruments**

European Union Emission Trading Scheme (EU ETS) (EU-wide instrument)
Environmental Code – general regulations on care of the environment
Local investment programmes: LIP and Klimp
Climate information campaign
Research and Development

**Energy sector**

Energy and carbon dioxide taxes
Electricity certificate system
Grants for investments in electricity production based on renewable sources of energy (partly completed)
PFE – programme for the improvement of energy efficiency in industry
Instruments designed to improve energy efficiency in the residential and service sector including municipal energy advisers, labelling systems, grants, building regulations etc.

[6] Swedish Energy Agency, ER 14:2002

**Emissions from industrial processes and emissions of fluorinated greenhouse gases**
Environmental Code
Future EU ordinance on fluorinated greenhouse gases including directive on HFC in mobile air conditioning systems – (EU-wide instrument)

**Transport sector**
Tax relief for transport biofuels
Instruments for the increased introduction of green cars
Fuel taxation (energy and carbon dioxide taxes)
The automotive industry's voluntary agreement on new, more fuel-efficient vehicles (EU-wide instrument)
Taxation of fringe benefits

**Waste**
Demands for municipal waste planning
Regulations on producer responsibility
Landfill tax
Ban on landfill disposal of combustible waste and other organic waste

## 4.2 Cross-sectoral instruments

***European Union Emission Trading Scheme (EU ETS)***

The EU ETS came into operation on 1 January 2005. The European trade in emission allowances covers power and heat plants, oil refineries and plants that produce and process iron, steel, glass, glass fibre, cement, ceramics and pulp and paper. Initially, trade is reduced to apply only to carbon dioxide. Emissions from the Swedish plants affected ("the trading sector") accounted for just under 30 % of total emissions in Sweden in 2000.

The EC directive on emissions trading set certain frameworks for the initial allocation of emission allowances but permits different methods for the allocation of emission allowances to those plants covered by the system. The Swedish allocation to existing plants in the period 2005-2007 is based on the average historical emissions in the period 1998-2001. In the case of so-called raw material-related emissions,[7] emissions allowances are allocated in line with the projected increase in emissions. For new plants, allocation is based on target values or the best possible technology. A certain number of emission allowances have been set aside for new plants. If this is not sufficient, companies may purchase emission allowances to cover emissions from new plants.

In total, Sweden has decided to allocate emission allowances equivalent to approximately 23 million tonnes of carbon dioxide per year in the period 2005-2007. The allocation plan for the period 2008-2012 will be determined in 2006.

[7] Raw material related emissions are emissions that arise from processes in which carbon dioxide is formed from carbon contained in the raw material that is to be refined, or where carbon is used to release an unwanted component from the raw material.

The trading system has not been in operation very long, and it is therefore difficult to say what effect trading will have on emissions in different countries in the long term. This policy instrument has an impact throughout the EU. The total allocation of emission allowances in the system limits the total emissions within the EU from the entire trading sector. Trading may result in increased emissions in one country, while emissions are decreased in another.

The effect in an individual country will be due, among other things, to the market price set for emission allowances, the companies' assessments of future price levels and national conditions, e.g. the existence of complementary policy instruments and the costs and potentials of available mitigation measures.

In Sweden's latest projections on emissions, which is presented in section 3, the EU ETS has been taken into account. An average and (in comparison with trends so far) relatively low price of EUR 10 per tonne of carbon dioxide has been assumed for the entire projection period. According to this projection, emissions in the trading sector will amount to 26.5 million tonnes of $CO_2$ in 2010, which represents an increase in emissions in the sector.

Our evaluation of the total impact of the economic policy instruments in the energy sector in Sweden indicates that the EU ETS, together with the electricity certificate system and the energy and carbon dioxide taxes, are expected to be the most important policy instruments for limiting emissions from the energy sector in the future.

### *Environmental Code*

Overall legislation in the environmental field has been compiled in the Environmental Code since 1 January 1999. The overriding objective of the Environmental Code is to promote sustainable development. The environmental quality objectives act as a guide for the application of the Code. The Code contains, for example, general rules of consideration that must be observed in connection with all types of operations and measures. The Code stipulates, for example, that the best possible technology should be used in all industrial operations. It also states that anyone running an operation or implementing a measure should conserve raw materials and energy and that recovery and recycling should be conducted when possible. In the first instance, renewable sources of energy should be used. These regulations on environmental care apply to the extent that their application is reasonable and justifiable.

Environmentally-hazardous operations, with the exception of very minor operations, are subject to permits. Greenhouse gas emissions are one of the factors considered when decisions are made on whether to issue a permit or not. Since 2005, however, plants covered by the EU ETS have been partly exempted from the need to apply for permits.

Measures relating to social planning mainly affect emission trends in the long term and may in this perspective be of great strategic importance. Major infrastructure projects must apply for permits in accordance with

the regulations of the Environmental Code. The Code requires that environmental impact assessments are conducted at an early stage of each project. The Code also contains the special legislation that applies in the waste field and regulations that limit emissions of certain fluorinated gases.

### *The local investment programmes LIP and Klimp*

LIP (the Local Investment Programme for Ecologically Sustainable Development) was launched in the autumn of 1996. LIP's main aim was to improve the environment, but the programme also aimed to increase employment. The first grant was awarded in 1998 and the last grant in 2002. It is probable that SEK 4.7 billion will have been paid out when all of the 211 investment programmes in 161 municipalities and 2 municipal federations are completed. In their turn, the programmes that were awarded grants covered approximately three times as much of the investment costs. Approximately half of the total LIP grants of SEK 4.7 billion were awarded to climate related projects. Around a third of the total funds of LIP were allocated to investments in the energy sector, e.g. in the development of district heating, waste heat and local heating systems. A major proportion (approximately 85 %) of the calculated reductions in emissions stems from measures in this sector. Smaller shares of the total grants, 5 % and 6 % respectively, were allocated to climate-related measures in the waste and transport sectors. Support for biogas projects was common in these sectors. The overall assessment is that the LIP projects reduced emissions in Sweden by up to 1.5 million tonnes of carbon dioxide equivalent per year[8].

Since 2003, State support has been provided for Local Climate Investment Programmes (Klimp) in a scheme that has succeeded LIP. Compared to LIP, Klimp projects are subject to stricter reporting requirements. This means that the impact of the projects can be calculated with a greater degree of certainty. According to the calculations, the SEK 1 billion allocated within the framework of Klimp is expected to reduce emissions by up to 0.5 million tonnes[9] of carbon dioxide equivalent per year. In the autumn of 2005, the government proposed that the climate investment programme should be extended and that funding for the programme[10] should be increased by a total of SEK 840 million for the period 2006-2008.

