



Efforts abroad to mitigate climate change

– the Central Government's acquisitions of CDM and JI credits

The Swedish National Audit Office is one of the bodies charged with exercising the powers of scrutiny vested in the Swedish Parliament. Our task is to audit state administration so as to contribute to an efficient economic use of resources, and to an effective administration.

The Swedish National Audit Office conducts both financial and performance audits. Since January 1 2011 performance audits, such as this report, are reported directly to parliament.



RIKSREVISIONEN
The Swedish National Audit Office

RiR 2011:8

Efforts abroad to mitigate climate change

– the Central Government's acquisitions
of CDM and JI credits

ISBN 978 91 7086 245 8
RiR 2011:8
Printed: Riksdagstryckeriet, Stockholm 2011

To the Riksdag

Date: 4 February 2011

Ref. No: 31-2010-0079

RiR: 2011:8

We hereby deliver, in accordance with Section 9 of the Act (2002:1022) on auditing of state activities, etc., the following performance audit:

Efforts abroad to mitigate climate change – the Central Government's acquisitions of CDM and JI credits

Riksrevisionen (the Swedish National Audit Office, SNAO) has audited the central-government sector's acquisitions of CDM and JI credits from other countries. The result of the audit is accounted for in this audit report.

Representatives of the Ministry of the Environment and the Energy Agency have had the opportunity to scrutinise the facts and otherwise provide views on the draft of the final report.

The report contains conclusions and recommendations relating to the Ministry of the Environment and the Energy Agency.

Auditor-General *Claes Norgren* had decision-making authority in respect of this report. Senior Auditor *Madeleine Nyman* was responsible for the presentation of the report. Audit Director *Lena Björck*, Audit Director *Lena Ellwerth-Stein* and Senior Auditor *Camilla Gjerde* assisted in producing the final version of the report.

Claes Norgren

Madeleine Nyman

For information:

The Government

The Ministry of the Environment

The Energy Agency

Table of contents

Summary	9
1 Background and approach to the audit	15
1.1 International regulatory framework	16
1.2 The Swedish Energy Agency handles the central-government sector's purchases of emission credits	17
1.3 Reasons for the audit	18
1.4 Purpose of the audit and audit questions	20
1.5 Assessment criteria	20
1.6 Delimitations	21
1.7 Method	23
1.8 Instructions for readers	24
2 Goals and purposes of central-government sector's purchases of emission credits	25
2.1 Sweden's climate objective	25
2.2 Purposes and objectives of Sweden's climate contributions in other countries	26
3 Will the Riksdag's milestone target for 2020 be achieved?	31
3.1 Prerequisites for achieving the objective	31
3.2 Appropriations and transfer of funds	41
3.3 Many uncertainties	45
3.4 Important findings	54
4 Are the costs of the central-government sector's purchases of emission credits reasonable?	57
4.1 Costs of purchasing emission credits	57
4.2 Associated costs	59
4.3 Alternative measures	61
4.4 Important findings	63
5 Are the central-government sector's purchases of emission credits carried out efficiently, effectively and transparently?	65
5.1 Assessment criteria	66
5.2 Identifying goals and tasks	67
5.3 Guidelines and procedures	68
5.4 Risk analyses and risk handling	72
5.5 Follow-up	76
5.6 Accounting and reporting	81
5.7 Important findings	86

continued on next page

6 The Swedish National Audit Office's conclusions and recommendations	87
6.1 The Government has not clarified the prerequisites for fulfilling the milestone target	87
6.2 The costs may be reasonable, but efficiency measures are possible	91
6.3 The central-government sector's purchases of emission credits are not carried out in a sufficiently efficient, effective and transparent manner	92
6.4 Recommendations	95
Bibliography	97
Glossary	107
Appendix 1 Climate policy globally and within the EU	111
Appendix 2 The CDM process	119
Appendix 3 Alternative interpretations of and arithmetical examples for the milestone target	123
Appendix 4 Tables of expected deliveries	129
Appendix 5 Estimation of costs	131

Summary

The Swedish National Audit Office (SNAO) has audited the central-government sector's acquisitions of emission credits from other countries. Sweden's national milestone target for 2020 will be met partly with the help of such emission credits. The SNAO's general conclusion is that the Government has not determined *how many* emission credits are to be bought and *when*. The central-government sector's purchases of emission credits have not been done efficiently, effectively and transparently enough, but the costs could be lower than for other measures.

Background of the audit

Motive: Climate change and its threat on society is global. The central-government sector's purchases of emission credits are an important part of Swedish climate policy. The purchases of emission credits are important for whether Sweden will be able to reach the national milestone target on emission reductions with 40 per cent in the non-trading sector by the year 2020 compared to 1990. A third of the emission reductions shall be achieved with the purchases of emission credits from other countries. Furthermore, the Riksdag (the Swedish parliament) has, since the budget year 2009, strongly increased appropriations that may be used for the purchases of emission credits. The operation is complicated and associated with risks and uncertainty.

Purpose: The purpose of the audit is to illustrate to what extent the central-government sector's acquisition of emission credits from other countries contributes to reaching the Riksdag's milestone target for 2020. Another purpose is to revise to what extent the central-government sector's purchases of emission credits have been done efficiently, transparently and at reasonable costs.

What we have audited: The audit concerns the central-government sector's purchases of emission credits starting 2002 to June, 2010. The emission credits come from so-called CDM and JI-projects aiming to decrease greenhouse gas emissions. This can be done by; for example, building a wind power plant instead of a coal power plant. The central-government sector can take credit for emission reductions in Sweden for the funds invested in the projects. The Swedish Energy Agency has the main responsibility to purchase emission credits on behalf of the Government, both directly from projects in

other countries and indirectly through investments in climate funds. Up until June of 2010, the Swedish Energy Agency had signed agreements for the purchases of emission credits from 33 CDM- and JI-projects and from 5 climate funds amounting to a total value of about SEK 740 million.

Result of the audit

The audit has resulted in the following conclusions and findings:

The Government has not made the conditions to reach the milestone target by 2020 clear

Uncertain how many emission credits are to be purchased. According to the Government Bills on An integrated climate and energy policy, the emission reductions achieved in other countries will amount to 6.7 million tonnes by 2020. This equals a third of the total emission reduction of 20 million tonnes that is to be reached by 2020. However, the Government has not decided on the amount of emission reductions that will be attained up until 2020 through the purchases of emission credits from other countries. In addition, the Government has not decided on a year from which to start taking credit from delivered emission credits or on how large a part of the annual emission reductions achieved may come from climate efforts in other countries. This results in uncertainty as to how many emission credits are needed in total to reach the milestone target by 2020. The need of emission credits can be, depending on the interpretation of the milestone target, at least 6.7 million and at most 100 million tonnes. Therefore, it is not clear which emission reductions; that is, climate effects, the milestone target contributes to.

The appropriations can be too high, too low or reasonable. Since the Government has not clarified the amount of emission reductions that may be attained with the help of emission credits from other countries for the time-period up until 2020, one is unable to determine whether the appropriations are too high, too low, or reasonable. The central-government sector can in total need at least about SEK 670 million and at the most, SEK 10 million for the purchases of emission credits, depending on how the target is interpreted. The Riksdag, therefore, does not have a clear and appropriate base for making decisions on appropriations for the central-government sector's purchases of emission credits.

The costs can be reasonable

The SNAO has estimated the costs for the central-government sector's purchases of emission credits. The costs for this instrument can be considered to be reasonable compared to other known climate efforts: the costs for the purchases of emission credits are lower than if the Government had bought credits on the secondary market.

At least in a short-term perspective, it can also be cheaper to purchase emission credits than to carry out emission reductions in Sweden. But there is potential for the Energy Agency to work more efficiently than today and, thus, contribute to an increased target achievement.

The central-government sector's purchases of emission credits are not done efficiently, effectively and transparently enough

The milestone target for 2020 is not taken enough into account. Since the Government has not decided on how large the emission reductions the milestone target entails, that worsens the conditions to plan and carry out the purchases of emission credits effectively. The milestone target for 2020 is not included in any of the Swedish Energy Agency's internal management documents regarding the CDM- and JI-projects.

The Agency reported in February of 2011 that the milestone target for 2020 is one of several targets for the CDM- and JI-projects. Yet earlier on in the audit, the Swedish Energy Agency stated that the milestone target is not to be considered a target for the operations.

Risks and insecurities are not taken enough into account. The Swedish Energy Agency does not have any documented risk analyses for decisions regarding the purchases of emission credits for the period 2002–2009, for 13 of 15 projects. Therefore, it is not possible for the SNAO to determine whether the Swedish Energy Agency has had sufficient control over the risks that the CDM- and JI-operations have entailed. Starting 2010, the Swedish Energy Agency has improved the documentation of the risk analyses; however, there are still deficiencies. The risk analyses are most often completed after the purchase agreement has been signed. More appropriate risk assessments could lead to taking measures that could limit risks and contribute to a safer delivery of emission credits.

The monitoring of the purchases is insufficient. The monitoring of the operations is deficient. The Swedish Energy Agency has not secured the delivery of emission credits at the pace that had been agreed upon, which can lead to the effects of the climate efforts being less than expected. The Swedish Energy Agency has considered it to be unimportant if the emission credits from the project are late, since the Agency most often pays first at delivery.

Reporting is lacking and does not give a cohesive picture of the target achievement. The Government does not provide a clear account of whether the central-government sector's purchases of emission credits through CDM and JI have reached the targets and purposes of the operation so far. The Government's reporting to the Riksdag is mainly built on the Swedish Energy Agency's annual reports. The Swedish Energy Agency does not portray in its annual reports a cohesive picture of either the CDM- and JI-operations or the target achievement. The Swedish Energy Agency interprets the principle of public access to official records restrictively. According to the Swedish

Energy Agency, business secrecy prevails regarding information on prices of individual projects and agreements, risk assessments and annual reports from funds. This impedes the Government, the Riksdag and the general public from assessing to what degree the central-government sector's purchases of emission credits are carried out efficiently, effectively and in accordance with the targets for the operation. The shortcomings in the reporting also mean that the Riksdag does not have clear and appropriate information to make decisions on appropriations for the operations.

Recommendations

To the Government:

- The Government should decide on the starting year for the milestone target for 2020, the pace at which the emissions will decrease, and how many emission credits will be taken credit for at the most during the time-period in order to reach the target by 2020. The Government should develop a comprehensive plan for how many emission credits can be needed to reach the milestone target for 2020. The plan can serve as a foundation for the management of the operation and the awarding of appropriations.
- The Government should clearly account for how far the central-government sector has come regarding target achievement on a yearly basis; that is, how many emission credits have been acquired and how much they have cost.
- The Government should make sure that the Swedish Energy Agency contributes to increased transparency by, to a larger extent, documenting and openly providing accounts for its work.
- The Government should make sure that the Swedish Energy Agency's purchases of emission credits contribute to reaching the milestone target for 2020 effectively. The Government should, for this purpose, make sure that the Agency reports on the aggregated purchases of emission credits in relation to the target.
- The Government should suggest that the appropriations for the purchases of emission credits are adjusted to when the purchases actually take place and the money is to be paid out. Up until the turn of the year 2009/10, a large amount of the appropriations have been paid out long before they had been used. Consequently, central-government sector funds have been tied-up for a long time. At the turn of the year 2009/10, about SEK 400 million were tied-up in this way at NEFCO. The Government should broaden the scope of authorization so that the Swedish Energy Agency can use it instead of yearly appropriations for when the agency signs purchase- or fund agreements.

To the Swedish Energy Agency:

- The Swedish Energy Agency should make sure that the purchases of emission credits contribute to reaching the milestone target for 2020. The Swedish Energy Agency should establish gradual supply targets for the operations that could continuously be adjusted and updated.
- The Swedish Energy Agency should provide clear annual accounts concerning the degree of achievement of the milestone target for 2020 and how much it has cost.
- The Swedish Energy Agency should contribute to increased transparency by documenting and providing accounts for its work openly. Improved documentation means increased possibilities to evaluate the operation and it decreases the risk for dependency on specific people.
- The Swedish Energy Agency should carry out and document appropriate risk analyses before the purchases of emission credits. The analyses should be taken into account when selecting projects.
- The Swedish Energy Agency should regularly request information from the Ministry for Foreign Affairs and Sida (the Swedish International Development Cooperation Agency) on risks for corruption and country-specific risks when selecting projects.

1 Background and approach to the audit

Since 2009, Sweden has had a national climate objective that entails that emissions of greenhouse gases shall be 40 per cent lower by 2020 compared to 1990 for the activities that are not covered by the EU trading system.¹ According to the Government Bill, one third of these reductions in emissions take place abroad. By 2020, the reductions that may be carried out abroad shall correspond to approximately 6.7 million emission credits.²

The Swedish National Audit Office (SNAO) has audited the central-government sector's acquisitions of emission credits. The purchases of emission credits are a part of the central-government sector's climate measures in other countries.³ These purchases relate to projects aimed at reducing emissions of greenhouse gases in a cost-effective manner. The projects are approved by the UN and generate certified emission credits. Governments and companies can buy emission credits in order to contribute to their own emission goals. The climate contributions can be made either in developing countries and transitional economies through CDM projects or in countries in Eastern Europe and the former Soviet Union through JI projects. Governments and companies can purchase emission credits through entering into bilateral purchase agreements with project owners, or by investing in funds that in turn enter into purchase contracts with project owners.⁴

The Swedish climate contributions in other countries started already in the middle of the 1990s, as a part of Sweden's climate strategy within the energy area.⁵ In 2002, the central-government sector initiated a programme for the

¹ Govt. Bill 2009/10:155, Committee Rep. 2009/10:MJU25, Riksdag Comm. 2009/10:377. Emissions from the non-trading sector come mainly from domestic transport, farming and waste, etc.

² Govt. Bill 2008/09:162, Committee Rep. 2008/09:MJU28, Riksdag Comm. 2000/09:300. The reduction in emissions may be carried out abroad with the aid of "flexible mechanisms" such as CDM and JI or through investment in other EU countries. Investments in other EU countries are not planned.

³ The appropriation for this activity is called International Climate contributions. In this report, we have elected to use the name climate contributions in other countries.

⁴ The largest funds are owned by the World Bank and regional development banks, such as the Asian Development Bank (ADB).

⁵ Govt. Bill 1992/93:179 p.197, Committee Rep. 1992/93:JoU19, Riksdag Comm. 1992/93:118.

purchases of emission credits and signed the first purchase agreements in 2003. Up until 2009, the operation has had the overall purpose of developing the mechanisms CDM and JI. There are also internationally agreed requirements on the operation, such as to contribute to sustainable development in the developing countries.

1.1 International regulatory framework

The starting pistol for the international work on climate contributions was the UN's climate convention UNFCCC (United National Framework Convention on Climate Change), also called the Climate Convention, which came into force in 1994.⁶ In Appendix 1 we describe the international regulatory frameworks that exist in the area. Within the framework for the Climate Convention, a decision was made in December 1997 to set up an international agreement, the Kyoto Protocol. The climate agreement entails binding commitments from around 40 industrialised countries to reduce their emissions of greenhouse gases by 2012.⁷ The Kyoto Protocol came into force in February 2005. The emission commitments can be achieved either by reducing emissions within the own country or, as a complement, through flexible mechanisms.⁸ There are three flexible mechanisms. Two of them are called project-based mechanisms: CDM (Clean Development Mechanism), and JI (Joint Implementation). The third flexible mechanism is Emission Trading, which we are not auditing in this report.

Rules and clarifications of how the flexible mechanisms can be used were set in 2001 in the Marrakech Agreement.⁹ In Marrakech, it was also decided that a board under the aegis of the UN should be instituted, the CDM Executive Board. Its task is to monitor that the rules of CDM are complied with.¹⁰ The Board now works mainly with approving the registration of CDM projects and with verifying and issuing emission credits.¹¹ The Board also works with developing methods for calculation of reduction in emissions from new types of CDM projects. There is a corresponding UN body for JI projects.

In Appendix 2 the implementation process for CDM projects are described.

⁶ The Swedish Environmental Protection Agency's website 15 September 2010.

⁷ 37 industrialised countries and the European Union according to information on the UNFCCC's website 15 September 2010.

⁸ The Kyoto Protocol also offers the opportunity to countries with commitments to limit emissions through being credited with carbon dioxide captured in so-called sinks, where carbon is captured in plants through photosynthesis.

⁹ Report of the Conference of the Parties on its seventh session, held at Marrakesh from 29 October to 10 November 2001.

¹⁰ Website of the CDM Executive Board 15 December 2010.

¹¹ Website of the CDM Executive Board 16 September 2010.

1.1.1 *What are CDM and JI?*

CDM shall lead to reductions in emissions through investments in individual projects in countries that do not have commitments about quantified reductions in emissions in accordance with the Kyoto Protocol, that is to say developing countries and transitional economies, such as China and South Korea. Reductions in emissions from CDM projects generate so-called Certified Emission Reduction units (CER).

JI shall lead to reductions in emissions through investments in individual projects in countries that have commitments about quantified reductions in emissions in accordance with the Kyoto Protocol, such as Eastern Europe and the former Soviet Union. Reductions in emissions from JI projects generate so-called Emission Reduction Units (ERU).

A CDM or JI project shall reduce emissions of greenhouse gases through building wind generators instead of a coal-fired power station, for example. In this report, we use the common expression “emission credits” for the reductions in emissions generated by the CDM and JI projects.

1.2 *The Swedish Energy Agency handles the central-government sector’s purchases of emission credits*

The Swedish Energy Agency has the main responsibility for central-government sector’s purchases of emission credits. Up until 2009, the Government Offices also had some responsibility for purchasing emission credits through two climate funds. As from 2009, the Energy Agency has had the responsibility for the entire central-government sector’s purchases of emission credits.

Since 2002, the Energy Agency has received appropriations for the purchases of emission credits on behalf of Sweden. This is done bilaterally through CDM and JI projects, and multilaterally through funds. In the bilateral projects, the Agency signs agreements to purchase emission credits direct with the project owner. When it comes to funds, the Agency signs agreements with fund managers, such as the World Bank or the Asian Development Bank. It is then the fund that signs agreements with project owners of CDM and JI projects. As the Agency is part of the boards of the funds, Sweden has some opportunity to influence the projects with which the funds sign agreements.

In most cases, the Energy Agency pays for the emission credits from the projects only on delivery, which payments to the funds are usually made in advance.

Since 2005, the Ministry of the Environment has been responsible for issues relating to climate contributions in other countries. Previously, the Ministry of Enterprise, Energy and Communications was responsible for these issues. The Energy Agency as a whole is still subsidiary to the Ministry of Enterprise, Energy and Communications.

The Energy Agency's project portfolio

As from 2002 until June 2010, the Energy Agency has signed agreements to purchase emission credits from 31 CDM projects and 2 JI projects. Of these projects, 14 are part of a package of projects in China, which were co-purchased with Tricorona. The Agency's share of the projects with Tricorona is five per cent. In addition, the Agency has signed agreements to purchase through five different multilateral funds. In total, the projects and the funds have delivered approximately 750 000 emission credits up to and including June 2010. By 2020, the 33 projects are expected to deliver approximately 5 million emission credits and the 5 funds approximately 5 million emission credits. Since June 2010, the Agency has joined a new fund (Umbrella Carbon Facility Tranche 2) and signed agreements with 7 new CDM projects.

The value of the agreed purchases up to and including June 2010 amounts to approximately SEK 740 million.

Projects in China or India constitute about half of the CDM projects in the Agency's portfolio up to and including 30 June 2010. Approximately 7 per cent of the CDM projects are in the least developed countries or in Small Island Developing States. In conjunction with the fact-clearance process, the Agency notified that it estimates the volume of emission credits from projects in China and India to amount to approximately 20 per cent.

1.3 Reasons for the audit

The central-government sector's purchases of emission credits are of importance for whether Sweden will be able to reach the national milestone target for reduction of emissions by 2020. Since the budget year 2009, the Riksdag has granted heavily increased appropriations for international climate contributions.¹² Purchase of emission credits is a complicated operation, associated with risks and uncertainties. Over time, the operation has had various purposes and approaches, which in itself may entail risk in terms of effectiveness and goal fulfilment.

¹² Govt. Bill 2008/09:09:1, Committee Rep. 2008/09:MJU28, Riksdag Comm. 2008/09:09:300, Govt Bill 2009/10:155, Committee Rep. 2009/10:MJU25, Riksdag Comm. 2009/10:377.

1.3.1 Emission credits to fulfil the climate objective by 2020

The Riksdag's decision about a milestone target for 2020 under the environmental objective *Reduced Climate Impact* means that Sweden can use emission credits from projects that contribute to reducing emissions in other countries in order to fulfil the target. As from 2009, when the decision about a milestone target was made, it is now even more important than before to follow up how many emission credits Sweden is expected to receive by 2020. In order to fulfil the target, Sweden will need approximately 6.7 emission credits by 2020.¹³

The purchase agreements for CDM and JI projects stretch over a long period, seven or ten years.¹⁴ Delivery of emission credits can only start once a CDM project has been registered by the UN's special CDM Executive Board.¹⁵ The delivery is then made in stages during the entire life of the project. In total, it takes a long time from when a purchase agreement is signed until all emission credits under the agreement have been delivered.

1.3.2 Increased appropriations for climate contribution

The appropriation for the operation with climate contributions in other countries increased heavily in 2009, from approximately SEK 50 million to SEK 280 million per year. During the period 2002–2010, appropriations for CDM and JI operations have amounted to approximately SEK 940 million in total. If we add the proposed appropriations for 2011–2014 to this, the appropriations amount to approximately SEK 1.6 billion in total for the period 2002–2014. In the budget bill for 2011, the Government proposes to "return to the issue of further and continued financing of the current and important work with international climate contributions."¹⁶

1.3.3 CDM is criticised and complicated

CDM is complicated and criticised by many scientists. Among other issues, they question whether the projects contribute to reduced emissions in addition to the reductions that would have happened anyway. The problem with the "additionality" is that it is calculated on the basis of hypothetical reductions in

¹³ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:300, Govt. Bill 2009/10:155, Committee Rept. 2009/10:MJU25, Riksdag Comm. 2009/10:377.

¹⁴ The delivery times for JI projects are also long, but there are currently no projects that run after the end of the Kyoto period in 2012. For certain projects in China, the Energy Agency is purchasing emission credits up until 2012, i.e. in practice a period shorter than seven years.

¹⁵ JI projects may start delivering emission credits sooner.

¹⁶ Govt. Bill 2010/2011:1 Expenditure Area 20 p.65.

emissions, which means that it is difficult to know whether a project in practice leads to a further reduction in emissions.

The complicated and long drawn-out UN process means that administration costs are high. Long delivery times and changes to the market make the operation uncertain. Commercial risks, such as problems with financing of projects and the lack of technical expertise contribute to the uncertainty.

1.4 Purpose of the audit and audit questions

The purpose of the audit is to illuminate to what extent central-government sector's purchases of emission credits from other countries contribute to the fulfilment of Sweden's national milestone target for 2020. A further purpose is to audit whether the control instrument has been used efficiently and at reasonable cost. We have based the audit on the following questions:

- Does the Government provide direction and the Energy Agency's purchases of emission credits the prerequisites for contributing to the fulfilment of the Riksdag's climate objective to the extent expected?
- Are the costs of the central-government sector's purchases of emission credits reasonable?
- Are the central-government sector's purchases of emission credits carried out in an efficient, effective and transparent manner?