It is also believed that the work carried out on the LIP and Klimp applications has strengthened environmental work in the municipal organisations, increased awareness of the climate issue among important players in the municipalities and improved knowledge about potential local environmental measures and their effects[11].

[8] Investment grants interact with other instruments, e.g. energy and carbon dioxide taxes, the electricity certificates system etc. The reduction in emissions cannot therefore be solely attributed to the grants.

[9] Investment grants interact with other instruments, e.g. energy and carbon dioxide taxes, the electricity certificates system etc. The reduction in emissions cannot therefore only be solely attributed to the grants.

[10] Government bill 2005/2006:1

[11] Swedish Environmental Protection Agency, Report 5382.

#### *Climate information*

Information is an important component in the Swedish climate strategy adopted in 2002. It is believed that information will reinforce the effect and increase acceptance of the introduction of other policy instruments. In the period 2002-2003, SEK 60 million was invested in a national climate information campaign. The results were followed up by conducting interviews before and after the campaign. The results revealed that the knowledge and attitudes of the Swedish public regarding the climate issue changed during the year in which the campaign was conducted. According to the survey, for example, the campaign helped to improve knowledge about the climate issue[12].

#### *Research and Development*

Swedish climate-related research covers a wide field from natural science and technology to social science and the humanities. The main focus is on technical and natural scientific research and development, but since 1990 there has been a clear increase in climate-related research based on an interdisciplinary and social scientific approach, e.g. research on behavioural issues and the effectiveness of climate related policy instruments.

## 4.3 Sector-specific policy instruments

### 4.3.1 Policy instruments in the energy sector excluding transport

There are a number of policy instruments in the energy sector that have partly different aims. Some have a more general approach and provide incentives for measures of many different types, e.g. energy and carbon dioxide taxes and trading in emission allowances, while others have a more specific focus, e.g. energy norms and investment grants. Several of the economic instruments interact and have a joint impact. One example of this is that price trends in the electricity certificate system will probably be affected by price trends for emission allowances in the trading system.

#### *Economic policy instruments in the energy sector excluding transport*

*Energy and carbon dioxide taxes*

The energy taxation system in Sweden is based on a combination of carbon dioxide taxes, energy taxes on fuel, taxes on nuclear power and taxes on the consumption of electricity. Facts 5 on next page presents a brief review of the structure of the carbon dioxide and energy taxes:

The extent to which the taxes affect emissions in different sectors is partly due to the tax rates levied in the respective sectors. It is also important to remember that the social players meet the combined tax,

[12] Swedish Environmental Protection Agency, Rapport 5365.

**Facts 5**

**The carbon dioxide tax** was introduced in 1991 and increased from the initial rate of 25 öre/kg carbon dioxide to 91 öre/kg carbon dioxide in 2005. The manufacturing industry, co-generation plants, agriculture and aquaculture pay a lower rate than the general level. In addition there are special regulations for further tax relief for energy-intensive industrial operations. In the autumn of 2005, the government proposed that operations covered by EU ETS should also be covered by special tax relief/exemption regulations with regard to the carbon dioxide tax.

**An energy tax** was introduced in Sweden in the 1950s. The tax initially covered oil and coal. A tax on petrol was introduced as early as the 1920s. The energy tax rate has varied over time and also varies between different fuels. In 2005, the energy tax levied on natural gas amounted to 2.2 öre/kWh, on coal to 4.3 öre/kWh and on fuel oil to 7.4 öre/kWh. Biofuel is, however, entirely exempt from energy tax. The manufacturing industry is exempt from energy tax, as are the fuels used in co-generation plants.

i.e. both carbon dioxide tax and energy tax, and their actions are therefore governed by the combined rate. Households also pay value added tax.

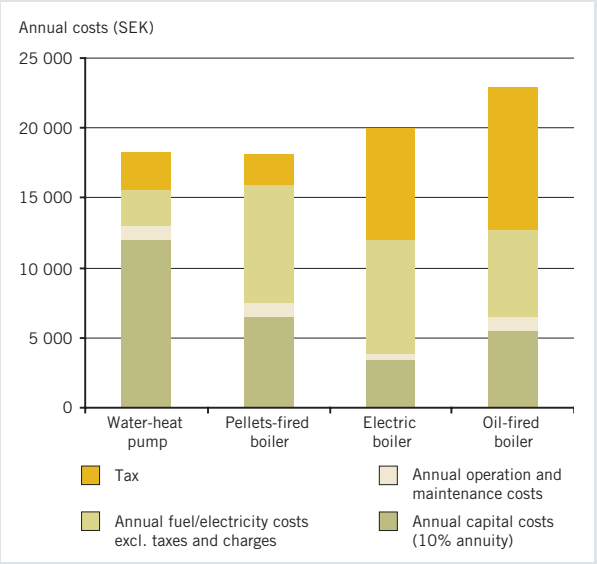
An evaluation has revealed that the energy and carbon dioxide tax rates that have applied from 1990 to the present day have provided a stronger financial incentive to increase the use of biofuels than if the energy tax that applied in 1990 had been retained. Energy and carbon dioxide taxes have therefore contributed to the trend in the sector towards an increasing proportion of biofuels, at the same time as the production of district heat has increased.

The taxes also have a significant effect on the costs of various heating alternatives in the residental and service sector, as illustrated in Figure 11 on next page. The figure presents the annual costs for investment in new heating equipment in an average Swedish detached house. The figure shows that the energy and carbon dioxide taxes affect the cost levels and provide powerful economic incentives to install, for example, heat pumps or pellets-fired boilers for heating instead of oil-fired boilers when the times come to replace old equipment. If the taxes were disregarded, then electric and oil-fired boilers would be the cheapest alternatives.

In the period 1990-2003, emissions from apartment blocks and detached houses in the residential and service sector decreased dramatically and the projections indicate that this decrease will continue. It can be assessed that the energy and carbon dioxide taxes are the policy instruments that will mainly lie behind this trend, partly in interaction with various investment grants.

[13] The preconditions governing the calculation, and a description of the energy system model used, the Markal Model, and its most important limitations are presented in the Swedish Energy Agency's report "Economic Policy Instruments in the Energy Sector – an evaluation of trends since 1990"..

*Figure 11.* Costs of various heating alternatives in Swedish detached houses. The figure shows the total costs per cost item for investments in new forms of heating in a detached house.[14]




### *Grants for investments in electricity production based on renewable sources of energy 1998-2002*

The decision on energy policy adopted in 1997 comprised a programme for the period 1998 to 2002 to increase the generation of electricity based on renewables. In order to achieve the target set of 1.5 TWh of new generation capacity based on renewables during the period, a number of grants for investments in biomass-based co-generation, wind power and small-scale hydropower were introduced. The effects of some of these measures are presented in Table 4.

### *The electricity certificate system*

In 2003, a new support system for the generation of electricity based on renewables was introduced, thus replacing the various systems that had been in operation since the start of the 1990s. Under this new system, electricity generators receive one electricity certificate for every MWh of renewable electricity that is generated[16]. The certificates are sold to the end users who by law are obliged to purchase electricity certificates corresponding to a certain percentage of their consumption. This quota is increased gradually from year to year. The aim is to convert the energy system so that a greater proportion of electricity production is based on

[14] Swedpower, 2005.
[15] Swedish Energy Agency, ER2005:25.

*Table 4.* Results of investment support for electricity production based on renewable sources of energy[15]

| Measure | Target | Allocation | Increased annual production |
|---|---|---|---|
| | [TWh] | [million SEK] | [TWh] |
| Biomass-based co-generation | +0.75 | 450 | 0.88 |
| Wind power | +0.5 | 472[1] | 0.96[2] |
| Hydro power | +0.25 | 472[1] | 0.04 |

[1] Net allocations to wind power and small-scale hydropower combined. The original allocation was SEK 300 million for wind power and SEK 150 million for small-scale hydropower. By redistributing the allocations, funds in excess of the original allocation have been made available for investments in wind power.
[2] The data on wind power generation includes some capacity that has not yet been commissioned.

renewable sources of energy. One of the results of an increase in the use of renewables will be a reduction in net greenhouse gas emissions. The target is to increase electricity production based on renewables by 10 TWh from 2002 to 2010.

During the first two years of the operation of the electricity certificate system, electricity production based on renewables increased by more than the amount required in the stipulated quota and amounted in March 2005 to a total of 11.5 TWh. The increase, which has been approximately 4 TWh since 2003, has largely been achieved by converting from fossil fuels to biofuels and increasing the use of existing electricity production capacity in biomass-fired co-generation plants. It has therefore been possible to achieve this dramatic increase at a relatively low cost.

### *The total effect of economic policy instruments in the energy sector*

An evaluation[17] based on model calculations[18] has been conducted in order to estimate the total effect on carbon dioxide emissions of the economic policy instruments introduced in the Swedish energy sector between 1990 and 2005. The evaluation relates to emissions in Sweden. The policy instruments covered by the analysis are taxes, investment and operational support, the electricity certificate system and the EU ETS[19]. The calculations do not include the grants awarded to projects in the energy sector under the LIP and Klimp programmes. These programmes have been evaluated separately.

In one calculation, the development of the energy system with the economic policy instruments that have been introduced[20] was simulated (continuous line in Figure 12). A limitation of the possibility to invest

[16] Electricity that is entitled to a certificate must have been generated using wind power, solar energy, geothermal energy, certain types of biomass, wave energy, new or small-scale hydropower or peat.
[17] The Swedish Energy Agency, "Economic Policy Instruments in the Energy Sector – an evaluation of trends since 1990".
[18] The MARKAL-Nordic model, a cost-minimising, techno-economic optimisation model was used. A description of the Markal model and its most important limitations is presented in "Economic Policy Instruments – an evaluation of trends since 1990".
[19] At an assumed emission price of EUR 10 per tonne of carbon dioxide.
[20] As far as possible, the policy instruments have been introduced into the model at the time they were introduced in reality. The Swedish Energy Agency, "Economic Policy Instruments in the Energy Sector – an evaluation of trends since 1990."

in coal-fired power and heat production plants is included in this case. This limitation is justified by the assessment that new investments in such coal-fired plants have not been a reasonable alternative given the policy pursued, nor have any such investments been made in practice. In a second calculation, the energy system was simulated under the assumption that Swedish policy instruments had not been changed since 1990 (broken line in Figure 12). This calculation does not include a limitation of the possibility to invest in coal-fired plants. In 1990, there was no clear policy aimed at limiting carbon dioxide emissions and it is therefore reasonable to assume that investments in new coal-based power or heat production capacity would have been possible at that time.

The results of the evaluation show, as can be seen in Figure 12, that the economic policy instruments introduced since 1990 provide significantly stronger economic incentives to reduce carbon dioxide emissions in the energy sector than would have been the case had the instruments remained unchanged since 1990. The level of carbon dioxide emissions in Sweden is consequently lower today and will be lower thanks to the policy instruments that have been introduced.

A sensitivity analysis based on alternative assumptions has also been carried out. In a third calculation, the energy system was simulated under the assumption that the Swedish policy instruments have remained unchanged since 1990, but with the same limitation regarding coal as was used in the calculation for the current economic policy instruments. The results of this calculation are presented in Table 5.

*Figure 12.* Calculated emission trends in Sweden's energy sector (excluding transport) in a scenario with the introduced economic policy instruments and a scenario with the economic policy instruments in place in 1990.

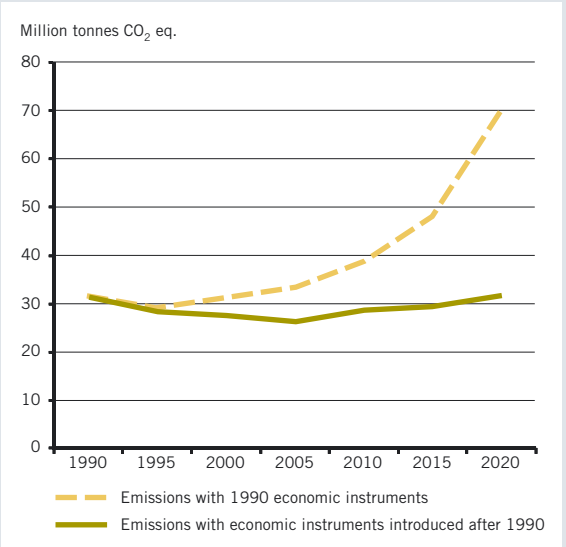


Table 5. Calculated total effects on emissions in Sweden in a comparison between current economic policy instruments in the energy sector (excluding transport) and two reference cases with the instruments in place in 1990

| | 2005 | 2010 | 2015 | 2020 |
|---|---|---|---|---|
| Reference case economic policy instruments in place in 1990 | 7 | 10 | 19 | 38 |
| Reference case economic policy instruments in place in 1990 with coal limitation | 2 | 5 | 5 | 5 |

The fact that emissions increase so significantly up to 2020 in the calculation for the instruments in place in 1990 without the limitation regarding investments in coal-based power and heat production is due to the assumption that nuclear power will be phased out after 2015 and be replaced by other, primarily coal-based power generation capacity[21].