1.5 Assessment criteria

The assessment criteria for the audit consist of

- the Riksdag's decision about the climate objective with its milestone target for 2020
- the Central Government Budget Act (1996:1059)
- the general requirement for transparency through the principle of free access to public documents
- the requirements on the Government and public authorities stated in the Government Agencies Ordinance (2007:515) and the Appropriations Ordinance (1996:1189)
- the requirements on the Energy Agency stated in the appropriation directions and instruction.

1.5.1 *The Riksdag's decision about the climate objective*

In spring 2009, the Riksdag decided on objectives for Swedish climate policy up to 2020. The milestone target is for Sweden's emissions by 2020 to be 40 per cent lower than emissions in 1990. This means that emissions of greenhouse gases by 2020 shall be approximately 20 million tonnes of carbon dioxide equivalents¹⁷ lower compared to the level in 1990. The target covers the activities that are not covered by the EU's system for trade in emission rights. According to the Climate Bill, "two thirds of the reductions are made in Sweden and one third in the form of investments in other EU countries or flexible mechanisms such as CDM".¹⁸ In spring 2010, the Riksdag decided that the interim target by 2020 shall be deleted and replaced by a milestone target with the same wording.¹⁹

1.5.2 *Assessment criteria*

In its assessment of whether the central-government sector's purchases of emission credits are carried out efficiently, effectively and transparently, the SNAO has started from the requirements that may be placed on an efficient and transparent operation. Chapter 5 described these requirements in greater detail. The Government Agencies Ordinance (2007:515), the Ordinance on Internal Management and Control (2007:603) and the Central Government Budget Act (1996:1059) form the basis for the requirements.

1.6 *Delimitations*

The SNAO has audited the central-government sector's operation for purchasing emission credits from CDM and JI projects, bilaterally or multilaterally through funds, as from 2002 up to and including June 2010.

The period before 2002 has constituted a background, but has not been further touched upon or audited by the SNAO. The work with climate contributions in other countries started in 1993 by the then existing Swedish National Board for Industrial and Technical Development, and was taken over in 1998 by the Energy Agency. During the period up to 2002, a pilot operation was carried on, which entailed investments in the form of soft loans and did not generate emission credits.

¹⁷ Carbon dioxide equivalents are a common unit of measure for emissions of greenhouse gases.

¹⁸ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:300.

¹⁹ Govt. Bill 2009/10:155, Committee Rept. 2009/10:MJU25, Riksdag Comm. 2009/10:377.

The SNAO has not audited whether the Energy Agency complied with all the purposes and objectives for the appropriation for climate contributions in other countries that exists and has existed for a long time. For example, the SNAO has not audited whether the purchases of emission credits have led to sustainable development for the countries in which the central-government sector has invested, or whether the projects have led to transfer of knowledge and technology. Nor has the SNAO audited to what extent the selection of projects has fulfilled the purposes and objectives that applied for the operation. On the other hand, the SNAO has considered that the operation has and has had such purposes and objectives.

1.6.1 *Terms and concepts*

In this report, we use the common designation *emission credits* for certified emission reductions generated by CDM projects, CER (Certified Emission Reductions), and emission credits from JI projects, ERU (Emission Reduction Units). One emission credit corresponds to a one tonne reduction in emissions during one year.

We have also chosen to use the expression *climate contributions* instead of *climate investments*. Buying emission credits is no direct investment. It is a complement to an investment in a project and entails agreeing to buy reductions in emissions the project is expected to generate.²⁰

The environmental objective *Reduced Climate Impact* has an interim target and a milestone target. The interim target applies for the period 2008–2012. It entails that Swedish emissions of greenhouse gases on average during the period 2008–2012 shall be at least 4 per cent lower than emissions in 1990. The interim target shall be achieved without compensation for reductions in emissions in other countries.²¹

The milestone target applies up to 2020. Emissions of greenhouse gases from the non-trading sector shall thus be 40 per cent lower than emissions in 1990. The reduction can be carried out through reductions in emissions in Sweden and in the form of investments in other EU countries, or through flexible mechanisms, such as CDM.

In this report, we use the concepts *interim target 2008–2012* and *milestone target for 2020*.

²⁰ Govt. Bill 1992(93:99, Committee Rept. 1992/93:JoU11, Riksdag Comm. 1992/93:46.

²¹ The interim target may not be achieved by including so-called coal sinks either.

1.7 Method

The audit has been carried out using several methods. Both qualitative data, in the form of documents and interviews, and quantitative data about emission credits and costs have been used to analyse the central-government sector's purchases of emission credits.

The purpose of gathering qualitative data has been to identify and describe circumstances and problems with the central-government sector's purchases of emission credits. These have primarily concerned documents, such as purchase agreements, internal memos and other background material. Apart from the document studies, we have also carried out a number of interviews with representatives of the Swedish Energy Agency, the Ministry of the Environment, the Swedish Environmental Protection Agency and Tricorona, among others. Tricorona is one of the largest commercial operators on the CDM market. The interviews have contributed to giving us a more detailed picture of the international climate contributions and the direction of the operation.

Among other things, we have compared the Energy Agency's handling of CDM projects with how Tricorona works, as they carry out the same type of operation. However, one difference is that Tricorona, which is a commercial operator, is financial dependent on delivery of emission credits in the short term.

The purpose of gather quantitative data has been to evaluate central-government sector's prerequisites for fulfilling the part of the milestone target for 2020 that may be achieved by project-based mechanisms, such as CDM and JI. Another purpose has been to evaluate whether the costs of the operation are reasonable. In our work with calculating deliveries of emission credits, we have started from the delivery plans according to the Energy Agency's agreements with projects and funds.

We have summarily estimated the Energy Agency's costs for purchases of emission credits. We have also estimated the costs for activities closely linked to the CDM and JI operation, such as support for the UN's special CDM Executive Board. These costs have not been adjusted for inflation, and are limited to costs attributable to the Energy Agency's climate unit, primarily staffing costs. In order to estimate the costs of the climate unit, we have used the Energy Agency's accounting system and time reporting system. Our estimation of the costs has been made more difficult by the Energy Agency's time reporting having been limited during the period 2002–2005. However, we have received help from the Agency to assess approximately how many persons worked with the central-government sector's purchases of emission credits during this period.

The audit has been carried out by a project group consisting of Madeleine Nyman (Project Manager), Lena Ellwerth-Stein and Camilla Gjerde. Annelie Jansson Westin also participated in parts of the audit.

1.8 Instructions for readers

Those who wish to gain an overall picture of Sweden's climate objectives and wish to know how the purchases of emission credits can contribute to achieving the milestone target for 2020 should first read the introduction in Chapter 1. In Chapter 2, the description of central-government sector's goals and purposes of purchasing emission credits is described in more detail.

Those who already know the background and central-government sector's goals and purposes can go straight to Chapter 3. Here we account for the prerequisites for achieving that part of the milestone target for 2020 that may be achieved with the help of emission credits.

Those who are more interested in the costs of the central-government sector's purchases of emission credits should read Chapter 4, where we illuminate whether the costs are reasonable compared with other measures.

In Chapter 5, we audit whether the central-government sector's purchases of emission credits are carried out in an efficient, effective and transparent manner.

The conclusions from the report and our recommendations to the Government and the Energy Agency are presented in Chapter 6.

2 Goals and purposes of central-government sector's purchases of emission credits

In this chapter, we describe the Swedish environmental objective *Reduced Climate Impact* and its milestone target. A number of purposes and aims also apply to the purchases of emission credits, which we describe and comment on.

2.1 Sweden's climate objective

In 2009, the Riksdag decided on a milestone target for 2020 for the Swedish environmental objective *Reduced Climate Impact*.²² The milestone target "shall provide a strong acquisition to a global and overriding climate agreement".²³ The milestone target entails that emissions by 2020 from the non-trading sector shall be 40 per cent lower than emissions in 1990. The target means that emissions of greenhouse gases in 2020 shall be approximately 20 million tonnes lower in relation to the level in 1990.²⁴ Of this reduction, one third is made through investments in other EU countries or through flexible mechanisms.²⁵ The project-based flexible mechanisms are CDM and JI, which will generate emission credits.

²² *Reduced Climate Impact* is one of the 16 environmental objectives decided by the Riksdag. Among other features, Reduced Climate Impact has a temperature goal, which entails that the global increase in average temperature is limited to at most 2 degrees Celsius compared with the pre-industrial level. Sweden shall work internationally to concentrate global work towards this goal. The possibility of achieving the environmental objective is crucially dependent on international cooperation and contributions in all countries. Govt. Bill 1997/98:145, Committee Rept. 1998/99:MJU6, Riksdag Comm. 1998/99:183; Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:30. The latest wording of the content can be found in Govt. Bill 2009/10:155, Committee Rept. 2009/10:MJU25, Riksdag Comm. 2009/10:377.

²³ Govt. Bill 2008/09:162 p. 31.

²⁴ The milestone target is calculated on the basis of the distribution between the trading and non-trading sectors that applied during the period 2008-2012. If consideration is taken that further operation will be transferred to the trading sector from 2013, emissions for the non-trading sector reduce. This means that the third that may be achieved through emission credits also reduces slightly. Naturvårdsverket [Swedish Environmental Protection Agency] 2010. Report 6384.

²⁵ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:300.

The milestone target for 2020 only states how large the reduction in emissions shall be by 2020. The Government is assuming that reductions in emissions from other countries amounts to one third of approximately 20 million tonnes of emissions, which gives a requirement for approximately 6.7 million emission credits by 2020.²⁶ If the domestic emissions reduce more rapidly than expected, the requirement for emission credits will be smaller.

The background for the Swedish milestone target for 2020 is the EU's energy and climate package, which entails that the EU by 2020 shall reduce emissions of greenhouse gases by at least 20 per cent compared to 1990. For Sweden, the EU's goal means that Swedish emissions for the non-trading sector shall reduce by 17 per cent by 2020 compared to 2005. The Swedish Environmental Protection Agency assesses that, according to the latest national forecast, Sweden will fulfil its commitment of a 17 per cent reduction in emissions nationally, without using emission credits from other countries.²⁷ The Swedish milestone target for 2020 corresponds to a reduction of emissions by the non-trading sector of approximately 32 per cent compared to 2005, which is more ambitious than the EU demands. In Appendix 1 we describe in more detail the climate goals that exist internationally and within the EU.

In 2009, the Riksdag also decided that the interim target for the period 2008–2012 should remain. In order to fulfil the Swedish interim target for 2008–2012, emission credits from flexible mechanisms may not be used.

2.2 Purposes and objectives of Sweden's climate contributions in other countries

Since 2002, the Swedish climate contributions have included purchases of emission credits. Below we describe the various purposes and objectives that gradually have become applicable for the Swedish climate contributions. The Government has stated purposes and objectives in bills, which have thereafter been decided on or otherwise approved by the Riksdag.

2.2.1 UN-related purposes

Sweden has supported the Climate Convention and ratified the Kyoto Protocol in May 2002. At that time, certain requirements in the form of CDM and JI in accordance with the UN's regulatory framework also became valid automatically as purposes of the Swedish contributions. Sweden was also one

²⁶ Govt. Bill 2008/09:162 p. 60.

²⁷ Naturvårdsverket [Swedish Environmental Protection Agency] 2010. Report 6384.

of the 84 countries that signed the Kyoto Protocol already in 1997. The purposes have therefore been present as starting points for Sweden's international climate contributions during the pilot phase of the Kyoto Protocol²⁸ and partly earlier. Apart from the contributions being supplementary, that is to say the main part of a country's efforts shall be made within the own country, there are the following four UN-related purposes.²⁹

Sustainable development

One purpose of CDM is to help developing countries³⁰ achieve sustainable development. Sustainable development goes back to the UN's Convention on Climate Change³¹ and is the overarching goal for all climate contributions in accordance with the Kyoto Protocol.³²

Cost effectiveness

CDM also has the purpose of facilitating for industrialised countries to achieve their emission commitments to some extent through projects in countries where it is often less expensive to reduce emissions. The third article of the Convention on Climate Change mentions cost effectiveness as an important principle for achieving the goal of the Convention on Climate Change of sustainable development. The climate policy decision by the Riksdag in 1997 states, in terms of climate policy within the energy area, that Sweden should carry out cost effective climate contributions both internationally and domestically.³³ In the Budget Bill for 2003, the Government emphasises that cost effective reductions in emissions is an important starting point for the contributions. Reduction in emissions shall be achieved at comparatively low cost.³⁴

²⁸ During the first meeting of the Climate Convention in 1995, it was decided to introduce a pilot phase for project-based reductions in emissions carried out jointly between parties, industrialised countries and developing countries. Through so-called AIJ projects, experience would be created about jointly executed climate projects. Swedish Government Official Report SOU 2000:45, p.85-86.

²⁹ Kyoto Protocol Article 6d (Swedish International Agreement SÖ 2002:41).

³⁰ Those parts not included in Appendix 1 according to Article 12.2 of the Kyoto Protocol.

³¹ Swedish International Agreement SÖ 1993:13 Förenta Nationernas ramkonvention om klimatförändring [‘United Nation’s framework convention on climate change’], Govt. Bill 1992/93:179, Article 2 in the UN’s Convention on Climate Change: “The ultimate objective of this Convention is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system and to enable economic development to proceed in a sustainable manner.”

³² Kyoto Protocol, Article 2.

³³ Govt. Bill 1996/97:84 section 3.7, Committee Rept. 1996/97:NU12, Riksdag Comm. 1996/97:117.

³⁴ Govt. Bill 2002/03:1, Committee Rept. 2002/03:NU3, Riksdag Comm. 2002/03:73.

Additionality

It is a requirement according to the regulatory framework for climate contributions in the form of CDM and JI projects – and thus more than a purpose – that the reductions in emissions the projects generate shall be additional. This means that they shall be contributions that reduce emissions over and above what would have been achieved without these projects.³⁵

Transfer of technology and knowledge

Dissemination and in some cases financing of the transfer of environmentally friendly technologies and know-how is part of the parties' commitments according to the Kyoto Protocol.³⁶ Before this, already in 1993, the Riksdag approved a proposal for climate contributions in Eastern Europe, including special funds for knowledge enhancement.³⁷

2.2.2 Other purposes and objectives

The objective of Sweden's climate contributions in other countries has varies somewhat since the appropriation was first introduced during the budget year 1993/94. During the first years, the objects were motivated by energy policy: by reducing emissions green house gases from the energy sector in the Baltic countries among others, the climate impact of this sector was to be reduced. Since 1997, the central starting point has been to achieve cost effective reductions in emissions.

Developing the flexible mechanisms

The climate policy decision of the Riksdag in 1997 meant that Sweden was to work towards a credible and effective system for developing JI.³⁸ Contributing to the development of the flexible mechanisms has been included in the budget bills, among others, since the early 2000s. The Riksdag has emphasised that the purpose of the contributions is to fulfil future Swedish and international climate commitments by participating in, preparing, executing, evaluating and developing projects and methods for JI, CDM and similar mechanisms.³⁹

³⁵ Kyoto Protocol Article 6b (Swedish International Agreement SÖ 2002:41).

³⁶ Kyoto Protocol Article 10c (Swedish International Agreement SÖ 2002:41).

³⁷ Govt. Bill 1992/93:179, Committee Rept. 1992/93:JOU19, Riksdag Comm. 1992/93:118.

³⁸ Govt. Bill 1996/97:84, Committee Rept. 1999/97:NU12, Riksdag Comm. 1996/97:117.

³⁹ Committee Rept. 2008/09:MJU1 p. 26.

Supporting Swedish companies and environmental technology exports

Already in 1993, the Riksdag agreed to the proposal that contributions in receiving countries should be able to contribute to expansive markets for technology and know-how developed within Swedish industry.⁴⁰ The Energy Agency shall support and facilitate for Swedish companies that wish to commit themselves to the project-based mechanisms.⁴¹

Concentrating on renewable energy and energy efficiency measures

Climate investment into renewable energy and energy efficiency measures is to be prioritised according to a Riksdag decision from 1993.⁴² In the Climate Bill from 2009, the importance of investments into these areas is restated, but also that climate investments are important instruments for investments in green technology.⁴³

Concentration on the least developed countries

In the Energy Research Bill 2006, the Government stated that investments in small-scale CDM projects in the least developed countries were to be given high priority.⁴⁴ This, like striving for geographical spread, was also mentioned in the Budget Bill for 2006.⁴⁵

2.2.3 All purposes and objectives apply

As stated above, the Riksdag and Government have over time formulated various purposes and objectives of the climate investments. The latest Climate Bill⁴⁶ includes all eight purposes stated above. In addition, it is also stated that CDM and new mechanisms shall be given a greater role in Swedish climate policy and that the Swedish programme for flexible mechanisms shall be developed. According to the Government, the opportunities for making links to environmental technology exports should also be utilised better than to date for the Swedish contributions. The Government further emphasises that it is important to facilitate for developing countries to participate in CDM projects by contributing to capacity development. In the long term, the goal is a global trade in emissions. The Environment and Agriculture Committees concurred

⁴⁰ Govt. Bill 1992/93:179, Committee Rept. 1992/93:JoU19, Riksdag Comm. 1992/93:118.

⁴¹ Appropriation directions for the Energy Agency for 2006 and 2007.

⁴² Govt. Bill 1992/93:179, Committee Rept. 1992/93:JoU19, Riksdag Comm. 1992/93:118.

⁴³ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:300.

⁴⁴ Govt. Bill 2005/06:127, Committee Rept. 2005/06:NU19, Riksdag Comm. 2005/06:134.

⁴⁵ Govt. Bill 2005/06:1, Committee Rept. 2006/06:NU3, Riksdag Comm. 2005/06:95.

⁴⁶ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2009/10:377.

with the Government's assessments. The Riksdag agreed the bill and decided on a new interim target for Swedish climate policy up to 2020. The interim target was replaced by an identically worded milestone target in spring 2010.⁴⁷

In total – besides the milestone target for 2020 – there are thus a number of different purposes, requirements and objectives relating to the international climate investments. Some of the purposes are difficult to reconcile and some are also influenced by business or aid policy.

⁴⁷ Govt. Bill 2009/10:155, Committee Rept. 2009/10: MJU25, Riksdag Comm. 2009/10:377.

3 Will the Riksdag's milestone target for 2020 be achieved?

Chapter 3 describes possible interpretations of the third of the milestone target for 2020 that may be achieved through flexible mechanisms and highlights vagueness's in the Government's direction. We also account for the SEK 1.6 billion that the Riksdag has appropriated for the climate contributions and also review the uncertainties associated with the purchases of emission credits.

3.1 Prerequisites for achieving the objective

The purchases of emission credits are a central control instrument for achieving the milestone target for 2020. In this section we audit whether the Government's direction of the central government sector's purchases of emission credits provide the prerequisites for achieving the Riksdag's climate objective with its milestone target for 2020.

3.1.1 *The Government has not decided how the target is to be interpreted*

The Government has not decided how large the reductions in emissions shall be during the period up to 2020, that is to say at what rate the emissions shall be reduced. The total reduction in emissions in order to achieve the milestone target may be 20 million tonnes or 300 million tonnes for the period up to 2020. Nor has the Government set any starting year for when we can start to take credit for the emission credits delivered, or how large annual reductions in emissions may be achieved through climate contributions in other countries. This means that it is unclear *how many* emission credits need to be purchased, and *when*. Within the framework for the Government's bills⁴⁸, it is possible to delay making any reduction in emission until just before 2020, and still achieve the milestone target. But according to the Ministry of the Environment, the idea is for emissions to reduce during the period up until 2020.⁴⁹

⁴⁸ Govt. Bill 20008/09:162, Govt. Bill 2009/10:155.

⁴⁹ Telephone conversation with the Ministry of the Environment on 17 November 2010.

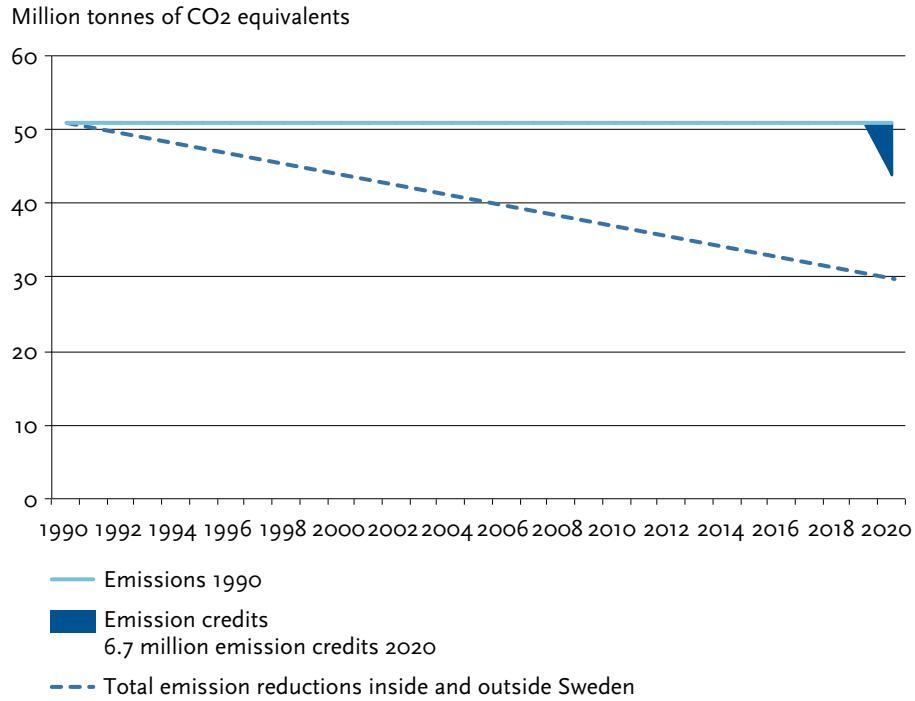
As the Government has not clarified how the target is to be interpreted, the requirement may range between in total approximately 6.7 and 100 million emission credits. In addition to the vagueness in how to interpret the target, the requirement for emission credits is also dependent upon how Swedish emissions develop. Swedish emissions are impacted on by the effects of national measures for reducing emissions and economic development among other factors. It is thus not possible to determine exactly how great the requirement for emission credits will be. But unless the Government sets a starting year or a plan for how large the reduction in emissions shall be during the period up to 2020, this means that it is not possible to determine how many emission credits will be required in total. For example, the EU has a plan for how reductions in emissions shall be made over time in terms of the EU's climate goal for 2020. The Swedish Environmental Protection Agency has highlighted that Sweden lacks a clear strategy for how many emission credits Sweden shall purchase during the entire period 2013–2020 in order to achieve the milestone target for 2020.⁵⁰

The requirement for emission credits depends on the interpretation of the milestone target

The milestone target for 2020 can be interpreted in various ways. The requirement for emission credits is dependent upon the interpretation the Government may decide to use for the milestone target for 2020. Depending on the interpretation, the central-government sector may require at least 6.7 million and at most 100 million emission credits. Below is an illustration of these two extremes.