In addition to the analysis of the total effects of the most important policy instruments in the energy sector (excluding transport) that is presented here, several separate assessments concerning the effects of individual instruments have been performed. If the results of these separate assessments are totalled, a much greater effect is arrived at than in the analysis of the instruments' total effect. This is partly because there is an interaction between instruments, but also because these assessments of the effects of the individual instruments cover effects in the Nordic electricity system. It is therefore reasonable to assume that the results presented here underestimate the total effect of the policy instruments as the results only relate to effects in Sweden.

### *Policy instruments designed to increase energy efficiency and reduce the use of electricity*

Policy instruments that aim to increase energy efficiency are in place or under discussion in many areas today, not least within the EU. The latest Swedish decision on energy policy, which was taken in 2002, entailed a continuation of information and training programmes as well as labelling, testing and certification programmes designed to promote the development of more energy-efficient products and systems. The decision also included a system for municipal energy advisers, who help consumers to choose cost-effective, environment-friendly technology, and support for technical procurement that aims to facilitate the introduction of energy-efficient technology on the market. In recent years, several forms of investment support have been introduced, for example in the form of tax discounts for investments in more energy-efficient windows and deductions for investments in measures designed to improve energy efficiency in pub-

[21] Assuming a lifetime of 40 years.

lic premises. In the budget bill of 2005[22], the government also proposes tax relief for conversion from direct electrical heating systems in buildings.

On 1 July 2004, an energy tax of 0.5 öre/kWh of electricity was imposed on the manufacturing industry in line with the minimum tax rates in the EU's energy tax directive (2003/96/EC). At the same time, industrial plants were offered the opportunity to become exempt from this tax by participating in the Programme for Energy Efficiency (PFE). Plants participating in this programme undertake to introduce an energy management system, to continuously conduct energy analyses and to carry out certain measures to improve the efficiency of their use of electricity. In return, they are exempted from paying tax on the electricity used. Approximately 125 companies with a total electricity consumption of 35 TWh have applied and been accepted for the programme. It is difficult to assess in advance what effect the programme can be expected to have, but evaluations of a similar programme in Finland indicate that a total improvement in energy efficiency of 2 % has been achieved by the participants in the programme during the programme period.

### 4.3.2 Policy instruments designed to reduce emissions from industrial processes and the emission of fluorinated greenhouse gases

The instruments that may affect emissions in this sector are primarily the EU ETS, a future EU ordinance on certain emissions of fluorinated gases and the application of the Environmental Code.

Emissions of methane, nitrous oxide and fluorinated gas from industrial processes are covered by the *general regulations of the Environmental Code*. These are particularly relevant to emissions of PFC from the manufacture of aluminium. It is estimated that PFC emissions will be reduced by at least 0.2 million tonnes of carbon dioxide equivalent/year as a result of the application of the Environmental Code's regulations in connection with permit examinations.

In the summer of 2003, the European Commission presented a proposal on *the regulation of certain fluorinated greenhouse gases, COM (2003) 492 final*. The Council adopted a joint position on this proposal in October 2004. The proposal is now undergoing a second reading in the European Parliament. A directive that regulates the use of HFC in mobile air conditioning systems has also been produced as a complement to the proposal. An earlier study[23] based on the Commission's draft regulation has estimated that implementation of the regulation in Sweden will lead to reductions in annual emissions amounting to approximately 0.15 million tonnes of carbon dioxide equivalent /year by 2010 and to 0.4 million tonnes of carbon dioxide equivalent/year by 2020.

[22] Government bill 2005/2006:1. The corresponding investment support is also proposed for conversion from oil-based heating.
[23] IVL, 2004.

### 4.3.3 Policy instruments in the transport sector

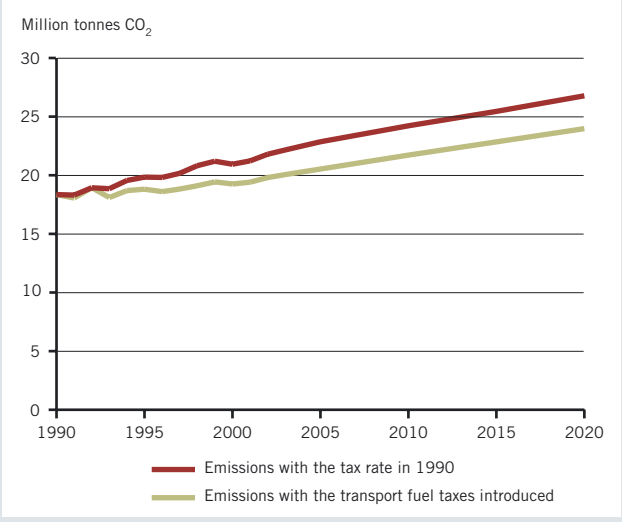
In the transport sector, it is primarily a number of taxes that have affected, or are expected to affect, greenhouse gas emissions. In addition to these policy instruments, there are certain instruments that are designed to promote more fuel-efficient vehicles. These comprise demands for information on the fuel consumption of new cars and the automotive industry's voluntary agreement to reduce the fuel consumption of new cars. There are also plans to introduce a carbon dioxide-related vehicle tax in 2006[24]. The government has also proposed the introduction of special tax relief for new diesel-run cars equipped with particle filters.

#### *Transport fuel taxes*

Petrol and diesel are subject to energy tax, carbon dioxide tax and value added tax (VAT). The carbon dioxide tax applies in full to these fuels, but increases in the carbon dioxide tax in recent years up to the present level have partly been compensated for by reductions in the energy tax in the same period. Calculations show that carbon dioxide emissions from cars in 2005 would have been 1.5-3.2 million tonnes/year higher if the taxes had remained at the nominal level that applied in 1990. The interval is due to the degree of price elasticity that is assumed (i.e. how much a change in price is assumed to affect the demand for fuel).

The figure below presents the results as an average of the calculations using a higher and lower degree of price elasticity respectively. Future effects have also been estimated.

*Figure 13.* Calculated and projected effects on carbon dioxide emissions in the transport sector with and without the transport fuel tax increases introduced in the period 1990-2005. The reference case is the nominal tax rate in 1990.




[24] Government bill 2005/2006:1.

*Table 6.* Calculated effects on emissions in Sweden of the current levels of fuel tax compared to the nominal levels in 1990, with two different degrees of price elasticity

| 2005 | 2010 | 2015 | 2020 |
|---|---|---|---|
| 1.5-3.2 Mtonnes | 1.6-3.4 Mtonnes | 1.7-3.5 Mtonnes | 1.8-3.8 Mtonnes |

### *Tax reduction for transport biofuels*

The climate bill of 2002 presented a strategy for carbon dioxide-neutral transport biofuels and the introduction of green cars with the main aim of increasing the use of transport biofuels. The strategy was based on two main pillars; tax relief for biofuels and policy instruments to promote the development and use of vehicles that can run on other fuels than petrol and diesel. Parliament subsequently (autumn 2004) adopted the target that 3 % of the energy used in 2005 should consist of biofuels and the government has also expressed the ambition that the 5.75 % target stipulated in the EU's directive on the promotion of biofuels should be achieved by 2010.

Since 2004, carbon dioxide-neutral transport biofuels have been exempt from taxation in Sweden. This exemption will apply, under the current decision, until the end of 2008.

In 2003, the oil companies began to mix ethanol into their petrol on a large scale, which has quickly led to a situation in which almost all the petrol sold in Sweden now contains 5 % ethanol. Largely as a result of this, the percentage of biofuels of the total amount of fuel used has increased from 0.7 % of the quantity of petrol and diesel in 2002 to 2 % in 2004 calculated in terms of energy content, and this increase has continued in 2005. The major part of the increase consists of increased imports of ethanol for mixing with petrol.

### *Policy instruments that affect the introduction of green cars in Sweden*

The total number of so-called green cars[25] has increased rapidly in recent years. The number of new green cars in 2004 amounted to 7 000, i.e. approximately 2.5 % of all the new cars sold. Flexifuel ethanol cars are increasing most. The sale of ethanol with a certain admixture of petrol, so-called E85, also increased dramatically in 2004, but the statistics show that approximately 50 % of the fuel used in the flexifuel ethanol cars is petrol.

The increase in the number of green cars is largely explained by the changes in policy instruments that have taken place or are being planned:

- transport biofuels are tax exempt, see above
- green cars have a lower taxable benefit value when they are taxed as a fringe benefit. In 2002, this value was reduced, and thereby the tax on green cars. Sales of green cars to companies increased from 3 500

[25] The tax legislation recognises green cars as cars that run on ethanol, natural gas/biogas or electricity, as well as hybrid electric cars.

cars in 2002 to 6000 cars in 2003. Most of these cars are run solely as company cars. The government has proposed that the taxable benefit value of gas-fuelled cars should be further decreased[26].

- grants from the municipalities and the State for the purchase of green cars
- local incentives for green cars, e.g. free parking and, in Stockholm, the prospect of being exempt from charges in the planned road toll system
- new procurement regulations for State authorities from 2005. The regulations aim to ensure that at least 25 % of the cars that the State purchases or leases in the course of a year are green cars.
- the government has also presented a bill on legislation that will oblige petrol stations to also provide renewable motor fuel. The bill is before parliament and the law is intended to come into force on 1 January 2006.

Several manufacturers of green cars launched models adapted to E85 in 2005. On the whole, there are a number of reasons that make it reasonable to assume that the percentage of new car sales represented by green cars will increase dramatically over the next few years.

It is estimated[27] that the reduction of emissions in Sweden as a result of the policy instruments that have been introduced thus far under the strategy for transport biofuels will in total amount to approximately 0.6 million tonnes of carbon dioxide equivalent/year in 2010. It is further estimated that some 80 % of this reduction will result from the addition of ethanol to petrol and the remaining 20 % from the increased use of biofuel-powered green cars and heavy vehicles.

### 4.3.4 Policy instruments in the waste sector

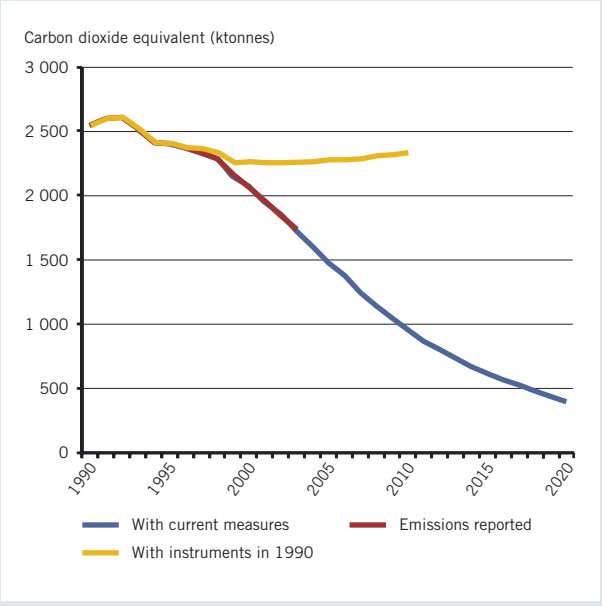
Emissions from the waste sector have declined steadily since the early 1990s, partly due to the increased collection and management of methane gas from landfills and partly because the amount of organic material in landfills has declined. The policy instruments that had an impact in the 1990s included the introduction of producer responsibility for a number of different product groups, e.g. packaging, waste paper, stationery and tyres. It is believed that the demand for municipal waste planning that was introduced in 1991 has contributed to the expansion of methane collection and to the reduction of the amount of degradable material deposited in landfills.

A tax on landfill waste was introduced in 2000, and bans on the landfill disposal of combustible waste and organic material have subsequently been introduced. These bans have begun to have an effect. In 2003 and 2004, the amount of household waste deposited decreased dramatically (by 30 and 34 % respectively compared with the preceding year). The total amount of household waste deposited has fallen by over 70 % since 1993, and it is estimated that this decrease will continue over the next few years.