⁵⁰ Naturvårdsverket [Swedish Environmental Protection Agency] 2010. Report 6384.

Figure 1. Emission credits 2020 and linear total emission reductions inside and outside Sweden for the non-trading sector 1990–2020



Source: Environmental Protection Agency. The information has been processed by the SNAO.

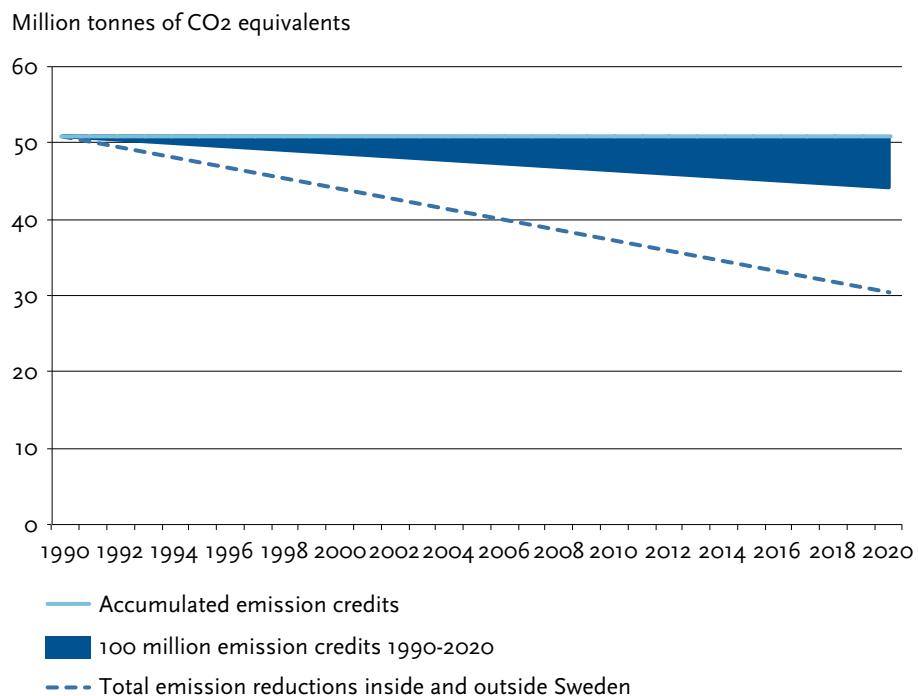
Figure 1 shows how many emission credits may be required if the milestone target is interpreted as an impact in 2020. By then, emissions shall be approximately 20 million tonnes less than in 1990, according to the Climate Bill. If one third of this reduction is to be achieved through purchases from other countries, this means that Sweden will require emission credits corresponding in total to 6.7 million. As the target is worded in the Bill, there is no obstacle to having the corresponding amount of emission credits delivered just before 2020.⁵¹

The other extreme shows how reductions in emissions would be like if the starting year was 1990 and we assume a linear reduction of emissions, in accordance with Figure 2. The requirement for reduction in emissions then amounts to a total of 300 million tonnes for the period 1990–2020. If one third of these reductions in emissions are to be achieved through climate contributions in other countries, 100 million emission credits will be required. The Energy Agency has accounted for this arithmetical example in a memo to the Ministry of the Environment.⁵²

⁵¹ Govt. Bill 2008/09:162.

⁵² Memo from the Energy Agency to the Ministry of the Environment dated 10 June 2010.

Figure 2. Accumulated emission credits and linear total emission reductions inside and outside Sweden for the non-trading sector 1990-2020 (Energy Agency's arithmetical example)



Source: Energy Agency and Environmental Protection Agency. The information has been processed by the SNAO.

In addition to these extremes, it is possible to make other interpretations in between. Three other examples are shown in Appendix 3. An arithmetical example comes from the Energy Agency and is based on the milestone target for 2020 relating to the period 2005–2020.⁵³ In this case, the requirement for emission credits amounts to 38 million emission credits.

The two other alternatives accounted for in the Appendix are based on the milestone target for 2020 relating to the period 2013–2020, with 1990 as reference year. It is possible to assume this, as the Riksdag decided that the interim target for 2008–2012 shall remain as set. This means that the period for the interim target should be completed before the new period for the milestone target begins. The SNAO has calculated that the requirement for emission credits according to these alternatives can be 16.5 or 26.8 or 53.6 million.

⁵³ Memo from the Energy Agency to the Ministry of the Environment dated 10 June 2010. 2005 is the year to which the EU's climate goal for 2020 and the decision to distribute the burden between the member countries relates.

The requirement for emission credits impacts on central-government sector's finances

The total cost is dependent on the number of emission credits to be purchased and when this shall occur. The total cost of achieving the milestone target can be illuminated with a simple arithmetical example. Using the reasoning above, the cost may be at least SEK 670 million and at most SEK 10 billion, with a prudent assumption of a price of EUR 10 per emission credit.⁵⁴

For as long as the Government has not decided which interpretation shall apply, it is possible to interpret the milestone target as 20 million tonnes of reductions in emission up until 2020. As one third of the milestone target may be achieved through emission credits, it would then only require 6.7 million emission credits in total for the period. This would limit the cost to approximately SEK 670 million. From a climate perspective, such an interpretation means that the total reductions in emissions will be small compared to other interpretations of the target.

The Government has not detailed which emission credits that may be used

Since 2007, the Energy Agency has received emission credits from projects and funds on the basis of agreements entered into. However, it is unclear whether these emission credits can be used to achieve the Riksdag's milestone target for 2020. In the Climate Bill from 2009, the Government does not detail whether emission credits received before the decision may be used to achieve the climate objective with its milestone target for 2020.⁵⁵

In the Climate Bill for 2006, the Government does mention that "reductions in emissions could be credited to Sweden at an assessment of the fulfilment of our commitments according to the Kyoto Protocol and EU's distribution of burden."⁵⁶ According to the Ministry for the Environment, these wordings indicate that emission credits from earlier projects may be utilised for future use.⁵⁷

⁵⁴ According to the Environmental Protection Agency, this price assumption is relatively low. If the EU does not raise its goal to -30 per cent the price per emission credit may be assumed to be around EUR 10 per tonne. In the event of a tightening up of the EU's goal to -30 per cent by 2020, the Commission is calculating using emission credits of just over EUR 25 per tonne in 2020 on the secondary market. However, the price of emission credits if buying direct from project owners will be slightly lower, but then with a risk and with higher other costs.

⁵⁵ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU28, Riksdag Comm. 2008/09:300.

⁵⁶ Govt. Bill 2005/2006:172.

⁵⁷ Telephone conversation with the Ministry for the Environment on 29 September 2010.

3.1.2 *The Government's formal direction of the Energy Agency is weak*

The Government's formal direction of the Energy Agency has weakened. Close informal contacts between the Ministry for the Environment and the Energy Agency contribute to poor transparency in the direction of the climate contributions.

The milestone target for 2020 has not been detailed in appropriations directions

In the Energy Agency's appropriations directions for 2010, the Government has not detailed how the CDM and JI operations shall contribute to the achievement of the climate objective, that is to say how many emission credits Sweden may need to purchase in order to achieve the milestone target for 2020. However, according to the instructions to the Agency, the Agency shall work towards achieving the Riksdag's energy policy target for 2010 and the objective of Reduced Climate Impact.⁵⁸

As in previous years, in the appropriations directions for 2010, the Government states that the Agency shall participate in and acquire emission credits as a step towards developing the flexible mechanisms. The Government also states that the Energy Agency shall purchase emission credits for the purpose of contributing to the fulfilment of Sweden's commitments within the framework for the Climate Convention after 2012. In relation to the appropriations instructions for 2009, there is only an addendum that relates to the purchases of emission credits: the Agency should strive to achieve an increased proportion of projects in the least developed countries.

The Government has not prioritised between different goals and purposes

In the appropriation directions during the period 2002–2010, the Government has stated the purposes and objectives of the central-government sector's purchases of emission credits which have gradually been decided or approved by the Riksdag. But the Government has not prioritised between these. Nor, once the milestone target was decided in 2009 has the Government made any prioritisation between goals, purposes and objectives. The only purpose of the operation that is included in all the appropriation directions is that it shall contribute to the development of the flexible mechanisms.

In the appropriation directions for 2002, the Government states that the Energy Agency shall acquire emission credits for the purpose of counteracting emissions of greenhouse gases in a cost effective manner. Cost effectiveness

⁵⁸ Section 1 of the Ordinance with Instructions for the Swedish Energy Agency (SFS 2007:1153).

is a starting point for the contributions in other countries and, like most of the other purposes, is evident from the climate bills approved by the Riksdag. The Energy Agency states cost effectiveness as being of obvious importance.

Some of the purposes are difficult to reconcile. These are, among others, cost effectiveness and concentration on the least developed countries. CDM projects in the least developed countries require considerably more work than, for example, projects in China or Brazil. They are also more uncertain and they are usually small. There is also not a great difference in administrative costs between large and small projects, which means that small projects are relatively more expensive.

Reduced transparency in the direction of the Energy Agency's climate contributions

The work with the international climate contributions are characterised by frequent contacts between the Ministry of the Environment and the Energy Agency's climate unit. Over recent years, the formal requirements for reporting back in the appropriation directions have reduced, including for the purchases of emission credits. It is unclear how this affects the prerequisites for achieving the milestone target and various purposes of the operation. However, the direction becomes less transparent.

Responsibility for the climate contributions in other countries was transferred in 2006 from the Ministry of Enterprise, Energy and Communications to the Ministry of the Environment. Up until 2008, the appropriation directions from the Ministry of Enterprise, Energy and Communications to the Energy Agency included clearly worded requirements for reporting back for the entirety of the Agency's operations, including purchases of emission credits. However, in recent years, the formal requirements for annual reporting from the agencies has changed and become weaker. In accordance with the new ordinance from 2008 concerning annual reporting by public authorities to the Government, it is sufficient if the authorities report in accordance with the instructions and with a classification determined by the authority itself, unless the Government has decided otherwise.⁵⁹ As from 2009, the appropriation directions from the Ministry of the Environment to the Energy Agency only contains the conditions for the appropriation 1:13 *Contributions for international climate investments* is stated. Any requirement for reporting back is lacking.

The frequent contacts between the Ministry of the Environment and the climate unit of the Energy Agency originated in the cooperation during the climate negotiation, in relation to the development of the flexible mechanisms

⁵⁹ Annual Reports and Budget Documentation Ordinance (SFS 2000:605).

among others. The Energy Agency has investigated and provided material to the Government on various climate issues through commissions and as a staff authority. Employees of the Agency have given expert assistance the Government Offices during EU meetings etc., ahead of and during climate negotiations, and have at times chaired working parties relating to the convention work. In some cases, Agency employees have been borrowed for work at the Ministry of the Environment. The Energy Agency has also taken over certain funds from the Ministry.

Contacts between the Ministry of the Environment and the climate unit of the Energy Agency usually occur several times per month.⁶⁰ According to the Energy Agency, there has been a continuous dialogue with the Government Offices relating investments in various project types, host countries and participation in funds.⁶¹ Recently, there have been discussions between the Ministry and the Agency about investments into forward-looking funds, among others.⁶²

Reconciliation meetings, so-called dialogue meetings, are held approximately five times a year, and sometimes other ministries and the Environmental Protection Agency also participates. At the meetings, the Ministry of the Environment or the Energy Agency raise questions about new investments into projects and funds, current commissions and investigations, etc.⁶³ No minutes are taken for the meetings. The Ministry does not consider the meetings to be directive.⁶⁴

It is not possible to determine how the Government's informal direction affects the Energy Agency's purchases of emission credits, but the direction format leads to a lack of transparency. Transparency is a prerequisite for enabling the Riksdag to exercise its controlling power.

3.1.3 *The Government has not clarified how many emission credits are needed in order to fulfil the milestone target for 2020*

Depending on which interpretation the Government chooses for the milestone target to 2020, the number of emission credits required to fulfil the milestone target for 2020 will differ. The total cost of fulfilling the target can therefore not be determined.

⁶⁰ Interview with the Ministry of the Environment on 6 September 2010.

⁶¹ Email from the Energy Agency dated 25 October 2010.

⁶² Email from the Energy Agency dated 5 November 2010.

⁶³ According to an email from the Ministry of the Environment dated 25 October 2010. Examples of other issues raised at the dialogue meetings: negotiation work, future mandates for international climate contributions, strategy for exchange rate fluctuations, strategic decision for the CDM/JI programme and (2007) the division of labour between the Ministry of the Environment and Ministry of Enterprise, Energy and Communications.

⁶⁴ Interview with the Ministry of the Environment on 3 June 2010.

The appropriations up to 2014 may be sufficient for approximately 14–18 million emission credits

The Energy Agency reports that the appropriated funds for the period 2002–2012 will generate 12–16 million emission credits until 2020.⁶⁵ Agreement already entered into up to and including June 2010 shall, according to the agreements, provide approximately 10 million emission credits. From 2007 until June 2010, the Agency has received emission credits corresponding to approximately 0.7 million tonnes (see Table 1).

Table 1. Emission credits delivered 2007–June 2010 compared with emission credits according to agreements (million tonnes of emission reductions)

	Delivered up until and including June 2010	Emission credits according to agreements entered into (up until and including June 2010) by 2020
CDM and JI projects	0,4	4,9
Funds	0,3	5,1
Total	0,7	10,0

Source: Purchase agreements and fund reports and the Energy Agency's annual report for 2009. Information processed by the SNAO.

In addition to the appropriations up to and including 2012, the Government has proposed further appropriations for 2013–2014 of SEK 236.2 million. These appropriations are sufficient for just over a further 2 million emission credits with a prudent assumption of a price per emission credit of EUR 10. If we add these 2 million emission credits to the Energy Agency's 12–16 million, the appropriated funds for the period 2003–2014 could generate a total of approximately 14–18 million emission credits.⁶⁶ But it is unclear whether this is sufficient to achieve that third of the milestone target that may be achieved through emission credits up until 2020. It depends on *how many* emission credits that are to be purchased and *when* this is to occur.

Unclear how the milestone target can be achieved

If the milestone target is interpreted as an impact for 2020, the target for that third of the reductions in emissions to be made outside Sweden by 2020, of approximately 6.7 million emission credits, does appear to be within reach.

⁶⁵ Energy Agency Annual Report 2009, p.85. According to the central government annual report (Riksdag Comm. 2003/03:101), the funds for 2002 were not used, but were transferred to the appropriation for 2003.

⁶⁶ Annual report 2009 of the Energy Agency, ER 2010:01.

The arithmetical example relating to the milestone target for 2020 that the Energy Agency has provided to the Ministry of the Environment includes a requirement for emissions credits also before the period 2008–2012. But accordingly to the Government's bills, the interim target for the period 2008–2012 may not be achieved through reductions in emissions in other countries.

If the milestone target instead is valid for the period 2013–2020, up to 53.6 million emission credits would be needed (see Appendix 3).

Depending on the interpretation, Central-government sector may either need to purchase more emission credits, or it may not. The requirement of emission credits is also dependent on how domestic emissions develop. If emissions are lower than expected, the requirement for emission credits reduces at the same rate.

3.1.4 *Unclear how many emission credits there are available*

It is unclear how many emission credits will be available in order to achieve the milestone target for 2020. A lesser part of the emission credits purchased by the Energy Agency have already been utilised for climate compensation. The Energy Agency administrates the climate compensation for emissions of greenhouse gases of the Government Offices and some other public authorities, arising particularly from air travel in conjunction with official journeys. The Government offices and the public authorities purchase emission credits delivered to the Energy Agency from CDM projects in the Energy Agency's project portfolio.

In order to carry out the climate compensation and contribute to reduced emissions, the emission credits shall then be cancelled. The Energy Agency has cancelled emission credits purchased on behalf of the public authorities. But the emission credits purchased by the Government Offices since 2008 in order to carry out climate compensation have so far not been cancelled, but are saved on a special account in the Swedish emission right system register (SUS).⁶⁷ The emission credits cancelled for the purpose of carry out climate compensation cannot be used to achieve the milestone target for 2020.

In Sweden, it is not expressly regulated in law who is the owner of the central-government sector's emission credits held on accounts in the SUS register. The SNAO established in the report *Vad är Sveriges utsläppsrätter värda?* ['What are Sweden's emission rights worth?'] that such a regulation exists in Finland, which like Sweden has public authorities with considerable independence.⁶⁸

⁶⁷ Interview with the Energy Agency on 25 November 2010.

⁶⁸ Riksrevisionen [Swedish National Audit Office] (2009), RiR 2009:21.

The report also highlighted that the Government has not decided either how large a proportion of the emission credits that shall be used, saved, sold or cancelled.

3.2 Appropriations and transfer of funds

Here we are auditing whether the appropriations for purchases of emission credits will be sufficient for achieving the milestone target, starting from the premise that the central-government sector may achieve one third of the milestone target for 2020 with the help of emission credits. As there are alternative interpretations of the milestone target for 2020, it is however unclear how large the appropriations should be in order to achieve target fulfilment. We also point out that the Energy Agency has transferred large parts of the appropriation to the Nordic Environmental Finance Corporation (NEFCO).

3.2.1 Unclear whether the appropriations are too large, too small or reasonable

Depending on how the milestone target for 2020 is interpreted, the appropriations for purchases of emission credits may be either too large, or too small or reasonable.

Since 2002, the Energy Agency has received appropriations for the purchases of emission credits from other countries.⁶⁹ Table 2 shows the development of the appropriations from 2002 to 2010. The appropriation for the purchases of emission credits has increased sharply in recent years, in particular as from 2009.

A novelty in the appropriation directions for 2009 and 2010 is further that the Government has stated a maximum amount of SEK 10 million for “costs associated with contributions to acquire emission units”. The appropriation for climate contributions in 2009 was the second largest item appropriation at the Energy Agency – whose primary activities and management appropriations is subsidiary to the Ministry of Enterprise, Energy and Communications. At the same time as the appropriations have increased, the Government has as from 2009 not laid down any requirements on reporting back about the operation in the appropriation directions.

⁶⁹ During the years 1998–2001, the appropriation was SEK 200 million, of which SEK 142 million was at the disposal of the Energy Agency for climate contributions in other countries. Originally, the appropriations were designated *Energipolitiskt motiverade internationella klimatinsatser* ['International climate contributions justified by energy policy']. From the budget year 2008, they are designated *Insatser för internationella klimatinvesteringar* ['Investments for international climate contributions'].

Table 2. Development of appropriations and their use for *Anslaget Insatser för internationella klimatinvesteringar* 2002–2010 [‘Appropriation Investments for international climate contributions’] (SEK million)

Budget year	Appropriation amount*	Investments for international climate contributions (at the disposal of the Energy Agency)	
		Total	Of which set aside for expenses for other than the purchases of emission credits
2002	50,0	32,0	2,0
2003	50,0	32,0	4,5
2004	50,0	12,0	4,5
2005	20,0	17,5	3,5
2006	18,1	14,3	6,0
2007	18,1	16,1	6,0
2008	50,1	44,1	6,4
2009	280,1	270,1	16,0
2010	280,1	270,1	16,0
From Govt. Offices	120,0	120,0	0,0
Total	936,5	828,2	64,9

Source: Appropriation directions for the Energy Agency.

*) The appropriations include a total of SEK 36.8 million relating to emission trading. SEK 71.5 million is also at the disposal of the Ministry of the Environment.

For 2011 and 2012, the Government has calculated the appropriation as SEK 446.2 million.⁷⁰ The Budget Bill for 2011 proposes a further appropriation of SEK 236.2 million in total for 2013 and 2014.⁷¹ In total, the appropriation will then amount to SEK 1.6 billion for the period 2002–2014.

The Ministry of the Environment’s background material for of the Budget Bill for 2011 is based on a prudent estimate based on the Energy Agency’s memo regarding the requirement for emission credits in order to achieve the milestone target for 2020.⁷² In the memo, the Energy Agency writes that there are various ways of calculating, but “*it is clear that the national objective ‘one third*

⁷⁰ Govt. Bill 2009/10:1 Expenditure Area 20.

⁷¹ Govt Bill 2010/11:1 Expenditure Area 20.

⁷² Email from the Ministry of the Environment dated 29 October 2010. See also Section 3.1.1.

through contributions in other countries' would leave space for considerably more emission reduction units for other countries than the current appropriation covers. If we want to reach the level that the national objective indicates, this entails annual state acquisitions of emission reduction units on a scale that is double of that of today, given unchanged prices.”⁷³

Appropriations for the period amounted to SEK 936.5 million. This includes SEK 120 million for the two funds for which the Government Offices were previously responsible, Prototype Carbon Fund and Multilateral Carbon Credit Fund. Of the total appropriations up to and including 2010, the Energy Agency has SEK 828.2 million at its disposal for investments for international climate contributions. During the period, the Agency has been allowed to use at most approximately SEK 65 million for expenses other than for purchases of emission credits. These are, for example, expenditure on:

- work with the CDM Executive Board
- information and support to Swedish companies
- participation in certain funds
- expenses linked to investments for acquiring emission units
- expenses for preparing, designing and developing background material for bilateral agreements with host countries, etc.
- expenses for planning, follow-up, evaluation, training and competence development in the recipient countries.

Of the total appropriation for 2010 of SEK 280.1 million, SEK 3 million is used for emission trading and SEK 7 million by the Ministry of the Environment. Of the remaining SEK 270 million, 16 million may be used for expenses for other than purchases of emission credits.

3.2.2 Central-government sector has locked up funds long in advance

The Energy Agency has transferred funds to the Nordic Environmental Finance Corporation (NEFCO) since 2003 and up until the end of 2009. The monies have been transferred when the Agency has signed agreements to purchase emission credits. NEFCO then manages the payments direct to the projects and the funds when the Agency later receives emission credits or when the funds requisition monies.

When the Energy Agency signs purchase agreements, the Agency has locked up 100 per cent of the purchase price for seven or ten years.⁷⁴ In most cases, the emission credits are paid for only on delivery according to the agreements. The

⁷³ Memo from the Energy Agency to the Ministry of the Environment dated 10 June 2010.

⁷⁴ For certain projects in China, the Energy Agency purchases emission credits up until 2012, that is to say in practice a period shorter than seven years.

emission credits are only delivered on a couple of occasions during a period of seven or ten years. This means that the appropriations have been considerably greater than what is used up each year. Up until June 2010, the projects and the funds have only delivered approximately 7 per cent of all agreed emission credits to be delivered up until 2020.⁷⁵ The majority of the locked-in funds thus do not need to be paid out until far later.

In practice, the Energy Agency has locked up the purchase amount by transferring funds to NEFCO once an agreement for CDM and JI projects have been signed. Also when entering into new funds, when not all the monies are paid to the fund in advance, the Energy Agency has transferred a part of its share to NEFCO. To some extent, authorisations are also utilised.

Appropriations in the form of contracted funds which have not yet been used are reserved in an account with NEFCO. NEFCO executes the payment after receiving an instruction from the Energy Agency. This is usually on delivery; that is to say only after the emission credits have been verified by an independent controller. NEFCO also manages other payments, such as transaction costs.⁷⁶ During 2009, the Energy Agency had almost SEK 400 million locked in with NEFCO.⁷⁷

The Energy Agency's appropriation account shows the transfer to NEFCO as a transfer payment. With this, the appropriation is used up according to the appropriation account. The Energy Agency has now reported this in its balance sheet. This does not reflect the true situation according to the SNAO's auditor's report for the Energy Agency's annual report for 2009. According to Section 16 of the Appropriations Ordinance (1996:1189), the fundamental rule applicable to the use of appropriation funds is, for example: "A public authority shall apply expenses for transfer payments against appropriations the budget year when the payment is made."

In the SNAO's report to the Energy Agency about the Agency's annual report for 2009, the SNAO recommends the Agency to request clarification from the Government that the Agency is right to apply the appropriation *Investment for international climate contributions* when making transfers to NEFCO.⁷⁸ A discussion has been going on between the Government Offices, the Energy Agency, the Swedish National Financial Management Authority and the SNAO

⁷⁵ Many projects were contracted during 2009 and 2010. The majority of these have as yet not been registered by the UN and thus have not been able to deliver emission credits. However, the contracted amounts are locked in.

⁷⁶ The transaction cost is the external costs related to the project during the entirety of its life, such as registration, validation and certification costs.

⁷⁷ The SNAO's auditor's report for the Energy Agency relating to the financial year 2009.

⁷⁸ The SNAO's unqualified audit report for the Energy Agency relating to the financial year 2009.

since June 2010 concerning how the appropriation should be handled in future.⁷⁹

The account with NEFCO also generates interest income, from which NEFCO's administrative expenses are deducted. This interest income has not been reported by the Energy Agency in the balance sheet either. It has not been decided for what this interest income is to be used.⁸⁰

3.3 Many uncertainties

In order to assess whether there are prerequisites to achieve the Riksdag's milestone target for 2020 through partly using emission credits, it is important to take into consideration to the uncertainties that exist with purchases of emission credits and how the Energy Agency handles these uncertainties. A further factor is the shortcomings researchers and special interest organisations have put forward concerning CDM.

Despite many uncertainties, CDM is an established and wide-spread way of reducing emissions. Up until 15 December 2010, 2 609 CDM projects have been registered by the UN's control body, the CDM Executive Board. The projects are expected to reduce emissions by 1.9 billion tonnes up to and including 2012. At the latest climate meeting in Cancún, all countries apart from Bolivia were agreed that CDM shall continue after 2012.

3.3.1 *Uncertain whether the projects always lead to real reductions in emissions*

Purchases of emission credit are fundamentally a risky activity.⁸¹ One reason is that the reductions in emissions that CDM and JI projects are to lead to are hypothetical: In order for the UN to approve a CDM or JI project, the project owner or project development must show that the reduction in emissions is greater if the project is carried out than if it has not been realised.⁸² This requires a calculation for each CDM and JI project of how great emissions would have been if the project had not materialised, that is to say, the project's additionality is assessed.⁸³ This entails a fundamental uncertainty, as the projects expected emissions is compared to how it is assumed things would have been if the project had not been carried out.

⁷⁹ See also Govt. Bill 2010/11:1 Expenditure Area 21 p.46.

⁸⁰ Interview with the Energy Agency 8 June 2010.

⁸¹ Prototype Carbon Fund (2001) p. 27.

⁸² Fores Study 2009:5 p.23. Memo from the Energy Agency dated 2 December 2008.

⁸³ The hypothetical calculation is called a reference path and the project's additionality is assessed on the basis of this.

For JI projects, there is no reason to overestimate the amount of emission credits, as JI entails a redistribution of emissions between two countries with obligations to reduce emissions. For CDM projects, however, there is a risk that the amount of emission credits is overestimated.⁸⁴ The reason is that CDM entails a redistribution from a country without any emission obligations to a country with such obligations (see the box “Criticism against CDM”)

The CDM system handles this uncertainty by requiring independent scrutiny of the projects and calculations of the expected reductions in emissions. Following this, the CDM Executive Board checks the project’s additionality before reaching a decision about whether to register the project. Before emission credits can be issued, a new independent controller checks how great the actual emissions have been compared to the calculation of the hypothetical emission path. Despite this system, critics claim that the additionality can be questioned for up to 40 per cent of all registered CDM projects.⁸⁵

There are “best practice” methods, such as Gold Standard, which are intended to safeguard that all projects contribute to real reductions in emissions (additionality) and sustainable development in the host countries. Gold Standard is an independent standard developed by the WWF, the world-wide fund for nature. The WWF certifies projects once they are registered and verified by the UN, as a way of further guaranteeing that CDM and JI projects reduce the amount of carbon dioxide and simultaneously contribute to sustainable development. Up until 15 December 2010, around 1.5 per cent of all registered CDM and JI projects were approved according to the Gold Standard.

So far, no project from which the Energy Agency purchases emission credits has been approved according to this standard.⁸⁶ The Agency considers that by selecting projects within renewable energy and energy efficiency, it provides a concrete acquisition to sustainable development in developing countries. The Agency states that it has the technical competence required to choose exemplary projects, and therefore makes the assessment that the extra cost associated with applications for Gold Standard currently is not justified.⁸⁷

⁸⁴ Energimyndigheten [Swedish Energy Agency] and Naturvårdsverket [Swedish Environmental Protection Agency] (2007), ER 2007:28, p.86.

⁸⁵ Schneider 2007.

⁸⁶ According to the Energy Agency, Tricorona is to apply for certification according to Gold Standard for the 14 wind power projects with which Tricorona has entered into agreements, and where the Energy Agency is to purchase 5 per cent of the emission credits issued.

⁸⁷ Email from the Energy Agency dated 9 March 2010.

Criticism against CDM

Over the years, CDM has been criticised by scientists and interest organisations for a number of shortcomings. However, most consider that CDM as a system should remain, but be improved. The purpose here is not to make an even-handed evaluation of CDM, but to sum up some of the criticism. The SNAO does not have any opinion about the arguments.

CDM and JI do not guarantee reduced emissions

- The additionality criterion shall guarantee reduced emissions. This is to be ensured by the independent controllers and controlled by the UN through the CDM Executive Board and the monitoring committee for JI. The problem is that additionality is based on an analysis of hypothetical reductions in emissions, which means that in practice it is impossible to know whether a project actually leads to reduced emissions (Larsson 2009).
- Some scientists claim that the UN is approving projects that does not lead to actual reductions in emissions, that is to say that they are not additional (Michaelowa & Purohit 2007; Schneider 2007). If projects that are not additional are still approved by the UN, these projects instead lead to increased rather than reduced emissions. An estimate from 2007 based on 93 projects state that the additionality could be disputed in 40 per cent of the projects approved and registered by the UN (Schneider 2007).
- The special interest organisation International Rivers considers that as more than one third of all registered CDM projects were already completed when they were registered, this is by itself proof that the projects are not additional (International Rivers referred to in Larsson 2009).
- Certain types of CDM projects have problems with so-called emission leakage. According to a study from the Stockholm Environment Institute, 17–22 per cent of the emission credits issued from CDM projects aimed at destroying nitrous oxide (N₂O) in industry have not produced any actual reductions in emission. Large parts of the industry have phased out 90 per cent of the use of nitrous oxide without financial compensation. But some industrial processes have moved from industrialised countries to countries such as China and South Korea in order to establish CDM projects and to get money for destroying nitrous oxide. In these cases, CDM has thus caused emission leakage – and led to increased instead of reduced emissions globally (Kolmuss and Lazarus 2010).

CDM has a limited effect on sustainable development

- Scientists point out that CDM often does not lead to sustainable development (Eriksen 2007; Olsen 2007; Sutter & Parreño, Nussbaumer 2009, Paulsson 2009; Rindefjäll et al. 2011). In practice, very few projects have been turned down by the host country's official project authority because of not contributing to sustainable development (Alexeew et al. 2010).

continued on next page

continued

- Scientists claim that there is often a conflict between additionality and sustainable development (Schneider 2007; Sutter & Parreño 2007; Alexeew et al. 2010). Based on empirical data from 40 Indian CDM projects, Alexeew et al. (2010) claim that wind power, water power and biomass projects often contribute to sustainable development, but that the probability that they are additional is less. The probability is greater that energy efficiency projects within industry are additional, but these do not contribute as much to sustainable development.
- The geographic spread of CDM projects is poor and limits the impact of the CDM mechanism on sustainable development globally. In April 2009, China, India, Brazil and Mexico have approximately 77 per cent of all approved CDM projects (CDM Watch).

The administration of CDM is expensive and inefficient

- The UN's additionality tests are inefficient and time-wasting. The process of scrutinising whether projects really are additional takes up a large part of the CDM Executive Board's limited time and means that the registration process is long drawn-out, relatively expensive and also that the outcome is uncertain (Larsson 2009).
- The work within the UN-appointed CDM Executive Board has not been functioning efficiently. The Board makes all decisions about registration, and the Board often gets involved in individual projects (Larsson 2009). It therefore often takes more than one and a half years before a CDM project is approved and registered.
- A few designed operational entities (DOE) are approved by the UN and operate on the global CDM market. These are either over-loaded or lack sufficient resources for providing complete analyses of the projects. This in turn contributes to it taking a long time to get a project approved and registered in the UN system (Larsson 2009).
- The independent auditors are paid by the project developers. The assessors thus have a financial interest in approving projects, even if they do not lead to sustainable development or are additional, in order to gain a good reputation among host countries, consultants and purchasers (Lund 2010). Research shows that the independent auditors approve many projects that do not fulfil the UN's criteria and that are finally not approved by the UN (CDM Watch).
- The transaction costs in the CDM cycle are so great that small project have difficulty covering their costs. The costs for producing a project design document (PDD) and for paying the independent auditors are just as great for large and for small projects. Many potential CDM projects are therefore never carried out.

3.3.2 Uncertain whether the projects are carried out

Purchases of emission credits in other countries are also risky, as the projects in which the Energy Agency invests are usually not fully developed when a decision is made to sign an agreement. It is more risky to invest in a project that is at an early stage of development than in a project that is almost complete or already registered.⁸⁸ A project may look promising on paper, but may be difficult to carry out in practice. The uncertainties lie both on a political and institutional level, and also on a project level.

In countries where CDM or JI are not established mechanisms, problems may arise at political level that mean projects are difficult to carry out. For example, Russia has not had functioning decision-making and approval processes for JI until 2010, which was one of the reasons the Energy Agency planned projects in Russia that did not materialise.⁸⁹ In less developed countries, there may be political risks, such as democratic instability or internal conflicts that make the projects extra uncertain.

There is also a risk that the plant a project is to construct does not materialise due to financial, technical or other reasons. In addition, there is also a risk that the project is not approved by the national project authority and therefore does not proceed to the UN for final approval. According to the Energy Agency, several of the projects the Agency has agreed to may be discontinued.⁹⁰ The Agency states that it handles this risk in the majority of bilateral projects by paying only on delivery of emission credits.⁹¹ However, this does not apply for the majority of the funds in which the Agency participates.

3.3.3 Uncertain whether the projects will be approved and registered

A central issue when selecting a project should be whether the project can fulfil the requirements set for being registered by the UN. Also projects that are practically completed can have difficulties with registration or become delayed if, for example, the calculation of the amount of reduction in emissions the project will contribute is too optimistic. Up until April 2009, 17 per cent of all CDM projects received by the CDM Executive Board led to a renewed scrutiny by the Board, as it was uncertain whether the criteria had been fulfilled.

Of these, 40 per cent were never approved, as they did not fulfil the UN's requirements.⁹²

⁸⁸ Energimyndigheten [Swedish Energy Agency] and Naturvårdsverket [Swedish Environmental Protection Agency] (2007) ET2007:29, p. 88.

⁸⁹ Memo from the Energy Agency produced for the SNAO dated 3 July 2010.

⁹⁰ Interview with the Energy Agency on 10 September 2010.

⁹¹ According to the Energy Agency's written reply to a fact-clearance process dated 17 December 2010.

⁹² CDM Watch website 21 October 2010.

The approval process for CDM and JI projects are also very time-consuming. The UN-appointed boards make all the decisions about registration and often go in and scrutinise individual projects. The process of scrutinising whether projects really are additional takes up a large part of the CDM Executive Board's limited time and means that the registration process takes a long time and that the outcome is uncertain.⁹³

3.3.4 *Uncertain what the climate agreement will be like after 2012*

The Kyoto Protocol stretches until the end of 2012, and currently there is no international regulatory framework about mandatory reductions in emissions for the period after 2012. There is some uncertainty about the regulatory framework for CDM after 2012, but it is clear that CDM will continue. However, it is unclear whether JI will remain after 2012. This means that there are certain risks on entering into purchase agreement for emission credits to be delivered after 2012. Among other things, it is uncertain whether it will be possible to use emission credits from countries such as China in order to reach international climate goals after 2012.

While awaiting a global agreement, the EU has undertaken to reduce emissions of greenhouse gases by at least 20 per cent by 2020 compared to 1990 levels. If there is no global climate agreement after 2012, states and companies within the EU may only use emission credits from projects that are registered before 2013 or from projects in the least developed countries and Small Island Developing States in order to achieve the EU's climate goals for 2020.⁹⁴

However, there are no limitations for which emission credits Sweden may use in order to achieve the national milestone target for 2020. On the other hand, in 2009 the Riksdag adopted the Government's Climate Bill, which underlines that investments should preferably be made in South-East Asia, Latin America and Africa. The Bill emphasises that it is important to use projects in the least developed countries and Small Island Developing States.⁹⁵

In a report from 2006, the Energy Agency described various opportunities for including CDM and JI in a new climate agreement after 2012. According to the Agency, Sweden's starting point in negotiations should be that variants of project-based mechanisms should be included in a new agreement.⁹⁶

⁹³ Fores Studie 2009:5.

⁹⁴ EU's energy and climate package from 2008. The least developed countries' total emissions amount to approximately 1.4 per cent of global emissions.

⁹⁵ Govt. Bill 2008/09:162, p.110.

⁹⁶ Energimyndigheten [Swedish Energy Agency] (2006), ER 2006:39.

However, the Energy Agency has not commented how the Agency handles the special risks that the period after 2012 entail, when the Agency selects projects and invests in funds. The Agency has emphasised the need for Sweden to show trust in an international agreement after 2012, where CDM and JI are included by continuing to purchase emission credits in other countries.⁹⁷

The Government has a positive attitude to Sweden's participation in the future fund Future Carbon Fund, which only purchases emission credits for the period after 2012.⁹⁸ Since 2008, Sweden has been participating in the fund with USD 20 million. The information about the fund states that "participation is speculative" and that all fund participants must be prepared to lose all the funds they have invested in the fund, as there is no longer any agreement after Kyoto.⁹⁹ The fund offers the projects advance payments. Future Carbon Fund encouraged all future fund participants to carry out their own risk analyses ahead of any decision to join the fund. During the audit, the Energy Agency has stated that it has not carried out any such analysis, and the SNAO has not taken part of any risk analysis.¹⁰⁰ In conjunction with the fact-clearance process, however, the Energy Agency stated that analyses had been carried out.¹⁰¹ The Agency has not documented these risk analyses.

The commercial operator Tricorona is one of the largest on the CDM market. Tricorona considers that central-government sectors have a role to play on the uncertain CDM market after 2012. Tricorona states that central-government sectors would more actively take the risk entailed in signing agreements after 2012. The company compares the market after 2012 with the uncertainty that prevailed on the CDM market at the start, in 2004–2005, which private operators were wary of investing in CDM and JI. Tricorona considers that the Swedish central-government sector played an important role in the early phase of the CDM process and should do so also for the period after 2012, as this market is functioning poorly. On the other hand, Tricorona considers that states and large multilateral funds should not compete with private, commercial operators for emission credits for the Kyoto period, as competition for emission credits up to 2012 works well.¹⁰²

⁹⁷ Energimyndigheten [Swedish Energy Agency] Annual Report for 2009.

⁹⁸ Environment Minister Andreas Carlgren in a press release from the Energy Agency dated 10 December 2008.

⁹⁹ Future Carbon Fund: Information memo (28 November 2008).

¹⁰⁰ Interview with the Energy Agency on 8 October 2010.

¹⁰¹ According to the Energy Agency's written reply to the fact-clearance process dated 17 December 2010.

¹⁰² Interview with Tricorona on 17 February 2010 and 9 September 2010.

3.3.5 *Uncertain whether all emission credits will be delivered*

The Energy Agency reports that the funds appropriated for the period 2002–2012 are expected to generate 12–16 million emission credits up to 2020.¹⁰³ The Agency may have overestimated future deliveries of emission credits. According to the Agency, the calculations are forecasts.¹⁰⁴

Up until the end of 2009, the projects and funds had delivered approximately 40 per cent of the emission credits expected according to purchase agreements and fund reports (see Table 3 and Appendix 4).

According to the Energy Agency, deliveries are delayed primarily due to delays in the UN process (verification, certification and issuing). Only when the emission credits have been issued can they be transferred to the purchaser. Against this background, the Energy Agency claims that the Agency has received 70 per cent of the expected number of emission credits in comparison with revised plans.¹⁰⁵ However, the Agency has not been able to show any documentation to support these estimates.

Apart from delays in the UN process, the causes for the deliveries not being realised to the extent expected are several.

- Planned delivered of emission credits are often overestimated in the project description included in the purchase agreements. This is because the project owner usually making the calculations in the project description before the project has started. The Energy Agency does not usually revise the delivery plans for the projects.¹⁰⁶
- The number of emission credits issued varied depending on weather and climate.

A contributory factor may also be that the Energy Agency has not considered it to be the Agency's primary task to ensure emission credits are delivered. The Agency has therefore not had any pressure put on it to work actively to hurry up deliveries.¹⁰⁷

¹⁰³ Energimyndigheten [Swedish Energy Agency] Annual Report 2009. ER2010:1, p.85.

¹⁰⁴ According to the Energy Agency's written reply to the fact-clearance process dated 17 December 2010.

¹⁰⁵ According to the Energy Agency's written reply to the fact-clearance process dated 1 February 2011.

¹⁰⁶ An exception relates for example the JI project in Estonia, where the delivery plan was adjusted downwards from 200 000 to 105 000 emission credits, according to an interview with the Energy Agency on 19 August 2010. According to the Agency's written reply to the fact-clearance process dated 17 December 2010, an adjustment has also been made to the JI project in Romania.

¹⁰⁷ Interview with the Energy Agency on 8 October 2010.

According to a decision by the Riksdag, the central-government sector may not use emission credits in order to achieve the interim target for the period 2008–2012. This may mean that the central-government sector does not have any need for emission credits until as from 2013. Delays in deliveries before 2013 may therefore be of less importance. When in time deliveries are made has not been a central issue for the Energy Agency.¹⁰⁸ But it is important that deliveries that fail to arrive are replaced by new purchase agreements, as it may take time before new emission credits can be delivered. How long time this may take also depends on where in the project cycle the replacement projects are.

The Energy Agency has not made any forecast for the rate of delivery for emission credits from 2013 and the years up until 2020. Instead, the Agency reports a probable range for the entire period up until 2020. The deliveries within the range are overestimated unless the rate of delivery increases compared to the rate that has prevailed until now.

Table 3. Emission credits delivered compared to emission credits as per agreements (million tonnes of reduced emissions)

	Delivered up to and including 2009	Emission credits according to agreements entered into (up to and including 2009) by 2009
CDM and JI projects	0,4	0,8
Funds	0,2	0,7
Total	0,6	1,5

Source: Fund reports and purchase agreements for CDM and JI projects and the Energy Agency's Annual Report 2009. Information processed by the SNAO.

3.3.6 Uncertain whether the Energy Agency will find new projects

The Energy Agency needs to sign new agreements for the appropriations the Agency has not yet used and for the further appropriations the central-government sector allocates for the operation. For 2010, the Agency has approximately SEK 650 million available for decisions to participate in individual projects or funds.¹⁰⁹ The availability of new projects depends largely on how the market for CDM and JI projects will develop.

Since the Energy Agency started to sign agreements to purchase emission credits in 2002, the market has varies. According to the Energy Agency, to begin with there was little competition for projects. But as demand rose after the

¹⁰⁸ Interview with the Energy Agency on 21 June 2010.

¹⁰⁹ Energimyndigheten [Swedish Energy Agency] Annual Report 2009, ER 2010:01.

Kyoto Protocol came into force in 2005, competition for available and attractive projects hardened. In conjunction with the financial crisis in 2008, competition slackened and a better balance arose between buyers and sellers on the CDM and JI markets.

As there is no international climate agreement after 2012, it has become more difficult to sign purchase agreements for CDM projects at fixed prices. According to the Energy Agency, this indicates a more uncertain market.¹¹⁰ Availability of new CDM and JI projects in the future is difficult to predict. The Energy Agency is also required to sign purchase agreements for CDM and JI projects based on specific criteria. To what extent the Energy Agency will be able to sign new purchase agreements is therefore uncertain.

Problems may also arise if planned deliveries fail to materialise. Then the Energy Agency must sign new agreements in order to achieve the same final volume as the Agency has previously contracted for. Particular difficulty will arise if deliveries must be replaced at the end of the period up to 2020, as a long time may pass before new projects can deliver emission credits.

3.4 Important findings

Here we sum up the most important findings from Chapter 3.

- The Government has not determined at what rate the milestone target for 2020 should be achieved. Nor has the Government stated any starting year for when emission credits delivered can be credited towards the achievement of the Riksdag's milestone target for 2020. Therefore it is unclear how many emission credits Sweden will need in order to achieve that third of the reductions in emission that may be carried out outside Sweden up until 2020.
- A consequence of the Government not having determined how many emission credits Sweden may need in order to achieve the milestone target for 2020 is that it is not possible to assess whether the appropriations are too small, too large or reasonable.
- The total cost of achieving that third of the milestone target for 2020 that may be achieved through emission credits from other countries may amount to at least SEK 670 million and at most SEK 10 billion, depending on how the target is interpreted.

¹¹⁰ Interviews with Energy Agency on 21 June 2010 and 10 September 2010.

- The Government's formal direction of the Energy Agency is weak. The Government has not prioritised between different goals, purposes and objectives for the international climate contributions. The Government's requirement for formal reporting back from the Energy Agency has also weakened in recent years, which has coincided with the appropriations for climate contributions in other countries having risen sharply. Close informal contacts between the Ministry of the Environment and the Energy Agency contributes to poor transparency in the direction of the climate investments, which reduces the opportunities for the Riksdag to control and follow up.
- When purchase agreements are signed, the Energy Agency has locked in 100 per cent of the contract purchase price to be paid out only later, usually for a period between seven and ten years. This means that the central government sector's appropriations may have been much larger than what has been used up each year. Up until June 2010, the projects and the funds have only delivered approximately 7 per cent of all agreed emission credits with delivery up until 2020. At the end of 2009, approximately SEK 400 million was locked in at NEFCO.
- CDM and JI carry considerable inherent risks. It is uncertain whether the projects lead to real reductions in emissions. For many of the contracted projects, it is also uncertain whether the projects will deliver the agreed emission credits. This is due to uncertainties with the CDM and JI systems such as projects being difficult to get problems up and running, that the UN process is complicated and time-consuming and that there is no international climate agreement after 2012.
- Up until June 2010, the Energy Agency had received emission credits corresponding to approximately 0.7 million tonnes. The forecast deliveries of emission credits have to date been overestimated. So far, the projects and funds have delivered approximately 40 per cent of the reductions in emissions that should have been generated up until the end of 2009 according to the agreements. The Energy Agency has not considered that the Agency's primary task is to ensure that emission credits are delivered. There is a risk that calculations of future deliveries are also overestimated.
- It is uncertain to what extent the Energy Agency will be able to sign new purchase agreements. New agreements must be signed for future appropriations and in order to replace any missing deliveries according to agreements already signed.