[26] Government bill 2005/2006:1
[27] The Swedish Environmental Protection Agency, Report 5433.

The total effect of the current policy instruments in the waste sector and of the instruments that were in place in 1990 has been analysed. According to this analysis, greenhouse gas emissions in 2010 will be 1.4 million tonnes of carbon dioxide equivalent lower with the current policy instruments than if the instruments in place in 1990 had remained unchanged. In 2020, it is estimated that the difference will be 1.9 million tonnes of carbon dioxide equivalent. See figure 14.

*Figure 14.* Emissions from landfills with current policy instruments and with the instruments in place in 1990.




## 4.4 Work concerning the flexible mechanisms of the Kyoto Protocol

Within the framework of the decision on energy policy taken in 1997, SEK 350 million was set aside for international climate policy measures for the period 1997-2004. Some of these funds were allocated to multilateral co-operation and work on the flexible mechanisms of the Kyoto Protocol, mainly the Clean Development Mechanism (CDM) and Joint Implementation (JI). In the period 1997-1999, some of the funds were used for the pilot phase of Joint Implementation, AIJ.

The Swedish State is involved in two multilateral funds: The World Bank's Prototype Carbon Fund and the Testing Ground Facility, which aims to conduct JI projects within the framework of the Baltic Sea Energy Co-operation scheme (BASREC). Sweden is also behind a State-funded CDM and JI programme called SICLIP (Swedish International Climate

Investment Programme) that is administered by the Swedish Energy Agency. It is estimated that the total sums invested in the funds and SICLIP will lead to the acquisition of emission reduction units in the period 2008-2012 corresponding to approximately 5 million tonnes of carbon dioxide equivalent, i.e. around 1 million tonnes of carbon dioxide equivalent per year.

Sweden has become involved in the work on the flexible mechanisms of the Kyoto Protocol in order to achieve cost-effective emission reductions, gain experience at an early stage and contribute to the development of the mechanisms into credible instruments for climate policy. By co-operating internationally within the framework of CDM, Sweden is also taking action to ensure that climate measures contribute to sustainable development in developing countries. The experience gained is put to good use in the international effort to develop the mechanisms, and is also used to give Swedish companies a better chance of making the most of the opportunities offered by the linking directive in the EU ETS.

*Table 7.* Funds invested for the acquisition of emission reduction units

| Fund / Programme | Funds invested | Comments |
|---|---|---|
| Testing Ground Facility | EUR 4 million | JI co-operation within the framework of BASREC |
| Prototype Carbon Fund | USD 10 million | The World Bank's fund for the acquisition of emission reduction units from CDM and JI projects |
| SICLIP | SEK 160 million | Sweden's national programme for the acquisition of emission reduction units from JI and CDM projects |

*Table 8.* Policy instruments in the Swedish climate strategy with quantified effects

| Instrument / Sector | Main greenhouse gases concerned | Calculated effect in million tonnes $CO_2$ per year (2010) | Status |
|---|---|---|---|
| **Cross-sectoral instruments** | | | |
| The Local Investment Programme, LIP | All | Up to 1.5 Mtonnes | Under completion |
| The Climate Investment Programme, Klimp | All | Up to 0.5 Mtonnes | Ongoing (2003-) |
| **Energy sector excluding transport** | | | |
| Energy tax | $CO_2$ | 10 | Ongoing (1957-) |
| Carbon dioxide tax | | | Ongoing (1991-) |
| European Union Emission Trading Scheme (EU ETS) | | | Ongoing (2005-) |
| The electricity certificate system | | | Ongoing (2003-) |
| **Industrial processes incl. emissions of F-gases** | | | |
| Application of the Environmental Code | PFC | 0.2 | Ongoing (1999-) |
| Future F-gas ordinance and directive on mobile AC systems | Mainly HFC | 0.15 | Under planning |
| **Transport sector** | | | |
| Energy and carbon dioxide taxes | $CO_2$ | 1.6-3.4 | Ongoing |
| Change in taxation of company cars | $CO_2$ | 0.2 | Ongoing (1997-) |
| Tax reduction for transport biofuels | $CO_2$ | 0.4 | Ongoing (2004-) |
| Instruments for introduction of green cars | $CO_2$ | 0.2 | Ongoing |
| **Waste sector** | | | |
| Regulations on municipal waste planning, producer responsibility, landfill tax, ban on depositing un-sorted combustible and organic waste | Methane | 1.4 | Ongoing |

# How Sweden is meeting its commitments under articles 10 and 11 of the Kyoto Protocol

5

## 5.1 The national system for inventory of the emissions and removals of greenhouse gases

Sweden has introduced a national system for inventory of the emissions and removals of greenhouse gases in accordance with the demands of article 5.1 of the Kyoto Protocol. The Swedish system also covers the reports that Sweden submits to the EU in accordance with the directive on a monitoring mechanism[28]. The system, which will come into force on 1 January 2006, represents a considerable improvement in quality for the submission of climate reports (NIR) to the UN's Climate Secretariat. A brief description of the system is presented in Appendix 5 of Sweden's fourth national communication, NC4.

## 5.2 National programmes to reduce the emissions and increase the removals of greenhouse gases

The Swedish climate strategy is described in general in sections 1 and 3 of this report and in more detail in section 4 on policies and measures in Sweden's fourth national communication, NC4. The Swedish climate strategy focuses on reducing greenhouse gas emissions.

## 5.3 National programmes to reduce vulnerability and to better adapt to future changes in the climate

It is important that society is able to adapt to a changed climate, as certain climate changes will be unavoidable. Moreover, society is already vulnerable under the prevailing climate conditions. In Sweden, there is as yet no national strategy for adaptation to climate change, but a government enquiry was appointed in the summer of 2005 with the task of presenting proposals on how society can become more robust in the face of changes in the climate in the future.

Implemented, ongoing and planned adaptation measures primarily include:

- A new strategy for the breeding of pine, spruce, birch and contorta pine. The strategy was devised by Skogforsk (the Forestry Research Institute of Sweden) in the early 1990s. In this strategy, which is still applied, account was taken of expected climate change in order to

[28] 280/2004/EC

ensure long-term dynamic preservation of genes, to create a state of readiness for future climate change and to improve the general characteristics of the trees in terms of vitality, growth and timber quality.
- Some municipalities have changed their physical planning and building regulations so that potential extreme water levels and water flows in the future are taken into account.
- A review of the ability of the hydropower dams to cope with high flows that takes climate change into account is underway and the safety margins are being increased in the course of conversion and upgrading work when this is technically possible and financially reasonable.