4 Are the costs of the central-government sector's purchases of emission credits reasonable?

The SNAO here audits whether the central-government sector's purchases of emission credits are carried out on the basis of economical use of central-government sector funds. The costs of the purchases may be considered reasonable if it would cost more for the central-government sector to carry out other emission-reducing measures leading to the same effect.

4.1 Costs of purchasing emission credits

The total costs of purchasing emission credits include external and internal costs. The external costs consist primarily of the price per emission credit and any transaction costs.¹¹¹ The internal costs at the Energy Agency consist of staff costs, travel costs, consultancy costs and other costs.¹¹² If associated costs at the climate unit are also included, the cost per emission credit is higher (see Section 4.2).

The SNAO's estimates are based partly on uncertain data. The figures on which the estimates are based have been difficult to produce, and have been altered over time by the Energy Agency. For example, the Agency has provided different information about how much the purchase agreements signed are worth.

¹¹¹ The seller of the emission credits may also cover the transaction cost, which is then reflected in the price per emission credit. The transaction cost is the external costs associated with the project during its entire life cycle, such as registration, validation and certification costs. Transaction costs usually amount to a maximum of EUR 1 per emission credit.

¹¹² The staff costs include, for example, the production of decision-making material including risk assessments, marketing, contacts with project owners/consultants/independent controllers and evaluations.

4.1.1 The cost per emission credit is approximately SEK 85

In the Energy Agency's Annual Report for 2009, the Agency estimates the value of the CDM and JI agreements signed for projects and funds at a total value of approximately SEK 720 million. The agreements entered into are expected to generate 7.5–8.9 million emission credits, which correspond to an average price of between SEK 81 and SEK 96 per emission credit.¹¹³

The Energy Agency has not calculated its internal costs for the purchases. The internal costs were financed by the administration appropriation from the Ministry of Enterprise, Energy and Communications.¹¹⁴ The SNAO has made a summary estimate the internal costs directly linked to the purchases of emission credits. These costs consist of the work of the Energy Agency with projects and funds.

The internal costs for the period 2002–2009 have been estimated by the SNAO to approximately SEK 35 million (see Appendix 5). The total costs including external costs are approximately SEK 790 million. This means that the cost per emission credit is approximately SEK 85. If the purchases during the first half of 2010 are included, the total cost for the entire period can be estimated at SEK 935 million. However, the cost per emission credit is the same, approximately SEK 85.

The Energy Agency's internal costs for the purchases of emission credits are primarily affected by the number of employees. During the period 2002–2006, between two and four persons worked within the CDM and JI operation, corresponding one to two full-time employees. During 2007, eight persons worked with the purchases on some occasions during the year, but several of these worked with other issues simultaneously or were partly on leave. Translated into full-time equivalents, there were three persons who worked within the CDM and JI operation. During 2009 and 2010, the number of employees rose sharply, as a direct consequence of the increased appropriation. In June 2010, the number of employees was ten, corresponding to just under eight full-time equivalents.

¹¹³ Energimyndigheten [Swedish Energy Agency] Annual Report 2009. ER 2010:1.

¹¹⁴ During 2009 and 2010, the Energy Agency has received programme-related funds which the Agency to some extent has used for internal costs.

4.2 Associated costs

In addition to the activities that relate directly to the purchases of emission credits, the Energy Agency also works with activities that create prerequisites for the CDM and JI operation, such as expert support in international climate negotiations and support for the CDM Executive Board. The work with the purchases of emission credits can also create knowledge. The Energy Agency's work with, for example, capacity build-up for CDM can be facilitated, and vice versa. The knowledge is also used to provide support to Swedish companies who are interested in CDM and JI. Other activities with a close link to the Energy Agency's purchases of emission credits are the Agency's work with research and development into flexible mechanisms and investigations into CDM and JI.

4.2.1 Costs per emission credit are higher if associated activities are included

The SNAO has estimated costs for activities closely linked to the CDM and JI operations. These costs are limited to costs that relate to the Energy Agency's climate unit, primarily personnel costs. If these are added to the costs for the purchases of emission credits, the costs are approximately SEK 30 million higher for the period 2002–2009. With this wider interpretation, the average cost per emission credit is SEK 88 instead of SEK 85. Below we describe the associated activities that we have included.

Support to the CDM Executive Board

For two years, the Energy Agency had a part-time representative on the UN board that scrutinises all projects that apply for CDM status and approves the projects' emission credits, the CDM Executive Board. According to the Energy Agency, the fact that employees of the CDM and JI programme also have worked with the CDM Executive Board has provided valuable experience and knowledge, which the Agency can benefit from in its work with purchasing emission credits.

Expert support in climate negotiations

Sweden takes active part in the climate negotiations and an important part of the negotiations relates to the development of flexible mechanisms, such as CDM. The knowledge amassed by the Energy Agency through the CDM and JI operations is used, for example, in assisting the Government Offices with expert knowledge on CDM and JI in international climate negotiations. In return, according to the Energy Agency, the insight employees get about the development of flexible mechanisms through the negotiation work also influences the project choices and the objectives of the CDM and JI programmes.

Capacity build-up for CDM

With reference to the Government Bill 2005/06:127 *Forskning och ny teknik för framtidens energisystem* ['Research and new technology for the energy systems of the future'], the Energy Agency has been working since 2007 on capacity build-up as a part of the Swedish International Development Cooperation Agency's (Sida) aid to developing countries. The purpose of building up capacity for CDM is to contribute with knowledge about how CDM projects are carried out and facilitate for the least developed countries, which to date have very few projects registered, to participate in CDM projects. During the period 2008–2010, the Energy Agency's work with building up capacity has related to Kenya, Tanzania and Uganda.¹¹⁵ The programme has received SEK 13.5 million from Sida and ran until the end of 2010. The goal of the programme was that project developers and project owners were to gain increased knowledge through workshops, for example, so that the proportion of CDM projects could increase in these countries.¹¹⁶

According to the Energy Agency, capacity build-up is "not linked to the Swedish government's CDM programme and the purpose is not to contribute to acquiring CDM credit for this."¹¹⁷ However, some links may arise when the Energy Agency works with the purchases of emission credits and capacity build-up as is the case with Tanzania.¹¹⁸

Support to Swedish companies

Among other purposes, the experience the Swedish central-government sector gets through purchasing emission credits shall be used to give support to Swedish companies that are interested in investing in CDM and JI projects.¹¹⁹ The support shall be provided primarily in the form of information to Swedish companies developing energy and environmental technology and is provided by the administrators who work with the purchases of emission credits.

Research and development relating to flexible mechanisms

The Energy Agency has a research programme that allocates support within the area of international climate policy. The programme financed research projects within areas that relate to the Kyoto Protocol's flexible mechanisms and the design of future international climate agreements, among other subjects.

¹¹⁵ Kenya is not one of the world's least developed countries according to the UN.

¹¹⁶ Energy Agency's website on 16 November 2010. The result from the capacity development has been meagre according to an evaluation made on behalf of Sida in 2009.

¹¹⁷ Energy Agency's internal strategy document dated 26 August 2010.

¹¹⁸ Email from the Energy Agency dated 25 August 2010.

¹¹⁹ Energimyndigheten [Swedish Energy Agency] and Naturvårdsverket [Swedish Environment Protection Agency] (2007), ER 2007:28.

Employees who work with the research programme can benefit from the research findings and actively use the knowledge in their work with purchasing emission credits through CDM and JI.¹²⁰

Investigations into CDM and JI

During 2002–2009, the Energy Agency has carried out a number of investigations impinging on and probably affecting the work with CDM and JI projects. Examples of such investigations are the following:

- International climate projects.¹²¹
- Flexible mechanisms and goals in the climate policy.¹²²
- The EU's system for trade in emission rights and the Kyoto Protocol's project-based mechanisms – implementation of the Link Directive.¹²³
- The role of the flexible mechanisms after 2012.¹²⁴
- Swedish technology exports through the flexible mechanisms.¹²⁵

4.3 Alternative measures

In order to assess whether the costs for the central-government sector's purchases of emission credits are reasonable, we compared these costs with the costs of reducing emissions through other measures.

4.3.1 Other measures cost more

Below we describe two possible alternative measures: buying emission credits on the secondary market and carrying out reductions in emissions in Sweden.

The secondary market for emission credits

Since 2007, there exists in the Nordic countries a secondary market with exchanges where one can buy already delivered or so-called issued emission credits.¹²⁶ During the period 2007–2009, the price on the secondary market has

¹²⁰ According to the Energy Agency's written reply to a fact-clearance process on 17 December 2010, it is in the negotiations that they benefit from the research programme, not the CDM work.

¹²¹ ER 2003:11.

¹²² ER 2004:22.

¹²³ ER 2005:03.

¹²⁴ ER 2006:39.

¹²⁵ ER 2007:23.

¹²⁶ On 1 July 2007, Nord Pool first launched emission credits from CDM projects on the secondary market. Asia Carbon Exchange started with auctions for emission credits already in November 2005 (Haites 2007). Examples of other exchanges are European Climate Exchange (ECX) and Bluenext.

varied between EUR 7.6 and EUR 22.9 (approximately equivalent to SEK 80 and SEK 230) per emission credit. The average price has been EUR 15.4 (equivalent to approximately SEK 150) per emission credit during the period.¹²⁷

It is thus more expensive to buy emission credits on the secondary market, but it means that the buyer does not need to take as big a risk as when purchasing emission credits through purchasing agreements or via funds. However, on the secondary market, the purchaser cannot always choose emission credits from a particular project category.

Emission reductions in Sweden

The costs of reducing emissions in Sweden are difficult to calculate. In the background material for the checkpoint 2008, the Energy Agency and the Environmental Protection Agency make the assessment that it is difficult to make fair comparisons between CDM and JI projects and measures being taken in Sweden.¹²⁸ The cost of purchasing an emission credit corresponds to a one tonne reduction in emissions. This reduction can only benefit Sweden for a specific year, even if the reductions in the host country remain for a longer period.

A simplified way of estimating the cost of climate measures in Sweden is to start from the carbon dioxide tax, which constitutes part of the price of petrol, among others. This gives a simplified picture of reality, as the carbon dioxide tax shows the cost in Sweden of carrying out a further measure (on the margin) to reduce emissions. During 2009 and 2010, the highest tax rate for carbon dioxide was SEK 1 050 per tonne. But manufacturing industry, for example, pays a reduced carbon dioxide tax and in some cases no tax at all. During the years 2003–2009, the actual (implicit) carbon dioxide tax charged has been on average SEK 420–550 per tonne.¹²⁹

According to Sweden's fifth National Report, the costs of climate measures in Sweden have in most cases been considerably lower than the level that applies for the carbon dioxide tax since 2000.¹³⁰ A measure carried out in Sweden may also mean that emissions are reduced over a longer period. For example,

¹²⁷ Point Carbon and Riksrevisionen [Norwegian National Audit Office] (2009) Document 3:5 (2009–2010).

¹²⁸ Energimyndigheten [Swedish Energy Agency] and Naturvårdsverket [Swedish Environmental Protection Agency] (2007) ET2007:29.

¹²⁹ The actual (implicit) average tax on fossil fuels (excluding waste) is calculated by comparing the income from the carbon dioxide tax with the Swedish emissions of carbon dioxide. The income is taken from *Beräkningkonventioner 2007–2011* ['Calculation conventions 2007–2011'] and emissions from the Environmental Protection Agency's website on 25 January 2010.

¹³⁰ Ministry of the Environment (2009) Ds 2009:63, p.57.

a grant for installation of ground-source heating may provide reduced emissions for many years into the future. The cost per tonne of reduced emissions is in this case lower the longer the ground-source heating plant remains. It continues to contribute with reduced emissions every year during its life. The cost of measures that lead to long-term reductions in Sweden can therefore be lower than a short-term calculation shows.

4.4 Important findings

The most important finding in Chapter 4 is that the central government sector's cost per emission credit is lower than for other measures for reducing emissions. According to our estimate, the average cost per emission credit is between SEK 85 and SEK 88, including staff costs.

This can be compared to the price on the secondary market that exists. On this, the price during the period 2007–2009 has varied between EUR 7.6 and EUR 22.9 (corresponding to approximately SEK 80 and SEK230) per emission credit. The average price has been EUR 15.4 (corresponding to approximately SEK 150) per emission credit during the period. It is therefore on average more expensive to purchase on the secondary market, but it is less risky. The cost of making the same reductions in emissions in Sweden has at least in the short term been higher than purchasing emission credits on the secondary market. However, it is difficult to make fair comparisons between the cost of emission credits and the cost of carrying out measures in Sweden.

5 Are the central-government sector's purchases of emission credits carried out efficiently, effectively and transparently?

The chapter aims to answer the question of whether the central-government sector's purchases of emission credits are carried out efficiently, effectively and transparently. The Energy Agency purchases emission credits on behalf of the Swedish central-government sector from projects and funds. The choice of projects is to a great extent affected by contacts and offers. The work with CDM and JI is fundamentally risky and covers a total of approximately SEK 1.6 billion. The Energy Agency's procedures, risk analyses, follow-up and reporting are central factors in our audit of the operation. We have compared the Energy Agency's handling of CDM projects with how the commercial operator Tricorona works.

The Energy Agency purchases emission credits direct from projects and indirect via CDM and JI funds. Usually, the Agency tries to enter into an agreement with projects that are not fully developed and that have not yet started delivering emission credits.

In the initial work of finding projects or funds, the Agency participates in various trade fairs, for example, in order to make contact with various operators. The Agency also receives tips about new projects from project developers. In the early 2000, the Agency itself identified new projects by sending our tender requests.

Once the Agency has made contact with a project owner or project developer and assesses that the project fulfils the criteria the Agency has, the first negotiations for a purchase agreement can be started. While the negotiations are in force, the Agency makes an assessment of the project by going through the documentation that exists for the project and making a site visit. Once the parties are agreed, an agreement is produced for the purchases of emission credits. This agreement is signed on behalf of Sweden by the Director-General of the Energy Agency.

When the agreement has been signed, the Agency can assist the project developer and project owner with help and financing under the UN process, for example by producing project documents and in contacts with the independent auditor. Finally, emission credits from the project are delivered to the Energy Agency in accordance with the agreement between the Agency and the project owner. In most cases, it is only on delivery of emission credits that the Energy Agency pays the project owner.

5.1 Assessment criteria

The SNAO audits whether the central-government sector's purchases of emission credits are carried out efficiently, effectively and transparently. The audit is based on the following requirements on what efficient, effective and transparent purchase procedure entails:¹³¹

- *That goals and tasks are identified.* The Energy Agency has good internal management, where goals and tasks are clearly defined and made operational. Goals and tasks are primarily defined based on the Agency's instructions and appropriation directions. A well defined goal picture is a prerequisite for carrying out the operation efficiently and effectively and achieving the goals.
- *Guidelines and procedures.* The Energy Agency has established guidelines and routines that contribute to safeguarding the prerequisites for achieving the goals of the operation.
- *Risk analysis and risk handling.* The Energy Agency carries out risk analyses before purchases and participation in funds for the purpose of achieving increased goal fulfilment by taking into account and as necessary implementing measures for reducing the risks.
- *Follow-up:* The Energy Agency systematically and regularly follows up and assessed the investments it has made in projects and funds. By means of the follow-up, the Agency can increase the prerequisites for achieving the goals by implementing measures if projects and funds are not functioning in the way intended.
- *Accounting and reporting:* The operation is accounted for in a reliable and fair manner¹³² so that the Riksdag, the Government and the general public can monitor to what extent the goals are achieved and whether the operation is carried on in an efficient and effective manner.¹³³

¹³¹ The requirements are based on the Government Agencies Ordinance (SFS 2007:515), the Internal Management and Control Ordinance (SFS 2007:603), the Swedish National Financial Management Authority's (ESV) guidelines for internal management and control (ESV 2009:38) and a comparison with other operators who are carrying on similar operations. The Energy Agency is not covered by the Internal Management and Control Ordinance (SFS 2007:603), but according to the ESV's guidelines for internal management and control (ESV 2009:38, p.3), the guidelines may be a support for all public authorities covered by the Government Agencies Ordinance general requirements for ensuring the internal management and control function in a reassuring manner.

¹³² Section 3 of the Government Agencies Ordinance (SFS 2007:515).

¹³³ According to Sections 1 and 2 of the Central Government Budget Act (SFS 1996:1059)

5.2 Identifying goals and tasks

In this section, we audit to what extent the Energy Agency has good internal management where goals and tasks are clearly defined and made operational. Goals and tasks shall be defined primarily on the basis of the Agency's instructions and appropriation directions. A well-defined picture of the goals is a prerequisite for the operation being carried out efficiently and effectively and achieving the goals.

5.2.1 *Most important for the Energy Agency to enter into agreements*

The milestone target for 2020 entails that one third of the reductions in emission for the non-trading sector shall be made with the help of emission credits from projects in other countries.¹³⁴ In February 2011, the Energy Agency stated that the milestone target for 2020 is one of several goals for the CDM and JI operations. Earlier during the audit, the Agency stated that the milestone target is hardly to be considered as a goal for the CDM and JI operations. The Agency then considered that the goal is to achieve a certain reduction in emissions by 2020 and that there is no goal for how much of the reduction in emissions that may be achieved with the aid of CDM.¹³⁵ According to the Agency, quantified milestone targets pose a risk of limiting the central-government sector's room for manoeuvre in a negative way.¹³⁶

The most important task of the Energy Agency is to sign purchase agreements.¹³⁷ This should be done against the background of the purposes and objectives for the purchases of emission credits stated by the Government.¹³⁸ As shown previously, in its appropriation directions, the Government has not prioritised between different purposes and objectives. Nor has the Energy Agency documented any prioritisation between different goals, purposes and

¹³⁴ Govt. Bill 2008/09:162, Committee Rept. 2008/09:MJU:28, Riksdag Comm. 2008/09:300.

¹³⁵ According to the Energy Agency's written reply to the fact-clearance process dated 1 February 2011: "The Agency considers that there are several goals for the CDM and JI operations, among them to achieve the national climate objective for 2020. The Energy Agency has pointed out that there is not a volume goal in the appropriation directions for the period up until 2020." According to the Energy Agency's written reply to the fact-clearance process dated 17 December 2010: "The Riksdag's milestone target for 2020 in terms of delivery of emission credits is part of the Energy Agency's goals." ... "It is hardly to be considered as a goal." ... "The goal is to achieve a certain reduction in emissions by 2020. Is there a GOAL for how much of this is to be from CDM?".

¹³⁶ Interview with the Energy Agency on 25 November 2010.

¹³⁷ According to the Energy Agency's written reply to the fact-clearance process dated 17 December 2010, follow-up of projects has "had lower priority compared to the work of identifying, scrutinising, negotiating and signing agreements with new projects and funds." According to the Energy Agency's written reply to the fact-clearance process dated 1 February 2011, the focus of the Agency is on both signing purchase agreements and safeguarding deliveries.

¹³⁸ Interview with the Energy Agency on 8 June 2010.

objectives. There is no documented operationalisation of these in the Energy Agency's strategy documents.

In conjunction with fact-clearance process, the Energy Agency has stated that the Agency during reconciliation meetings with the Government has requested clarification of the appropriation directions. The Energy Agency also considers that the fulfilment of the burden distribution in the EU's energy and climate package is superior to other goals included in the appropriation directions.¹³⁹

The following control documents touch upon goals, purposes and objectives for the CDM and JI operations:

- According to the instruction, the Energy Agency shall work to ensure the achievement of the Riksdag's energy policy target for 2020 and the objective of reduced climate impact.¹⁴⁰
- The Agency's internal strategy document from November 2009 does not mention the milestone target for 2020. Other goals, purposes and objectives according to the latest Climate Bill are included.¹⁴¹

The Energy Agency also has a strategic plan from 2006, but in this only the four percent interim target for reduced emissions 2008–2012 is mentioned as a goal, which does not impinge on CDM or JI.¹⁴²

The Energy Agency has not had the national milestone target for 2020 in focus when the Agency works with purchasing emission credits.¹⁴³ Yet the Agency states that the goals, purposes and objectives expressed in government bills and appropriation directions are immediately directive for the purchasing operation.¹⁴⁴

5.3 Guidelines and procedures

In this section we are auditing whether the Energy Agency has established guidelines and procedures that contribute to safeguarding the prerequisites for achieving the goals of the operation. According to Section 4 of the Government Agencies Ordinance, the management of a public authority is responsible

¹³⁹ According to the Energy Agency's written reply to the fact-clearance process of 17 December 2010.

¹⁴⁰ Section 1 in the Ordinance with Instructions for the Swedish Energy Agency (2007:1153).

¹⁴¹ Internal strategy document for the CDM and JI work, memo dated 4 November 2009.

¹⁴² Strategic plan 2006–2010 from the Energy Agency's quality handbook (adopted on 1 September 2005).

¹⁴³ Interview with the Energy Agency on 8 October 2010.

¹⁴⁴ Interview with the Energy Agency on 8 October 2010.

for, among other things, the delegation of decision-making rights within the authority, the handling of matters and the other formalities of the organisation. This includes drawing up rules and procedures for the management.¹⁴⁵

5.3.1 Few guidelines in a complex operation

The Energy Agency has few guidelines for the work with purchasing emission credits. General guidelines for the work at the climate unit are partially found in the operational plans. These state important tasks and goals for the coming year in accordance with the appropriation directions. However, the operational plans are so general that they do not give any concrete guidelines for how the work with purchasing emission credits is to be carried out. As an example, the operational plan for 2005 states: "The focus for the sub-area is to develop project portfolios for CDM and JI projects and thereby actively contribute to the development of these mechanisms."¹⁴⁶ It does not emerge in any detail in which way the operation shall contribute or which aspects shall be prioritised.

For the period 2002–2006, internal control documents for the CDM and JI operations are lacking other than the annual operational plan for the unit and some delegation documents.¹⁴⁷ The delegation procedures states that decisions to enter into purchase agreements always are made by the Director-General after presentation of material. The same applies to decisions to transfer funds to the Nordic Environmental Finance Corporation (NEFCO).¹⁴⁸

The Energy Agency's strategic plan 2006–2010 contains overall guidelines for the entire Energy Agency, but does not touch specifically on the climate unit's work with purchasing emission credits.

The climate unit's strategy document from November 2009 describes tasks that are to guide and explain the work within the CDM/JI programme.

The strategy document states that during 2009, the Energy Agency shall concentrate on finding projects within the least developed countries and Small Island Developing States. It also describes the establishment of a support function with responsibility for making payments and following up agreements.

¹⁴⁵ See also ESV's guidelines, *Intern styrning och kontroll* ['Internal Direction and Control'].
ESV 2009:38, p.9.

¹⁴⁶ Energy Agency's operational plan 2005, p.32.

¹⁴⁷ The SNAO requested documents relating to direction already at the beginning of spring 2009; a delegation document is a list (reconciled with the Energy Agency) of persons participating and authorities to make decisions about funds and projects.

¹⁴⁸ Email from Energy Agency dated 25 October 2010. These are monies transferred by the Energy Agency to NEFCO as soon as the Agency signs a new purchase agreement or fund agreement. NEFCO pays out monies at the Energy Agency's request when the projects have delivered emission credits or as agreed with the funds.

5.3.2 Procedures for purchases of emission credits are implemented late

In October 2006, the Energy Agency produced a report describing administrative procedures for the work of purchasing emission credits. This describes a support procedure for administration of payments, distribution of responsibility and procedures and criteria for the work with CDM and JI projects.¹⁴⁹ The procedures apply primarily to the process up to the signing of purchase agreements, and not to how projects are to be followed up, apart from how payments are to be managed. The work with funds is not described.

For the CDM and JI operation, special process and documentation requirements apply according to the UN. These requirements are incorporated in the written procedures from 2006.

It has taken a long time to implement the procedures from 2006, and some of them have not been implemented at all.¹⁵⁰ It is difficult, however, to determine exactly which procedures have been implemented, and when, as documentation of the work is lacking. The support function described in 2006 was only established in 2009.¹⁵¹ The SNAO has established that no projects follow the procedures. The SNAO has audited all files up to June 2010. For example, the Agency lacks documented risk analyses and due diligence reports up until 2010, despite the procedures from 2006 stating that these shall always be carried out ahead of selecting projects. The procedure that delivery of emission credits shall be made annually to the Energy Agency is not implemented either. Instead, the Agency receives delivered only on a couple of occasions during a period of seven or ten years. According to the Energy Agency, the majority of the procedures in the document from 2006 are now being reviewed and further developed. For example, during 2009, the Agency has developed an IT-based project platform which is in the process of being implemented.¹⁵²

When it comes to other administrative procedures, the Energy Agency has referred to those that apply for the former systems department.¹⁵³ These show how often decision-making meetings shall be held at department level, procedures for journalising documents, etc. The document does not include any specific procedures for the purchases of emission credits.

¹⁴⁹ Energy Agency's administrative procedures dated October 2006. According to the report, the purpose was to create efficient and quality-assured procedures for the work with CDM and JI projects.

¹⁵⁰ Email from the Energy Agency dated 25 October 2010.

¹⁵¹ Internal strategy document for the CDM and JI work, memo dated 4 November 2009.

¹⁵² Email from the Energy Agency dated 25 October 2010.

¹⁵³ Email from the Energy Agency dated 4 November 2010; Administrative procedures for the systems analysis department dated 23 September 2007.

The administrative procedures at department level establish that “the Energy Agency, as all other public authorities, is obliged to journalise official documents, irrespective of whether they are public or secret.”¹⁵⁴ According to the procedures for the system analysis department, each administrator is responsible for ensuring official documents are journalised promptly. This has not been implemented for projects at the climate unit. They are only journalised when the Agency considers it worthwhile proceeding with the projects.¹⁵⁵

5.3.3 *Purposes and objectives in government bills constitute criteria for purchases*

The Energy Agency states that criteria for purchases of emission credits emerge from government bills and appropriation directions.¹⁵⁶ Documented prioritisation between these criteria is lacking. Thus there is no guidance for how the Agency is to weigh up different purposes, such as concentrating on the least developed countries or cost efficiency. At the same time, the Energy Agency states that it has maintained a continuous dialogue with the Government Offices concerning investments in project types, host countries and fund participation (see also Chapter 3).¹⁵⁷

The Energy Agency has previously produced internal documents describing criteria for selection of projects and funds. In 1999, during the pilot phase for joint implementation, the Energy Agency with the help of consultants developed proposals for detailed criteria and working procedures for CDM and JI projects.¹⁵⁸ These no longer apply according to the Agency. Newer criteria for project selection are included in the administrative procedures from 2006, but according to the Agency these are not governing.¹⁵⁹

In the strategy document from 2009, the Energy agency states that the work of finding suitable projects is carried out through contacts with project developers, among other ways. Other channels for finding projects are through networks and through participation in trade fairs. The choice of projects is influenced to a great extent by contacts and offers.¹⁶⁰

¹⁵⁴ Administrative procedures for the system analysis department dated 23 September 2007.

¹⁵⁵ Email from the Energy Agency dated 25 October 2010; Administrative procedures October 2006.

¹⁵⁶ Email from the Energy Agency dated 25 October 2010.

¹⁵⁷ Email from the Energy Agency dated 25 October 2010.

¹⁵⁸ “Report on contacts and collaboration within the climate area ...” Journal No 00–98–3865.

¹⁵⁹ Email from the Energy agency dated 25 October 2010.

¹⁶⁰ Interview with the Energy Agency on 1 June 2010.

5.4 Risk analyses and risk handling

In this section, we are auditing to what extent the Energy Agency carries out risk analyses ahead of purchases and participation in funds in order to achieve increased goal fulfilment through taking into consideration and as necessary taking measures to reduce risks.

Apart from the fundamental structural uncertainty of CDM and JI that we described in Chapter 3, there are a number of other risks associated with the purchases of emission credits in other countries. These risks may be technical, legal or financial and associated with the environment, politics and society. Risk analysis is needed in order to assess whether it is worth acquiring credits from the individual project and in order to make a realistic assessment of how many emission credits the projects can be expected to deliver. Also before deciding to invest in funds, the Energy Agency should analyse the risks and decide how to handle these.

5.4.1 Documented, systematic risk handling is lacking for 2002–2009

During the period 2002–2009, the Energy Agency did not have any documented systematic risk handling. The Agency states that it has always carried out risk analysis, but not always in written form. Up until February 2010, only two completed risk analyses existed.¹⁶¹ These were made by consultants in 2003 ahead of a decision to buy emission credits from the two JI projects the authority has in its project portfolio. For the remaining 12 CDM projects with which the Energy Agency has entered into individual purchase agreements up to and including 2009, there were no written risk analyses before the purchase agreements.¹⁶²

Because of the lack of written documentation, it has not been possible for the SNAO to audit what risk analyses the Energy Agency has carried out before the Agency has decided to try to get purchase agreements for emission credits in individual projects.

Unclear whether risks are identified and evaluated

According to the Energy Agency, risk assessments are made until the time the Agency signs purchase agreements.¹⁶³ The risks are handled in two

¹⁶¹ In February 2010, the Energy Agency completed two due diligence reports for projects the Agency had entered into agreements for in spring 2009.

¹⁶² In addition to these projects, the Energy Agency together with CAM, one of Tricorona's subsidiaries, have entered into agreements to purchase 5 per cent of the emission credits in 15 wind power projects in China. CAM is managing these projects and is also to carry out risk analyses. We have not seen these analyses.

¹⁶³ Interview with the Energy agency on 25 May 2010.

ways according to the Agency, partly by various conditions being written into purchase agreements and fund agreements and partly by the emission credits from projects mainly are paid for on delivery.¹⁶⁴ For example, in some agreements, the Energy Agency has written in the possibility of breaking off the contract if less than 50 per cent of the generated emission credits are delivered. The work with risk analyses includes making site visits in order to see that the plant exists and that it appears to work.¹⁶⁵

According to the Energy Agency, the risk analyses include the following:¹⁶⁶

- Political risks
- Country risks
- CDM-specific risks
- Technical risks
- Legal risks
- Financial risks
- Environmental and social risks

The Procedures from 2006 states that the Agency shall make a limited risk analysis in the form of a due diligence investigation before any decision is made to proceed with a project to negotiation.¹⁶⁷

The first due diligence reports were completed by the Energy Agency only in February 2010. They related to two CDM projects for which the Agency had entered into purchase agreement during spring 2009. The Agency states that risk assessments previously could be included as a part of internal memoranda, or as part of the oral presentation made during meetings. Such memoranda do usually exist, but not always. They rarely include any risk analysis of the factors above. Nor do the analyses, where they exist, evaluate how great the risks are or what the consequences would be if the risks occurred.

For cancelled projects – projects where the Energy Agency has tried to realise agreements for the purchases of emission credits but has not succeeded – documented risk analyses are entirely lacking. This relates to at least ten projects. In some cases, the Energy Agency has tried to realise purchase agreements for several years before the projects have been cancelled (Ukraine and Russia).¹⁶⁸

¹⁶⁴ According to the Energy Agency's written reply to a fact-clearance process dated 17 December 2010.

¹⁶⁵ Interview with the Energy Agency on 25 May 2010.

¹⁶⁶ Interview with the Energy Agency on 25 May 2010.

¹⁶⁷ Pages 11 and 14 in the Energy Agency's administrative procedures dated October 2006.

¹⁶⁸ Memo from the Energy Agency produced to the SNAO regarding cancelled projects dated 3 July 2010.

According to the Energy Agency's reports, JI projects have been assessed as more risky than the corresponding CDM projects. These are primarily country-linked and political risks.¹⁶⁹ In the two risk analyses carried out by consultants ahead of the decisions to purchase emission credits from the Agency's two JI projects (in Romania and Estonia), country risks and political risks were not central, however. In the case of Romania, the analysis concentrated solely on market risks.

The Government has underlined that "there should be increased cooperation between the Energy Agency and Sida. The cooperation can entail, among other things, that Energy Agency should get advice from Sida when it comes to collaborations in developing countries [....]."¹⁷⁰ According to the Energy Agency, the Agency does not have any regular exchange of information with Sida concerning country analyses, for example.¹⁷¹ In some cases the Agency uses country analyses, such as those produced by Swedfund, the Swedish Trade Council and the Swedish Export Credit Corporation. According to the Energy Agency, these have more relevant experience than Sida in terms of business and trading operations in the countries in question.¹⁷² Sometimes the Ministry of Foreign Affairs has been asked if there is anything on an overall political level that indicates that Sweden should not commit itself to CMD projects in a certain country.¹⁷³

No risk analysis before deciding to invest in funds

Sweden has invested a total of approximately SEK 350 million in five funds up to and including June 2010. The funds are managed by various development banks. Ahead of the decisions to join the funds, there is in most cases short memoranda that describe the fund's objectives and how this tallies with Sweden's priorities in terms of projects and funds.¹⁷⁴ However, there are no documented analyses of the risks Sweden is taking by joining the funds.

Two funds that Sweden has invested in, Multilateral Carbon Credit Fund and Testing Ground Facility have had problems acquiring projects. The risk in these cases are that deliveries of emission credits will be lacking, at the same time as the Agency's appropriations are tied up in agreements with projects and funds that stretch over a long time. Others, such as Asian Pacific Carbon Fund and

¹⁶⁹ Energimyndigheten [Energy Agency] (2006) ER 2006:39, p.36.

¹⁷⁰ Govt. Bill 2005/06:127, p.144.

¹⁷¹ Interview with the Energy Agency on 24 August 2010.

¹⁷² According to the Energy Agency's written reply to the fact-clearance process dated 17 December 2010.

¹⁷³ Interview with the Energy Agency on 1 June 2010. After the audit, in February 2011, the Energy Agency has stated that it is asked the Ministry of Foreign Affairs about Nigeria, Syria, Vietnam, etc. At the same time, the Agency also informed that it had contacted embassies in Rwanda, Tanzania, Nigeria, Kenya, Uganda and Vietnam, among others. The SNAO has not seen any documentation of this.

¹⁷⁴ We have not received any documents dealing Sweden's decisions before joining the European Investment bank's fund Multilateral Carbon Credit Fund.

Future Carbon Fund, usually pay the projects in advance, which also entail a risk of losing money if the projects failed to materialise.

5.4.2 *More systematic risk handling 2010*

The Energy Agency's work with risk control and risk assessment has become more systematic as from 2010. As from 2010, all projects shall be assessed based on various risk factors and be documented in writing. Since the beginning of 2010, the Energy Agency has a template for project assessment, which includes an analysis and assessment of risk, a so-called due diligence report. The assessments are made after reviewing documents and a site visit. The administrators analyse risk, both at overall level and at project level, according to the Energy Agency.¹⁷⁵

Due diligence is a method for collecting and analysing information about a company ahead of a company acquisition or other strategic changes. In the first instance, it constitutes material for decision-making for the management of the acquiring company, in the second instance support in negotiations between buyer and seller. The normal practice in business is therefore that the report exists before the purchase agreement is signed.¹⁷⁶

The risk analyses have failings and are done afterwards

Up until 1 July 2010, the Energy Agency had completed three due diligence reports. In these, the Agency briefly accounts for project risks and system risks. The information is based largely on information from project owners and project developers, but also on own site visits. Country risks, political risks or risk of corruption are not mentioned in any of the reports.

The Energy Agency makes not evaluation of the projects based on the analysis or on the probability that the risks will occur. It is unclear what measures the Energy Agency considers that it should take on the basis of the analysis, or how the risks affect final negotiations about the purchase agreement. This may be because the Agency carries out the company inspections at a late stage in the acquisition process, and usually completes them after the purchase agreement has already been signed. In only one of five cases during the first half of 2010 had the Energy Agency produced a due diligence report before the purchase agreement was signed. Because the Agency in the other four cases had not completed its risk analyses before the agreement was signed, risks may have been overlooked and the possibility of influencing the price in the agreements may have lessened.¹⁷⁷

¹⁷⁵ Interview with the Energy Agency on 25 May 2010 and on 8 October 2010.

¹⁷⁶ Riksrevisionen [Swedish National Audit Office] (2010), RiR 2010:2.

¹⁷⁷ In some agreements, the Energy Agency has however written in a retroactive right to cancel (during a limited period) if significant failings in the projects emerge after signing agreements and before the project scrutiny has been completed.

5.4.3 *The risk analyses are worse than in several funds*

We here present how two of the large CDM and JI funds with which Sweden has signed agreements work with risk analyses and risk handling. The presentation aims to provide a picture of what may be reasonable to require of the Energy Agency in terms of analysis and handling of risks. Prototype Carbon Fund and Asian Pacific Carbon Fund work systematically with risk assessments and link the risk assessments to expected delivery of emission credits.

The World Bank's Prototype Carbon Fund, in which Sweden has participated since 2000, carries out risk analyses that include 13 risk categories, divided up into two types of principal risks: CDM-specific risks and project risks. CDM-specific risks relate to the UN rules for CDM projects, such as the calculation methods that may be used in order to estimate reductions in emissions. The project risks are, for example, financial and technical risks. For each individual risk, all projects are given a value on a scale from 1 to 5, where 0 indicates low or no risk and 5 indicates the highest risk. The World Bank assessment is that if a project has the highest risk in one category, there is a risk that it will not deliver any emission credits from the project, depending on the type of risk in question.¹⁷⁸ The fund has worked out a probability index for each project, indicating how many percent of the contracted emission credits that will probably be delivered. The probability index is based on the project's risk value. The risk changes over time and falls the later in the project cycle a project is. The risk analyses are continuously updated. Against the background of the probability index and the number of credits delivered by the project, the fund calculates the probability that the project will be delivering the agreed number of emission credits.

Asia Pacific Carbon Fund, which is administered by the Asian Development Bank, carries out similar risk analyses. The fund analyses each project against the background of type of project and the problems that often arise with this type of project, apart from the specific risks and problems that exist in the individual project. For all projects, the fund then makes a risk-adjusted assessment of the probability that the project will deliver the agreed emission credits.

5.5 Follow-up

Here we audit to what extent the Energy Agency systematically and regularly follows up and assesses the investments it has made in projects and funds. By

¹⁷⁸ Prototype Carbon Fund (2007), Annex 3: Risk Assessment.

means of the follow-up, the Agency can increase the prerequisites for achieving the goals – by taking measures if projects and funds are not functioning in the way intended.

5.5.1 The Energy Agency spends little time on follow-up

A lesser part of the Energy Agency's work is carried out after the Agency has entered into purchase agreements. In October 2006, the Energy Agency wrote as follows: "The greater part of the internal work in the form of analytical work is carried out during the first stage of the project cycle, when the project is designed and the purchase agreement drawn up. Thereafter follows work of continuous updating of the project status and payments."¹⁷⁹

According to the Energy Agency, follow-up of projects have "had lower priority compared to the work of identifying, scrutinising, negotiation about and signing agreements for new projects and funds."¹⁸⁰ The Agency considers that it has and also in the future will have its focus on finding suitable projects and funds.¹⁸¹

Tricorona, on the other hand, carries out 90–95 per cent of its work on the phase after they have signed purchase agreements.¹⁸² The work that follows includes daily updates of the project portfolio. The system also gives warnings if delays arise. As a commercial operator, Tricorona is financially dependent of deliveries of emission credits in the short term, and therefore has a strong incentive to follow up and ensure deliveries of emission credits are made according to the agreements.

5.5.2 The Energy Agency does not follow up deliveries

Sweden will have a need to purchase emission credits in order to achieve the milestone target for 2020. It is therefore important that the Energy Agency follows up how large the deliveries are and are expected to be from the different projects and funds. The measures taken in Sweden may lead to greater emission reductions than expected. If so, the need to purchase emission credits would lessen.

The purchase agreements with associated project descriptions include a preliminary annual delivery plan for the emission credits. This applies both

¹⁷⁹ Energy Agency's administrative procedures dated October 2006.

¹⁸⁰ According to the Energy Agency's written reply to a fact-clearance process dated 17 December 2010. According to the Energy Agency's written reply to a fact-clearance process dated 1 February 2011, the focus of the Agency is on both signing purchase agreements and following up.

¹⁸¹ Interview with the Energy Agency on 21 June 2010.

¹⁸² Interview with Tricorona on 9 September 2010.

to bilateral projects and for funds. The planned deliveries in the project descriptions are in many cases overestimated, as the plans are drawn up at an early stage. In their fund reports, several funds present adjusted delivery plans for each project and information about how many emission credits each individual project has delivered to date.¹⁸³

The Energy Agency does not follow up how many emission credits have been delivered compared with agreed deliveries for each project. As the Energy Agency in most cases only pays on delivery, the Agency considers it less important that the deliveries are made according to the agreement. The Agency has not required delivery of emission credits from the projects every year. According to the Agency, this is primarily because it has been difficult to get hold of independent auditors, who can verify the reductions in emissions.¹⁸⁴ The Agency also has many small projects, and the transaction costs for these are relatively high if deliveries are to be made every year.

Emission credits from most of the projects and all funds have not yet been fully delivered. So far, final deliveries have been received according to the purchase agreements from three Brazilian projects.

5.5.3 The Energy Agency rarely utilises information from projects

The purchase agreements include requirements for the seller of the emission credits to report how the project is progressing and any delays and problems that have arisen. The Energy Agency's administrators usually do not have time to read these reports properly.¹⁸⁵ The Agency also states that it is most important to read the reports that arrive at an early stage before the plant has become operational and the project has been registered by the UN. The Energy Agency does therefore not follow up the reports regularly.

This means that any problems described in the reports may not be noticed. The result is that the Agency does not use the material for taking measures to solve the problems reported, which could have contributed to a more efficient and effective operation.

Tricorona does read follow-ups from the projects, and takes measures direct if a project is not following the plan. For example, Tricorona may send out its own technicians in order to solve problems that may have arisen in the projects.¹⁸⁶

¹⁸³ PCT, TGF and APCF.

¹⁸⁴ Interview with the Energy Agency on 25 May 2010.

¹⁸⁵ Interview with the Energy Agency on 25 May 2010.

¹⁸⁶ Interview with Tricorona on 9 September 2010. According to the Energy Agency's written reply to a fact-clearance process on 17 December 2010, the Agency has used consultants to help project owners.

5.5.4 *The Energy Agency lacks overviews and evaluations*

The Energy Agency lacks summaries of emission credits delivered per project and per fund compared to what the Agency has paid to date for each project and fund. At the request of the SNAO, the Agency produced a summary document showing deliveries of emission credits per project.¹⁸⁷

Nor has the Energy Agency summarised information on how great a proportion of the emission credits that have been delivered to date compared to how much is expected according to delivery plans and agreements. Based on the Agency's information, the SNAO has calculated that only approximately 40 per cent of deliveries up to and including 2009 had been made according to agreement (see also Section 3.3.5).

Overview of projects cancelled is lacking

The Energy Agency has not had any overview of which projects have been cancelled or the reason why they have been cancelled. Only when the SNAO in June 2010 requested a summary of cancelled projects did the Agency produce such a document.¹⁸⁸ In the document, the Agency summarised projects where agreements had been signed, but which had then been cancelled for various reasons. In addition, the Agency has worked with a large number of possible projects which have not resulted in a purchase agreement.

The Energy Agency has invested considerable work, travel costs and sometimes consultancy fees on at least seven projects that have not led to any purchase agreement. The list of projects cancelled that the Agency summarised for the SNAO covers projects in Russia, Ukraine, Botswana, Ghana, Zambia and China. In addition to these, a number of projects had been cancelled at an earlier stage. The Agency has not been able to produce a summary of how many and which ones these are. According to the Agency, there is a risk that purchase agreements with the least developed countries are cancelled.¹⁸⁹

The Energy Agency has not documented the follow-up of projects cancelled, which means that experiences and knowledge about causes of problems cannot be utilised in any systematic way. Experiences and causes for the projects being cancelled may be important for efficiency and for the work on further developing the mechanisms. Developing the flexible mechanisms is one of the purposes of the central-government sector's climate contributions in other countries.

¹⁸⁷ Table of emission credits delivered each year between 2007 and 2010 per project and fund, dated 9 August.

¹⁸⁸ Memo of projects cancelled dated 3 July 2010.

¹⁸⁹ Interview with the Energy Agency on 10 September 2010.

Projects have not been evaluated

The Energy Agency has not made any evaluation of the three Brazilian projects that have completed delivery of emission credits according to the purchase agreements.

Nor has the Agency made any evaluation of projects that have been in progress for a long period.

5.5.5 *The Energy Agency does not follow up important purposes*

There are and have for a long time been a number of purposes and objectives of the CDM and JI operations, in addition to the climate objective and its milestone target for 2020 (see Section 2.2.). The Energy Agency makes no summary assessment of evaluation of how the operation is contributing to the achievement of various goals and purposes. For example, there is no evaluation of the way in which the operation has contributed to the development of the flexible mechanisms.

5.5.6 *Opportunity for better follow-up during 2010*

During spring 2010, the Energy Agency has worked with developing an IT-based project platform. The platform is intended to facilitate for the administrators to summarise and follow up important information about the projects. By means of the platform, the administrators will also get reminders of when various documents from different projects are expected to be completed. In June 2010, the platform was not yet completely developed, and it still lacks some material about projects and funds. The Energy Agency is also working on developing calculation models to enable follow-up how much money the Agency has left for signing agreements.¹⁹⁰

The SNAO has not been able to assess whether the platform of the new calculation models have led to better follow-up as they are not yet fully developed.

Since 2007, Tricorona has had its own specially-adapted IT system, which the company uses in order to make daily updates of the project portfolio.¹⁹¹

¹⁹⁰ Interview with the Energy Agency on 10 September 2010.

¹⁹¹ Interview with Tricorona on 9 September 2010.