Sweden's aid to developing countries includes grants to reduce the vulnerability to climate changes of the most exposed countries, see below.

## 5.4 Co-operation on research

Sweden supports and co-operates with developing countries with regard to climate-related research issues by providing funds through the Swedish Agency for International Development Cooperation (Sida). Support is given to research councils, universities and research institutes in the countries concerned, as well as to regional research networks and international research programmes. Since 2004, special attention has been paid to sustainable development and the climate problem in developing countries, and climate change has been introduced as a specific invitation area for research funds.

In order to find ways and means of supporting the research of the developing countries in the climate field, an inventory of the existing international and Swedish scientific institutions and programmes was conducted in 2003. A number of priorities have been set as a result of this inventory. Sweden will, for example, provide support for participation in postgraduate courses and for the integration of climate research into bilateral programmes for research and postgraduate studies. Sweden will also support research groups from developing countries so that they can participate in international programmes, and support co-operation between researchers from developing countries and Swedish researchers.

In June 2005, a new programme offering Swedish research support for sustainable development in developing countries was adopted. This comprises funds of SEK 18 million for 2006 and 2007. The objective is to contribute to sustainable global development in line with the decisions made at the UN conference in Johannesburg in 2002.

Sweden also provides financial support to the "Asian Regional Research Programme in Energy, the Environment and the Climate" (ARRPEEC), a programme at the Asian Institute of Technology that aims to increase research in the field of energy, the environment and the climate at national research institutes in Asia. The research should be policy oriented and contribute to supporting those national and regional decision-making and innovation processes that work towards reductions in greenhouse gas emissions.

## 5.5 Technology transfer

The term technology transfer covers a great number of activities and players. Technology is transferred from Sweden by authorities, institutes, municipalities and companies. Several different initiatives have been taken to ensure that new and improved technology is widely distributed and to give different players the opportunity to exchange experience and knowledge about how new technology and techniques can be used in different contexts. The State provides financial support for technology transfer through the aid and development agency Sida, and in the period 2000-2003 this support totalled over SEK 3 billion.

Swedish authorities and institutions have a long tradition of international exchange and co-operation. Many municipalities co-operate actively and extensively with sister organisations in development countries in twin-town schemes, and the focus of this co-operation is often on environmental management. Common areas for co-operation are Agenda 21, environmental education in schools, processes for local participation and questions concerning waste, water and sanitation. The climate issue is included as an integrated part of the local environmental work.

One example of technological transfer that Sweden is funding in co-operation with UNEP is the project Greenhouse Gas Emission Reduction from Industry in Asia-Pacific (GERIAP), which aims to reduce emissions from industrial plants in China, India, Indonesia, Mongolia, the Philippines, Sri Lanka, Thailand and Vietnam. By strengthening the capacity of both industrial players and government bodies, the project will lead to improved environmental control and management. This will in turn make it possible to reduce greenhouse gas emissions from the generation and use of energy in these countries.

The Swedish Export Credits Guarantee Board (EKN) also aims to contribute to sustainable development. As part of this effort, the EKN introduced an environmental classification system in 2002 and demands environmental impact assessments for all export projects that may have a negative impact on the environment. Climate considerations are an important criterion in the Board's review of projects. EKN's guarantees amount to approximately SEK 50-100 billion and new guarantees of SEK 20 billion were provided in 2004. It can be said that a large part of the export business that the guarantees cover aims directly or indirectly to meet the objectives of the Climate Convention.

## 5.6 Capacity development

All Swedish development co-operation should contribute to the development of capacity in the recipient countries. A precondition for successful work on the climate is that the countries concerned can effectively promote their own development and thus deal with the possible effects of climate change. Capacity development is one of the most important methods, especially in climate-related development co-operation, and has

a high priority in the Swedish aid programme. Sweden supports, for example, the development of know-how and expertise on how to produce long-term projections and conduct long-term planning, especially in the most vulnerable countries.

Swedish aid in the area of public administration aims to strengthen national and local administration in the co-operating countries. This in turn will improve the preconditions for successful climate work at the national level, for example work to reduce greenhouse gas emissions, to promote investments in new technology and to adapt to climate change.

Each year, Sweden provides funding for around 70 international training programmes for participants from the developing countries and Eastern Europe. These include approximately 10 programmes aimed at the industrial and energy sectors, as well as programmes that focus on agriculture and forestry, risk management, environmental management, planning and land use.

One example of the support provided to increase the capacity to adapt to climate change is a project in Zimbabwe-Mozambique that aims to improve the management of the drainage basin of the River Pungue. Over the years, the river has periodically flooded and periodically been on the verge of running dry. Sweden is supporting a programme for capacity development that will run over several years and that, among other things, will support the institution for the cross-border management of the drainage area.

## 5.7 Support to developing countries for the implementation of the Climate Convention

Sweden's total aid budget has increased significantly in recent years and will correspond to 1% of GNI in 2006. The aim of Swedish aid to developing countries for the implementation of the Climate Convention is to contribute to measures that prevent or minimise greenhouse gas emissions, reduce the vulnerability of poor countries and poor people to climate change and strengthen their ability to adapt to a changed climate. For more details on this support, see section 7 in Sweden's fourth National Communication.

Approximately half of the climate-related support allocated so far has gone to measures to reduce the emissions or increase the removals of greenhouse gases, just over 30 % has gone to adaptation, mainly for capacity development, and 20 % has gone to other activities such as support for the development of environmental legislation.

Sweden's aid to the developing countries is not usually tied to specific programmes or purposes, but is provided as budget support to the recipient organisation. Aid to multilateral organisations includes support to developing countries to implement the Climate Convention. For example, Sweden contributed SEK 240 million to the Global Environment Facility (GEF) in the period 2000-2003. Sweden has also undertaken to contribute a further SEK 1 213 million up to 2012. In 2002, Sweden also con-

tributed SEK 3 million to the fund for the least developed countries (the LDC fund), and in 2004, Sweden decided to contribute SEK 10 million to the Special Climate Change Fund (SCCF) within the GEF.

The support to the GEF, and particularly the grant to the SCCF, incorporates Sweden's contribution to the commitment that the EU and other parties made in Bonn in 2001 to contribute a further USD 419 million to non-annex 1 countries for the implementation of the Climate Convention.