5.6 Accounting and reporting

In this section we audit to what extent the central-government sector's purchases of emission credits fulfil the requirement for accounting and reporting. Is the operation accounted for in a reliable and fair manner¹⁹² so that the Riksdag, Government and the general public can monitor to what extent the goals are achieved and whether the operation is carried on efficiently and effectively.¹⁹³

5.6.1 *The Energy Agency's reporting has failings*

There are general requirements for external reporting about the central-government sector activities and the operations of public authorities. The general public is entitled to information about the central-government sector activities according to the principle of free access to public records. According to the Government Agencies Ordinance, public authorities are obliged to account for the operation in a reliable and fair manner.¹⁹⁴

The Energy Agency's reporting of the operation is done mainly through its annual reports. In addition, the Agency together with the Environmental Protection Agency has produced material ahead of the evaluations of Swedish climate policy in 2004 and 2008 as mandated by the Government.¹⁹⁵ In this material, the Energy Agency reports on the CDM and JI operations.

Some summary information about the operation is also available on the Energy Agency's website.¹⁹⁶

Apart from the written reporting, the Energy Agency and the Ministry of the Environment hold so-called dialogue meetings approximately five times per year. Representatives of the Energy Agency and the Ministry of the Environment also carry on a continuous dialogue, according to the Ministry.¹⁹⁷

The Ministry is satisfied with the reporting the Government has received from the Energy Agency concerning the central-government sector's purchases of emission credits.¹⁹⁸

¹⁹² Section 3 of the Government Agencies Ordinance

¹⁹³ According to Sections 1 and 2 of the Central Government Budget Act (1996:1059).

¹⁹⁴ Section 3 of the Government Agencies Ordinance (2007:515).

¹⁹⁵ Material for the "checkpoints" aimed at following up the environmental objective *Reduced Climate Impact*, which the Riksdag decided on in 2002.

¹⁹⁶ The official documents for each CDM and JI project that the UN requires, such as project descriptions (PDDs), can be found on the UN's website (UNFCCC). However, the website is difficult to access. Nor does the website give any information about the Swedish Energy Agency's work with CDM and JI.

¹⁹⁷ Interview with the Ministry of the Environment on 6 September 2010.

¹⁹⁸ Interview with the Ministry of the Environment on 6 September 2010.

The Energy Agency does not provide an overall picture of the operation and of goal fulfilment

In its annual reports and checkpoint 2008, the Energy Agency provides detailed information about how many and which projects the Agency has in its project portfolio. On the other hand, an overall, comprehensive picture of the operation is lacking.

The Energy Agency has not reported to what extent the operation contributes to the achievement of that third of the milestone target for 2020 that may be achieved through contributions from emission credits, either in its annual reports or otherwise.

Nor has the Agency reported to what extent it has achieved the overall goal that the operation has had since 2002: to contribute to the development of the flexible mechanisms into credible and effective instruments in the international climate cooperation. The way in which the operation contributes to the development of the mechanisms is not reported.

Reporting on the following is also lacking:

- Expected deliveries from projects and funds per year. The Energy Agency only states a range for how many emission credits the Agency expects to receive on the basis of the agreements entered into. The Agency does report how many credits it has received during the year in question and in total from 2002, but does not state what should have been delivered according to the agreements signed.
- Cancelled projects. The Agency does not account for which projects have been cancelled, despite the Agency having invested considerable time and resources and despite these projects having been accounted for previously in the annual reports.
- Contracted funds and interests held in the Nordic Environmental Finance Corporation (NEFCO) of almost SEK 400 million. The funds appear to be used up in the Energy Agency's annual accounts. This resulted in an objection from the SNAO in spring 2010 against the Energy Agency's annual report for 2009.

This information would be of great importance in order to assess what prerequisites the central-government sector has of reaching the milestone target for 2020 with CDM and JI – and how great the requirements are for further appropriations.

Commercial secrecy obstructs insight

According to the Energy Agency, commercial secrecy prevails in relation to price information for individual projects, agreements entered into, risk assessment of projects and annual reports from the funds in which the Agency has invested.¹⁹⁹

For example, it cannot be gathered from the annual accounts what the cost per emission credit is for each project. The Ministry of the Environment has asked for an account of costs per project in the annual accounts. The Energy Agency only reports the total, aggregated costs of the purchases and average price per emission credit, however. It is the Energy Agency's view that price information per project is covered by commercial secrecy. This makes it more difficult for the Government, the Riksdag and the general public to monitor whether the Agency economises well with the resources of the central-government sector in the operation.

It is therefore difficult for the general public to find information about the extent to which the central-government sector's purchases of emission credits are carried out efficiently and effectively and in accordance with the goals for the operation.

5.6.2 *The Government's reporting to the Riksdag about the central-government sector's purchases of emission credits is decreasingly comprehensive*

The Government is obliged to account for goals and results achieved in various operation areas to the Riksdag.²⁰⁰ The purpose of the Government's accounting for results is "to give the Riksdag and the Government better background material for prioritisation discussions and to make it easier to assess the value of resources invested in relation to politically decided goals".²⁰¹ The account must be fair in order for the Riksdag to get fully satisfactory material for decision-making and be able to monitor to what extent goals are being achieved and whether the operation is carried out efficiently and effectively.²⁰²

The Government has several opportunities to inform the Riksdag. Each year, the Government submits a statement of results for the policy area in the budget bill. This is based primarily on the Agency's annual report. The Government

¹⁹⁹ The Energy Agency makes reference to the Public Access to Information and Secrecy Act (SFS 2009:400), Chapter 31, Section 16, Chapter 19 Sections 1 and 3, i.e. commercial secrecy applies both to protect individuals who have entered into a business relationship with the Agency and to protect the Agency's own activities.

²⁰⁰ Section 2 of the Central Government Budget Act (1996:1059).

²⁰¹ Committee Rept. 2010/11:MJU1, p.55.

²⁰² Sections 1 and 2 of the Central Government Budget Act (1996:1059).

also submits official communications to the Riksdag, such as the central-government sector annual accounts. In the Climate Bill 2009, the Government announced that it will carry out a checkpoint in 2015 for the purpose of analysing developments in relation to the goals.

Over recent years, the Environment and Agriculture Committee has repeatedly underlined the need for “the Government to follow up and evaluate on a continuous basis the measures carried out within the climate area and annually report and analyse the results achieved to the Riksdag”.²⁰³

The Committee considers that the Riksdag’s analyses of the results reported would be facilitated if the Government submitted its own assessment of the various investments and how they contribute to achieving the goals set by the Riksdag. According to the Committee, the Government should submit a clear and fit-for-purpose statement of results annually in the budget bill.²⁰⁴

The Environment and Agriculture Committee’s sub-committee for follow-up and evaluation has established that “the result information in the budget bill for expenditure area 20 needs to be developed. The sub-committee considers that it should be possible for the Committee to follow the link between inputs made, results achieved and the Government’s appropriation proposal. The inputs shall contribute to the achievement of goals set. [...] the Government needs to live up to the Riksdag’s desire for a more in-depth statement of results according to the applicable guidelines.”²⁰⁵

The Government provides meagre information to the Riksdag

The Government does not account clearly whether the central-government sector’s purchases of emission credits through CDM and JI to date have fulfilled the goals and purposes that exist for the operation. At a more overall level, the Government states in the Budget Bills for 2010 and 2011 that the milestone target for 2020 will be achievable with the measures reported in the Climate Bill 2009.²⁰⁶ However, the Government does not report in these Budget Bills what the results of the climate contributions in other countries have been to date.

Compared to previous years’ budget bills, the Government’s accounting for the central-government sector’s purchases of emission credits in the Budget Bills for 2009, 2010 and 2011 is less concrete. In the most recent years’ Budget

²⁰³ Committee Rept. 2008/09:MJU1, p.60, Committee Rept. 2009/10:MJU1, p.124. See also Committee Rept. 2009/10:MJU25, p.15.

²⁰⁴ Committee Rept. 2008/09:MJU1, p.61.

²⁰⁵ Committee Rept. 2010/11:MJU1, p.54.

²⁰⁶ Govt. Bill 2010/11:1 Expenditure Area 20, p.15, Govt. Bill 2009/10:1 Expenditure Area 20, p.15.

Bills, the Government reports neither on goal fulfilment, nor for how many projects and funds the central-government sector has entered into agreements, nor how many emission credits have been delivered to date, nor future forecasts, nor how much money the Agency has used to date. At the same time, appropriations for international climate contributions are being raised significantly.

Annual follow-up of deliveries and costs is lacking. For only one year since 2006, in the Budget Bill for 2008, has the Government stated how many emission credits the Energy Agency's operation is expected to produce, and how much the credits cost on average.

Nor does the Government in the Climate Bill from 2009 provide any summary of how many emission credits the central-government sector climate investments has generated to date, or how many they will probably generate. Only for participation in an individual fund, the World Bank's Prototype Carbon Fund, does the Government report to how many emission credits Sweden's investment is expected to lead.

The annual accounts for the central-government sector also provide meagre information about the central-government sector's purchases of emission credits. For example, the Government does not report that the majority of the funds for CDM and JI projects so far has not been used, but is only tied up in purchase agreements and contracts with funds.

The Riksdag's opportunities for gaining a comprehensive picture of the central-government sector's purchases of emission credits are further hindered by the way in which the Government has reported certain issues relating to the Energy Agency's funds with NEFCO in the Budget Bill for 2011 (see Section 3.2.2). The Government accounts for the background to the SNAO's objection against the Energy Agency's annual report for 2009 only under Expenditure Area 21 Energy. Information about this is lacking under Expenditure Area 20 General Environment and Environmental Protection, where the appropriation for CDM and JI is accounted for.²⁰⁷ It is from this appropriation the Agency has transferred funds to NEFCO. The Energy Agency's administration appropriation comes under Expenditure Area 21 Energy. The SNAO has also previously encountered similar problems in the Government's accounting in budget bills. It was then established that the link between different parts of the accounts is not clear and that traceability is weak.²⁰⁸

²⁰⁷ Govt. Bill 2010/11:1 Expenditure Area 21, p.46.

²⁰⁸ Riksrevisionen [Swedish National Audit Office] (2007) RiR 2007:26, p.21.

5.7 Important findings

Here we summarise the most important findings in the chapter. An overall finding is that the documentation of the work with purchasing emission credits is insufficient and means that it is difficult to follow how the work progresses and what has been carried out and what has not.

- The Energy Agency almost entirely lacks prioritisations and clarifications of goals and purposes. The milestone target for 2020 is lacking in internal control documents. The Agency states only in February 2011 that the milestone target is one of several goals for the CDM and JI operations.
- The Energy Agency's guidelines for the work with CDM and JI have been few. Administrative procedures for the work of purchasing emission credits were developed in 2006, but most of the procedures were implemented only in 2009. Exactly which procedures have been introduced, and when, is difficult for the SNAO to establish, as the Agency has not documented the work.
- The Energy Agency does not have any documented risk analyses ahead of decisions to purchase emission credits for the period 2002–2009, with two exceptions. From 2010, there is some documentation of the Agency's risk analyses in due diligence reports. However, these make no overall assessment of the combined risks, of how the risks are to be handled or of political and corruption risks.
- The Energy Agency's follow-up of projects has many failings. The Agency does not ensure the projects and funds deliver emission credits at the rate agreed. The most important goal for the Energy Agency has been to sign new purchase agreements. The Agency does not regularly follow up reports from the projects. Projects are evaluated neither intermittently nor on completion. Nor does the Agency make any total assessment or evaluation of how the operation is contributing to the achievement of goals and purposes. A large part of the documentation the SNAO has requested has been created in response to the request and was not documented previously. This applies, for example, to summaries of emission credits delivered and of cancelled projects.
- The opportunity for the Riksdag and the general public to find information about and gain insight into the operation is insufficient. Despite the Riksdag repeatedly requesting reporting that is more fit for purpose, the Government's reporting to the Riksdag has become ever less comprehensive. The Government does not report whether the central-government sector's purchases of emission credits to date have fulfilled the goals and purposes that exist for the operation. The Energy Agency's reporting is detailed, but does not provide an overall picture of the operation and of goal fulfilment. Neither the Energy Agency's nor the Government's reporting shows that the funds that are held with the Nordic Environmental Finance Corporation (NEFCO) of almost SEK 400 million are *not* used up.

6 The Swedish National Audit Office's conclusions and recommendations

The Swedish National Audit Office (SNAO) has audited the central-government sector's purchases of emission credits from other countries. Sweden's national milestone target for climate for 2020 shall partly be achieved with the aid of such emission credits. The SNAO's overall conclusion is that the Government has not decided how many emission credits are to be purchased, and when. It is therefore not clarified what reductions in emission, that is to say climate effects, the milestone target contributes to. This also reduces the prerequisites for planning and carrying out purchases of emission credits in an efficient and effective manner. The Energy Agency has not safeguarded delivery of emission credits, which may lead to the effects of the climate contributions being less than expected. In total, the central-government sector's purchases of emission credits have not been carried out efficiently, effectively and transparently enough, but the costs may be lower than for other measures.

6.1 The Government has not clarified the prerequisites for fulfilling the milestone target

Unclear how many emission credits are to be purchased

In 2009, the Riksdag decided on Sweden's climate objectives for 2020. The Government has not clarified how the milestone target for 2020 is to be interpreted, which means that the total reductions in emissions in order to achieve the target may be 20 million tonnes or 300 million tonnes for the period up until 2020:

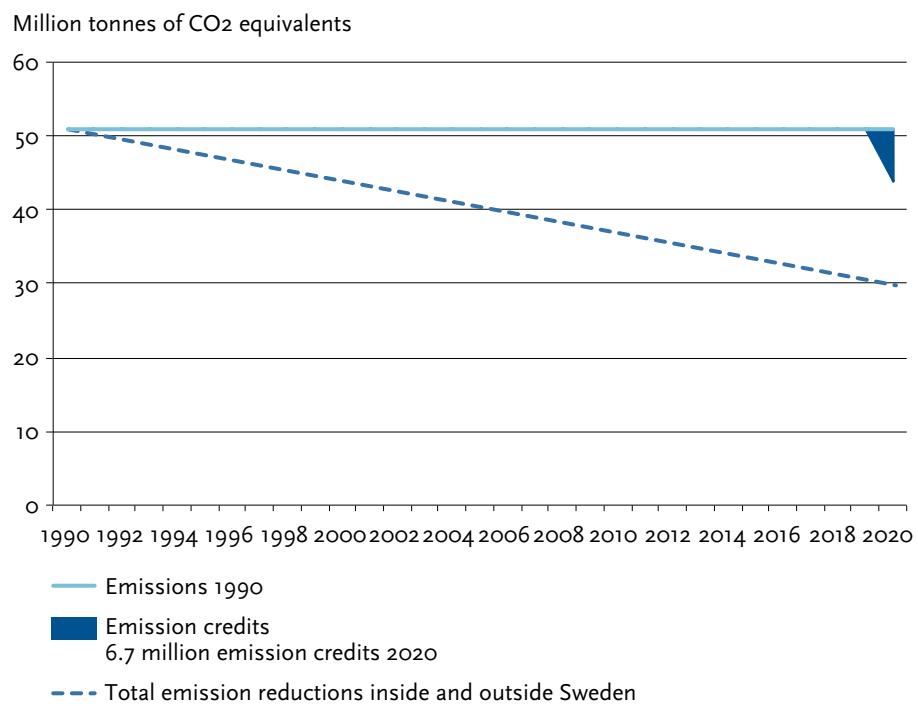
- The Government has not decided at what speed the milestone target for 2020 shall be reached.
- Nor has the Government decided on any starting year for when we can start to be credited with emission credits delivered.

This means that the Government has not clarified the size of the reduction in emissions the milestone target entails, nor how many emission credits may be

used in total in order to reach the milestone target.²⁰⁹ In order to achieve the target in an efficient and effective way, the Government needs to clarify how the target is to be interpreted. This is also necessary in order for the Riksdag to have good material for making a decision on the size of appropriations for the purchases of emission credits. The Swedish Environmental Protection Agency has requested a plan for when the reductions in emission are to occur,²¹⁰ and the Energy Agency has submitted arithmetical examples of these issues to the Ministry of the Environment.

Sweden's need for emission credits up until 2020 may vary significantly, depending on which interpretation the Government chooses. The choice of interpretation will have a big impact on the central-government sector expenditure and for the climate. The requirement for emission credits may, depending on the interpretation of the milestone target, vary between approximately 6.7 million and 100 million emission credits (see Figures 3 and 4).

Figure 3. Emission credits 2020 and linear total emission reductions inside and outside Sweden for the non-trading sector 1990–2020

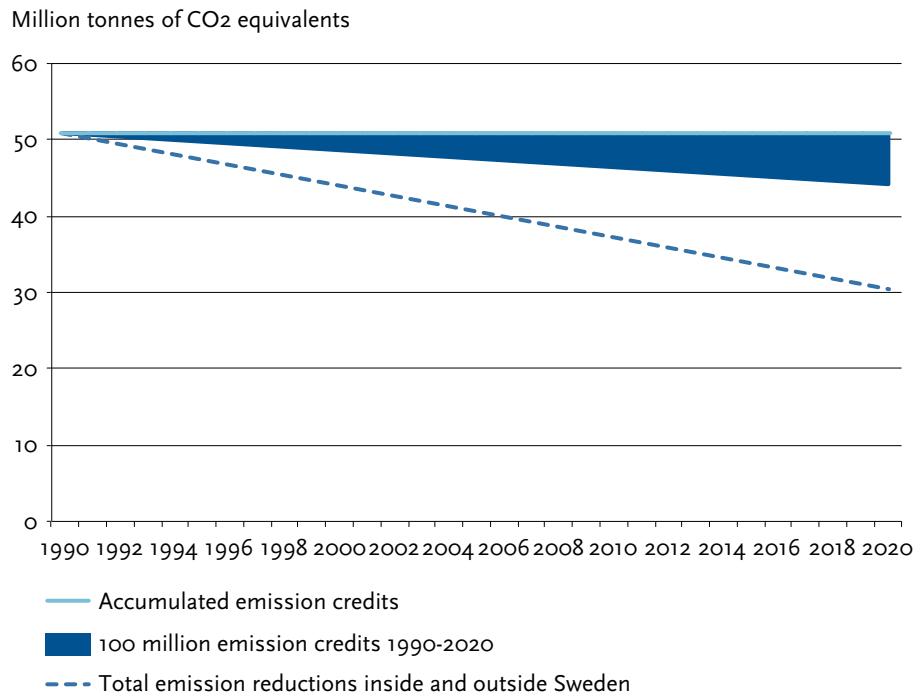


Source: Swedish Environmental Protection Agency. The information have been processed by the SNAO.

²⁰⁹ The need for emission credits is also affected by how emissions in Sweden develop. It is thus not possible to determine exactly how great the need for emission credits will be. But unless the Government sets a starting year or a plan for how large the reductions in emission shall be up until 2020, this will have great consequences for how many emission credits will be needed in total.

²¹⁰ Naturvårdsverket [Swedish Environmental Protection Agency] (2010). Report 6384.

Figure 4. Accumulated emission credits and linear total emission reductions inside and outside Sweden for the non-trading sector 1990–2020



Source: Swedish Energy Agency and Swedish Environmental Protection Agency.
The information have been processed by the SNAO.

As long as the Government has not determined which interpretation applies, it is possible to interpret the milestone target as 20 million tonnes reduction in emissions in total up until 2020. As one third of the milestone target is to be achieved with the help of emission credits, we would then only need 6.7 million emission credits in total for the period. This would limit the expenditure to SEK 670 million. From a climate perspective, such an interpretation of the total reduction in emissions means that total reduction in emissions is small compared to other interpretations of the target.

In order to illuminate how ambitious the national milestone target for 2020 is, and in order for the Energy Agency's purchases of emission credits to be carried out efficiently and effectively, the Government must clarify how many emission credits the Agency needs to purchase during the period up until 2020. But in the appropriation directions to the Energy Agency, the Government has not mentioned this. Nor has the Government prioritised between different goals, purposes and objectives for the CDM and JI operations.

The appropriations may be too high, too low or reasonable

Depending on how the milestone target for 2020 is interpreted, the total cost of achieving that third of the target that may be achieved with the help of emission credits from other countries – according to the SNAO’s arithmetical example – may amount to at the lowest SEK 670 million and at the highest SEK 10 billion.

The appropriation for the CDM and JI operations during the period 2002–2010 has amounted to SEK 940 million in total. If we add the proposed appropriations for the period up until 2014, the appropriations amount to approximately SEK 1.6 billion for the period 2002–2014. Because the interpretation of the milestone target is not established, it is uncertain whether the appropriations are too high, too low or reasonable. As the Government has not decided on the interpretation of the milestone target for 2020, the Riksdag is not getting clear and fit-for-purpose material on which to base its decision on the budget for the central-government sector’s purchases of emission credits.

A further lack of transparency towards the Riksdag relates to the funds the Energy Agency has used up for the purchases of emission credits. Up until 2010, the Energy Agency transferred funds to the Nordic Environmental Finance Corporation (NEFCO) in conjunction with the Agency signing agreements, and in some cases invested in funds where not the entire stake must be paid in advance. This means that the central-government sector funds are tied up for a long period – but not used – before the money is used for purchasing emission credits. While waiting for emission credits to be delivered and paid for, these monies could be used for other purposes in the meantime. Final deliveries may take up to ten years to take place once an agreement has been signed. At year end 2009, approximately SEK 400 million was tied up in this way with NEFCO.

The lack of transparency is worsened by the way in which the Government has accounted for the SNAO’s objection against the Energy Agency’s reporting of the funds held at NEFCO. In the Budget Bill for 2011, the Government has only accounted for the funds and the background to the SNAO’s objection under Expenditure Area 21 Energy. Under Expenditure Area 20 General Environment and Environmental Protection, where the appropriation for the operation are reported, information about the Energy Agency’s funds held at NEFCO is lacking.

Weak formal direction from the Government

The formal direction has become ever less detailed, at the same time as the appropriations for CDM and JI have increased. Both before and after the milestone target for 2020 was set, the Government’s formal direction in relation to different purposes and objectives of the operation was weak. In its appropriation directions, the Government has not detailed how the work with

CDM and JI it to contribute to achieving the milestone target. Therefore the Government has not ensured that the Riksdag's decision about the milestone target is executed in practice.

Requirements on reporting have reduced. It is therefore more difficult for the Riksdag, the Government and the general public to monitor the operation and goal fulfilment continuously. Transparency is poor, despite the operation receiving large appropriations and many citizens are committed to the climate issue. Lack of transparency makes it difficult for the Riksdag to assess the efficiency and effectiveness of one the central parts of Swedish climate policy.

6.2 The costs may be reasonable, but efficiency measures are possible

The SANO has estimated the cost of the central-government sector's purchases of emission credits. The cost of purchasing one emission credit corresponds to a one tonne reduction in emissions. However, Sweden can only be credited with this reduction for a specific year, even if the reduction in the host country remains for a longer period.

We have estimated the central-government sector's average cost per emission credit to approximately SEK 85. The SNAO assesses that the cost of reducing emissions through the purchases of emission credits may be reasonable compared to other measures; the cost of purchasing emission credits is lower than if the central-government sector had bought credits on the secondary market. During the period 2007–2009, the price on the secondary market has varied between SEK 80 and SEK 230 per emission credit. The average price has been approximately SEK 150 per emission credit during the period.