Sweden also supports the participation of developing countries in the meetings of the Climate Convention , for example by providing grants to the UNFCCC trust fund for participation and to the fund for supplementary activities.

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# Appendix 1

## How the EU's common policy instruments have been implemented in Sweden

### Cross-sectoral instruments

The European Union Emission Trading Scheme (EU ETS)
– Implemented in Swedish legislation in 2004

### Energy sector

Directive on the promotion of electricity production using renewable sources of energy (RES-E)
– The electricity certificate system that was introduced in Sweden in 2004 supports the introduction of electricity generated using renewables.

Energy tax directive
– Implemented by means of new tax regulations introduced on 1 July 2004. Previous energy taxes also met the requirements of the directive to a great extent.

Directive on the promotion of the co-generation of power and heat production (CHP)
– New tax regulations introduced in 2003 aim to promote highly-efficient co-generation.

Improvement of energy efficiency

Directive on the energy performance of buildings
– The Swedish government intends to submit a proposal on the implementation of the directive in 2005.

Framework directive on the energy labelling of household products
– Implemented in Swedish legislation by the regulations of the Swedish Consumer Agency.

### Transport sector

Directive on the promotion of biofuels in the transport sector
– Is being implemented by means of a Swedish strategy for transport bio-

fuels that comprises tax relief for transport biofuels and various incentives for green cars. Policy instruments designed to encourage the introduction of biofuels were partly in place before the directive was adopted.

The automotive industry's voluntary agreement on lower fuel consumption in new cars
– Implemented in Swedish legislation by means of an instruction from the Swedish Consumer Agency containing regulations on information about fuel consumption, carbon dioxide emissions, and environmental classification for new cars.

### Waste

Landfill directive
Implemented in the Environmental Code. The Swedish legislation banning the landfill disposal of combustible waste and organic waste is stricter than the EC directive.

# Departementsserien 2005

*Kronologisk förteckning*

1. Finansiella konglomerat. Fi.
2. Kungörande i PoIT. Redovisning av uppdrag om elektroniskt kungörande. Ju.
3. Svensk rätt i integrationspolitisk belysning. Ju.
4. Avräkning av utländsk skatt. Fi.
5. Angrepp mot informationssystem. Ju.
6. Brott och brottsutredning i IT-miljö. Europarådets konvention om IT-relaterad brottslighet med tilläggsprotokoll. Ju.
7. Iakttagelser om landsting. Fi.
8. Inriktning på filmpolitiken från 2006. U.
9. En moderniserad rättsprövning, m.m. Ju.
10. Arbetstagarinflytande i europakooperativ. N.
11. Den europeiska exekutionstiteln för obestridda fordningar. Ju.
12. Makten och mångfalden. Eliter och etnicitet i Sverige. Ju.
13. Försäkringsbolags tillgång till patientjournaler. Ju.
14. Olovlig befattning med narkotikaprekursorer. EU:s rambeslut om olaglig narkotikahandel. Ju.
15. Förstärkning och förenkling – ändringar i anställningsskyddslagen och föräldraledighetslagen. N.
16. Att fånga kunnandet om lärande och undervisning. Om villkoren för skolledare och lärare att ta del av systematiskt framtagen kunskap om utbildningsverksamhet. U.
17. Vakant
18. Säkerhet i vägtunnlar. N.
19. De projektbaserade mekanismerna enligt Kyotoprotokollet och länkdirektivet. M.
20. Svenskt värdskap för ESS. U.
21. Tvångsmedel för att förebygga eller förhindra allvarlig brottslighet. Ju.
22. Småskalig livsmedelsförädling. Jo.
23. Ett förnyat strandskydd. M.
24. Tidsbegränsat uppehållstillstånd för offer för människohandel m.fl. UD.
25. Förhandsavgörande från EG-domstolen. Ju.
26. Utökat informationsutbyte mellan arbetslöshetskassorna och inom Arbetsmarknadsverkets verksamhet. N.
27. Arbetsgivares informationsskyldighet – ändringar i anställningsskyddslagen. N.
28. Skattefusk, effektivitet och rättvisa – utökad skattekontroll i vissa branscher och diskussioner rörande schabloniserade inslag i beskattningen. Fi.
29. Förslag om ett utvecklat elcertifikatsystem. M.
30. En anpassad försvarsunderrättelseverksamhet. Fö.
31. Anpassningar till nya EG-bestämmelser om livsmedel, djurhälsa, foder, djurskydd och växtskydd m.m. + Bilagor. Jo.
32. Minknäringen i Sverige. Jo.
33. Vuxenutbildningslag. Förslag utarbetat inom Utbildnings- och kulturdepartementet. U.
34. Några bodelningsfrågor. Ju.
35. Rätten att sätta och utfärda betyg. U.
36. Genomförande av EG-direktivet om uppehållstillstånd för studier. UD.
37. Bulgariens och Rumäniens anslutning till Europeiska unionen. + Bilagor. UD.
38. Tillträde till Förenta nationernas konvention mot korruption. Ju.
39. Bostadsfinansiering. M.
40. Genomförande av EG-direktivet om mänskliga vävnader och celler. S.
41. Högsta och lägsta belopp för penningböter. Ju.
42. Kontraheringsplikt vid företagsförsäkring m.m. – en diskussionspromemoria. Ju.
43. Genomförande av direktivet och rambeslutet om åtgärder mot förorening från fartyg. N.
44. Sweden's second national report under the Joint Convention on the safety of spent fuel management and on the safety of radioactive waste management. Swedish implementation of the obligations of the Joint Convention. M.
45. Europakooperativ. Ju.
46. Lag om förbud mot vissa kampsportsmatcher. Ju.
47. Kompletterande bestämmelser till EG-förordningen om konsumentskyddssamarbete m.m. Jo.
48. Överlämnande av passageraruppgifter. UD.
49. Hamnskydd. N.
50. Personuppgiftsbehandling hos Försvarsmakten och Försvarets radioanstalt. Fö.
51. Energieffektivisering och energismart byggande. M.
52. Löneskrifter för enmansföretag. Fi.
53. Hemliga tvångsmedel m.m. under en stärkt parlamentarisk kontroll. Ju.
54. Upphovsrätt och handlingsoffentlighet. Redovisning av uppdrag rörande 8 kap. 27 § sekretesslagen. Ju.
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56. Andra järnvägspaketet m.m. N.
57. The Swedish Report on Demonstrable Progress. Under the Kyoto Protocol. M.

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