It is difficult to make fair comparisons between purchasing emission credits from CDM and JI projects and measures carried out in Sweden. At least from a short-term perspective, it may be considerably cheaper to purchase emission credits rather than carry out reductions in emissions in Sweden. A simplified way of estimating the cost in Sweden is to start from the carbon dioxide tax. During 2009 and 2010, the highest tax rate for carbon dioxide was SEK 1 050 per tonne. But manufacturing industry, for example, pays a reduced rate of carbon dioxide tax and in some cases no tax at all. During 2003–2009, the actual carbon dioxide tax charged (implicit tax) has been on average SEK 420–550 per tonne.²¹¹

²¹¹ The actual tax charged (implicit tax) on average on fossil fuels (excluding waste) is calculated by comparing the income from the carbon dioxide tax with Swedish emissions of carbon dioxide. The income is taken from *Beräkningkonventioner 2007–2011* ['Calculation conventions 2007–2011'] and the emissions are taken from the Swedish Environment Protection Agency's website on 25 January 2010.

However, as shown below, there are good opportunities for the Energy Agency to work more efficiently and effectively than today within the framework for the current CDM and JI operations.

6.3 The central-government sector's purchases of emission credits are not carried out in a sufficiently efficient, effective and transparent manner

The milestone target for 2020 is not taken into account sufficiently

The milestone target for 2020 is not included in any of the Energy Agency's internal control documents relating to the CDM and JI operations; instead the Agency refers to other purposes and objectives. In February 2011, the Agency stated that the milestone target for 2020 is one of several goals for the CDM and JI operations. Previously during the audit, the Agency has stated that the milestone target is not to be regarded as a goal for the CDM and JI operations, as the Agency considers that there is no target for how much of the reduction in emissions may be carried out with the help of CDM.²¹² The SNAO assesses that the Energy Agency has not taken the milestone target for 2020 into sufficient account in the work with CDM and JI.

The Energy Agency has not prioritised between different goals, purposes and objectives of the operation. A consequence of there not being any prioritisation is that goal fulfilment, efficiency and effectiveness are difficult to assess.

Risks and uncertainties are not taken into account sufficiently

The Energy Agency's work with risk has been unstructured up until the end of 2009. In most cases, the Energy Agency has no written documentation of the risk analyses carried out. It is therefore not possible for the SNAO to determine whether the Energy Agency has had sufficiently good control over the risks the CDM and JI operations entail. When the work is not documented, there is a clear risk that the operation becomes person-dependent.

²¹² According to the Energy Agency's written reply to the fact-clearance process on 1 February 2011: "The Energy Agency considers that there are several goals for the CDM and JI operations, among them to achieve the national climate objective for 2020. The Energy Agency has pointed out that there is no volume goal in the appropriations directions for the period up until 2020." According to the Agency written reply to the fact-clearance process on 17 December 2010: "The Riksdag's milestone target for 2020 in terms of delivery of emission credits is part of the Energy Agency's goals.""It is hardly to be considered as a goal." ..."The goal of achieving a certain reduction in emissions by 2020. Is there a GOAL for how much of this should be from CDM?"

It is positive that the Energy Agency now works more systematically with risk assessments. However, the Agency's risk assessments are relatively shallow and not sufficiently critical, and they are usually completed once a purchase agreement has already been signed.

The SNAO's assessment is that the factors the Energy Agency includes in its risk analyses primarily are the most important ones ahead of purchases of emission credits in developing countries – with certain exceptions. The risk of corruption has not been taken into account in conjunction with the purchases of emission credits. Nor have political risks been taken into account sufficiently.

The Energy Agency is increasingly looking for projects in the least developed countries, primarily in Africa. This places great requirements on the Agency to take into account and evaluate the risk of corruption and political risk if the operation is to have the prerequisites for being successful. The least developed countries are countries where the political institutions are weak and often unstable. The risks associated with entering into purchase agreements with the least developed countries if greater than, for example, agreements with China and India. Sida shall always analyse the risk of corruption before it gives grants, and should therefore be able to contribute with valuable information to the Energy Agency.

Well developed cooperation between Sida and the Ministry of Foreign Affairs in relation to country analyses is one way of ensuring the risk of corruption and political risks are taken into account in a better way than today. Sida and the Ministry have extensive knowledge about the countries with which the Energy Agency has entered into agreements and plans to purchase emission credits from in future. According to a survey in 2010 by the energy company Point Carbon, 15 per cent of just under 5 000 purchasers on the emissions market from 118 countries stated that there is cheating, pressurisation and corruption in conjunction with CDM and JI projects. For China, irregularities are stated to occur in 28 per cent of cases.²¹³

Improved risk analysis could contribute to the development of the mechanisms through problems being discovered at an early stage and failings are corrected. Risk analysis is also needed as background material for making prioritisations between possible projects and in order to assess what costs and climate effects the central-government sector's purchases of emission credits can be expected to entail.

²¹³ Website of World Business Council for Sustainable Development on 24 January 2011.

Follow-up of purchases is insufficient

Follow-up of the operation is poor. The Energy Agency does not ensure the projects and the funds deliver emission credits at the rate agreed. This way, the opportunities at an early stage to carry out measures to when problems arise are reduced. The Agency's ability to draw benefit from knowledge and experience that could contribute to the development of the mechanisms is also reduced.

The Energy Agency spends little time on follow-up. The most important thing for the Agency is to sign purchase agreements. The Agency has no documented evaluations of the projects or funds, despite the projects running for seven or ten years.

The Energy Agency has not documented any summaries how large a proportion of the emission credits that have been delivered to date in relation to how many were expected according to delivery plans and agreements, despite the Agency up until the end of 2009 only have received approximately 40 per cent of the emission credits that had been expected by that time according to the purchase agreements and fund reports. Failings in the follow-up and delays are contributing to it being uncertain whether the Energy Agency will receive a sufficient number of emission credits by 2020. This may lead to the effects of the climate contributions with which the central-government sector can credit itself in order to fulfil the milestone target being smaller than expected.

The Energy Agency considers that there is no volume goal for the deliveries of emission credits the operation is to generate. This may have contributed to the Agency not considering that it was so important to follow up agreements entered into.

Reporting is poor and does not provide an integrated picture of the goal fulfilment

The Riksdag does not get summarised information about how the central-government sector's purchases of emission credits contribute to the fulfilment of those goals and purposes that apply to the operation. The Environment and Agriculture Committee has repeatedly stated that the Government's reporting of results needs to be developed and that it should be possible for the Committee to follow in the Budget Bill the link between inputs made, results achieved and the Government's proposals for appropriations.²¹⁴

²¹⁴ Committee Rept. 20008/09:MJU1, p.60, Committee Rept. 2009/10:MJU1, p.124, Committee Rept. 2010/11:MJU1, p.24.

The Government does not clearly account for whether the central-government sector's purchases of emission credits through CDM and JI to date have fulfilled the goals and purposes that exist for the operation. The Government's reporting to the Riksdag is based primarily on the Energy Agency's annual reports. The Ministry of the Environment is satisfied with the reporting the Government has received from the Energy Agency.²¹⁵ The SNAO does not consider that the Energy Agency's reporting provides a fully satisfactory description of the operation. It is detailed, but lacks an overall description of goal fulfilment.

The Energy Agency's annual reports lack any reporting about expected deliveries from projects and funds per year, about cancelled projects and about funds held by the Nordic Environmental Finance Corporation (NEFCO). In order for the Government, the Riksdag and the general public to have an opportunity to assess whether the Riksdag's milestone target for 2020 can be achieved with the help of emission credits, the Energy Agency needs to account for such information.

The Energy Agency uses a restrictive interpretation of the principle of free access to public records. According to the Agency, commercial secrecy applies to price information for individual projects, agreements entered into, risk assessments of projects and annual reports from the funds the Agency has invested in. The great public interest in climate issues is an important argument for the Swedish central-government sector publishing considerably more information about the central-government sector's purchases of emission credits than is done today. The fact that CDM and JI are being criticised as systems increases the need for transparency.

6.4 Recommendations

To the Government:

- The Government should decide on the starting year for the milestone target for 2020, the pace at which the emissions will decrease, and how many emission credits will be taken credit for at the most during the time-period in order to reach the target by 2020. The Government should develop a comprehensive plan for how many emission credits can be needed to reach the milestone target for 2020. The plan can serve as a foundation for the management of the operation and the awarding of appropriations.

²¹⁵ Interview with the Ministry of the Environment on 6 September 2010.

- The Government should clearly account for how far the central-government sector has come regarding target achievement on a yearly basis; that is, how many emission credits have been acquired and how much they have cost.
- The Government should make sure that the Swedish Energy Agency contributes to increased transparency by, to a larger extent, documenting and openly providing accounts for its work.
- The Government should make sure that the Swedish Energy Agency's purchases of emission credits contribute to reaching the milestone target for 2020 effectively. The Government should, for this purpose, make sure that the Agency reports on the aggregated purchases of emission credits in relation to the target.
- The Government should suggest that the appropriations for the purchases of emission credits are adjusted to when the purchases actually take place and the money is to be paid out. Up until the turn of the year 2009/10, a large amount of the appropriations have been paid out long before they had been used. Consequently, central-government sector funds have been tied-up for a long time. At the turn of the year 2009/10, about SEK 400 million were tied-up in this way at NEFCO. The Government should broaden the scope of authorization so that the Swedish Energy Agency can use it instead of yearly appropriations for when the agency signs purchase- or fund agreements.

To the Swedish Energy Agency:

- The Swedish Energy Agency should make sure that the purchases of emission credits contribute to reaching the milestone target for 2020. The Swedish Energy Agency should establish gradual supply targets for the operations that could continuously be adjusted and updated.
- The Swedish Energy Agency should provide clear annual accounts concerning the degree of achievement of the milestone target for 2020 and how much it has cost.
- The Swedish Energy Agency should contribute to increased transparency by documenting and providing accounts for its work openly. Improved documentation means increased possibilities to evaluate the operation and it decreases the risk for dependency on specific people.
- The Swedish Energy Agency should carry out and document appropriate risk analyses before the purchases of emission credits. The analyses should be taken into account when selecting projects.
- The Swedish Energy Agency should regularly request information from the Ministry for Foreign Affairs and Sida (the Swedish International Development Cooperation Agency) on risks for corruption and country-specific risks when selecting projects.

Bibliography

References

Legislation

Annual Reports and Budget Documentation Ordinance (SFS 2000:605).

Ordinance with Instructions for the Swedish Energy Agency (SFS 2007:1153).

Ordinance on Internal Management and Control (SFS 2007:603)

Kyoto Protocol to the United Nations Framework Convention of 9 May 1992
on Climate Change (SÖ 2002:41)

Central Government Budget Act (SFS 1996:1059).

Government Agencies Ordinance (SFS 2007:515).

Public printed documents

Riksdag [the Swedish Parliament] printed documents

Committee Report 1992/93:JoU11 *Vissa åtgärder inom klimatområdet och i Östersjöregionen* ['Certain measures within the climate area and in the Baltic Region'], Riksdag Comm. 1992/93:46.

Committee Report 1992/93:JoU19 *Åtgärder mot klimatpåverkan* ['Measures against climate impact'], Riksdag Comm. 1992/93:118.

Committee Report 1996/97:NU12 *En uthållig energiförsörjning* ['A sustainable energy supply'], Riksdag Comm. 1996/97:117.

Committee Report 1998/99:MJU6 *Miljöpolitiken* ['Environmental policy'], Riksdag Comm. 1998/99:183.

Committee Report 2005/06:NU3 *Utgiftsområde 20 Energi* ['Expenditure Area 20 Energy'], Riksdag Comm. 2005/06:95.

Committee Report 2002/03:NU3 *Utgiftsområde 20 Energi* ['Expenditure Area 20 Energy'], Riksdag Comm. 2002/03:73.

Committee Report 2005/06:NU19 *Forskning och ny teknik för framtidens energisystem* ['Research and new technology for the energy system of the future'], Riksdag Comm. 2005/06:134.

Committee Report 2008/09:MJU1 *Utgiftsområde 20 Allmän miljö- och naturvård* ['Expenditure Area 20 General Environment and Environmental Protection'].

Committee Report 2008/09:MJU28 *Riktlinjer för klimatpolitiken m.m.* ['Guidelines for climate policy, etc.'], Riksdag Comm. 2008/09:300.

Committee Report 2009/10:MJU1 *Utgiftsområde 20 Allmän miljö- och naturvård* ['Expenditure Area 20 General Environment and Environmental Protection'].

Committee Report 2009/10:MJU25 *Svenska miljömål* ['Swedish environmental objectives'], Riksdag Comm. 2009/10:377.

Committee Report 2010/11:MJU1 *Utgiftsområde 20 Allmän miljö- och naturvård* ['Expenditure Area 20 General Environment and Environmental Protection'].

Government Bills

Govt. Bill 1992/93:99 *Om vissa åtgärder inom klimatområdet och i Östersjöregionen* ['Concerning certain measures within the climate area and in the Baltic region'].

Govt. Bill 1992/93:179 *Om åtgärder mot klimatpåverkan m.m* ['Concerning measures against climate impact'].

Govt. Bill 1996/97:84 *En uthållig energiförsörjning* ['A sustainable energy supply'].

Govt. Bill 1997/98:145 *Svenska miljömål. Miljöpolitik för ett hållbart Sverige* ['Swedish environmental objectives. Environmental policy for a sustainable Sweden'].

Govt. Bill 2002/03:1 *Budgetpropositionen för 2003* ['Budget Bill for 2003'].

Govt. Bill 2005/06:1 *Budgetpropositionen för 2006* ['Budget Bill for 2006'].

Govt. Bill 2005/06:127 *Forskning och ny teknik för framtidens energisystem* ['Research and new technology for the energy systems of the future'].

Govt. Bill 2005/06:172 *Nationell klimatpolitik i global samverkan* ['National climate policy in global cooperation'].

Govt. Bill 2008/09:1 *Budgetpropositionen för 2009* ['Budget Bill for 2009'].

Govt. Bill 2008/09:162 *En sammanhållen klimat- och energipolitik – Klimat* [An integrated climate and energy policy – Climate].

Govt. Bill 2009/10:28 *Ändringar i systemet för handel med utsläppsrätter* ['Changes in the emission trading system'].

Govt. Bill 2009/10:155 *Svenska miljömål – för ett effektivare miljöarbete* ['Swedish environmental objectives – for more effective environmental work'].

Govt. Bill 2009/10:1 *Budgetpropositionen för 2010. Utgiftsområde 20* ['Budget Bill for 2010. Expenditure Area 20'].

Govt. Bill 2010/11:1 *Budgetpropositionen för 2011. Utgiftsområde 20. Utgiftsområde 21* [Budget Bill for 2011. Expenditure Area 20. Expenditure Area 21'].

Ministerial Communications Series

Ds 2005:19 *De projektbaserade mekanismerna enligt Kyotoprotokollet och länkdirektivet* ['The project-based mechanisms according to the Kyoto Protocol and the Link Directive'].

Other written materials

Alexeew, J. m.fl. (2010) "An analysis of the relationship between the additionality of the CDM projects and their contribution to sustainable development." *International Environmental Agreements: Politics, Law and Economics* vol. 10 (3), p. 233–248.

ECON (2007) *Miljöeffekten av JI och CDM projekt* ['Environmental effects of JI and CDM projects']. Produced on behalf of the Swedish Energy Agency. Rapport 2007–07.

Ekonomistyrningsverket [Swedish National Financial Management Authority] (2009) *Handledning. Intern styrning och kontroll* ['Guidebook. Internal management and control']. ESV 2009:38.

Energimyndigheten [Swedish Energy Agency] (1999) *Rapport om kontakter och samarbete på klimatområdet...* ['Report on contacts and cooperation in the climate area...'] Dnr 00–98–3865.

Energimyndigheten [Swedish Energy Agency] (2006) *Etablerande av administrativa rutiner för myndighetens arbete med Kyotoprotokollets projektbaserade mekanismer inklusive upprättande av en stödfunktion* ['Establishment of administrative procedures for the Agency's work with the Kyoto Protocol's project-based mechanisms including setting up a support function'], October 2006.

Energimyndigheten [Swedish Energy Agency] (2006) *De flexibla mekanismernas roll efter 2012* [The role of the flexible mechanisms after 2012]. ER 2006:39.

Energimyndigheten [Swedish Energy Agency] (2007) *Administrativa rutiner för systemanalysavdelningen* ['Administrative procedures for the system analysis department']. Dated 23 September 2007.

Energimyndigheten [Swedish Energy Agency] (2007) *Styrmedel i klimatpolitiken. Delrapport 2 i Energimyndighetens och Naturvårdsverkets underlag till Kontrollstation 2008* ['Control instruments in climate policy. Interim report 2 of the Swedish Energy Agency's and the Swedish Environmental Protection Agency's documentation for Checkpoint 2008']. ER 2007:28.

Energimyndigheten [Swedish Energy Agency] (2008) *CDM i dag och i framtiden* ['CDM today and in the future']. Memo dated 2 December 2008.

Energimyndigheten [Swedish Energy Agency] (2008) "Sverige deltar i framtidsfond för internationella klimatprojekt." ['Sweden participates in future fund for international climate projects']. Press release dated 10 December 2008.

Energimyndigheten [Swedish Energy Agency] (2009) *Internt strategidokument för CDM och JI-arbetet (november 2009)* ['Internal strategy document for the CDM and JI work (November 2009)']. Memo dated 4 November 2009.

Energimyndigheten [Swedish Energy Agency] (2010) *Sveriges statliga program för införskaffande av utsläppsreduktionsenheter från klimatprojekt i andra länder* ['Sweden's central-government sector programme for acquisitions of emission reduction units from climate projects in other countries']. Memo to the Ministry of the Environment dated 10 June 2010.

Energimyndigheten [Swedish Energy Agency] (2010) *Personal inom Energimyndighetens CDM- och JI-program 1999–2008* ['Staff within the Energy Agency's CDM and JI programme 1999–2008']. Memo dated 14 June 2010.

Energimyndigheten [Swedish Energy Agency] (2010) *Avbrutna projekt inom Sveriges CDM- och JI-program under åren 2002–2009* ['Cancelled projects within Sweden's CDM and JI programme during the years 2002–2009']. Memo dated 3 July 2010.

- Energy Agency's appropriation directions for the years 1998–2010.
- Energy Agency's annual reports for the years 1998–2009.
- Energy Agency's operational plans for the years 1999–2010.
- Energimyndigheten [Swedish Energy Agency] (2005) *Strategisk plan 2006–2010* ['Strategic plan 2006–2010']. From the Energy Agency's quality handbook adopted 1 September 2005.
- Energimyndigheten och Naturvårdsverket [Swedish Energy Agency and Swedish Environmental Protection Agency] (2007) *Den svenska klimatstrategins utveckling – En sammanfattning av Energimyndighetens och Naturvårdsverkets underlag till kontrollstation 2008* ['Development of the Swedish climate strategy – A summary of the Swedish Energy Agency's and the Swedish Environmental Protection Agency's documentation for Checkpoint 2008']. ET2007:29.
- Energimyndigheten och Naturvårdsverket [Swedish Energy Agency and Swedish Environmental Protection Agency] (2007) *Styrmedel i klimatpolitiken – Delrapport 2 i Energimyndighetens och Naturvårdsverkets underlag till Kontrollstation 2008* ['Interim report 2 of the Swedish Energy Agency's and the Swedish Environmental Protection Agency's documentation for Checkpoint 2008']. ER 2007:28.
- European Commission memo/10/391.
- European Commission memo/10/387.
- Finansdepartementet [Ministry of Finance] (2006–2010) Calculation conventions for the years 2007–2011.
- Future Carbon Fund (2008) Information memo (28 November 2008).
- Haites, E. (2007) *Carbon Markets*. Report for the United Nations Climate Change Secretariat, Margaree Consultants Inc. Toronto, 20 August 2007.
- Hedegaard, C. (2010) *Carbon markets as a source of longterm finance*. Speech/10/408. Geneva Dialogue on Climate Financing, Geneva 3 September 2010.
- International Rivers (2008) *Rip-offsets: The failure of the Kyoto Protocol's Clean Development Mechanism*. International Rivers.
- Kolmuss, A., Lazarus M. (2010) *Industrial N2O Projects Under the CDM: Adipic Acid - A Case of Carbon Leakage?* Stockholm Environment Institute Working Paper WP-US-1006.

- Larsson, G. (2009) *Köp av utsläppsminsningar utomlands* ['Purchases of emission reductions abroad']. Fores Studie 2009:5.
- Lund, E. (2010) "Dysfunctional delegation: why the design of the CDM's supervisory system is fundamentally flawed" *Climate Policy* 10, p. 277–288.
- Michaelowa, A. & P. Purohit (2007) "Additionality determination of Indian CDM project developers outwit the CDM executive board?" University of Zurich.
- Miljödepartementet [Ministry of the Environment] (2009) *Sveriges femte nationalrapport om klimatförändringar* ['Sweden's fifth national report on climate change']. DS 2009:63.
- Naturvårdsverket [Swedish Environmental Protection Agency] (2010) *Konsekvenser av att EU skärper sitt klimatmål från -20 till -30 procent. En genomgång av Europeiska kommissionens konsekvensanalys med en kompletterande analys avseende effekter för Sverige* ['Consequences of the EU tightening its climate goal from -20 to -30 per cent. A review of the European Commission's consequence analysis with a supplementary analysis relating to impact on Sweden']. Report 6384. December 2010.
- Nussbaumer, P. (2009) "On the contribution of labeled certified emission reductions to sustainable development: A multi-criteria evaluation of CDM projects." *Energy Policy* 37, p. 91–101.
- Paulsson, E. (2009) "A review of the CDM literature: from fine-tuning to critical scrutiny?" *International Environmental Agreements* 9, p. 63–80.
- Prototype Carbon Fund (2001) *Annual Report 2001*.
- Prototype Carbon Fund (2007) *Annual Progress Report 2007*.
Annex 3: Risk Assessment.
- Report of the Conference of the Parties on its seventh session*, held at Marrakesh from 29 October to 10 November 2001.
- Riksrevisionen [Swedish National Audit Office] (2007) *Regeringens redovisning av budgeteffekter* ['The Government's reporting of budget effects']. RiR 2007:26.
- Riksrevisionen [Swedish National Audit Office] (2009) *Vad är Sveriges utsläppsrätter värda?* ['What are Sweden's emission rights worth?'] RiR 2009:21.
- Riksrevisionen [Swedish National Audit Office] (2010) *Regeringens försäljning av Vasakronan* ['The Government's sale of Vasakronan']. RiR 2010:2.

Riksrevisionens [Swedish National Audit Office's] auditor's report for the Swedish Energy Agency dated 19 March 2010.

Riksrevisionens [Swedish National Audit Office's] unqualified audit report for the Swedish Energy Agency dated 19 March 2010.

Riksrevisjonen [Norwegian National Audit Office] (2009) *Riksrevisjonens undersøkelse av måloppnåelse i klimapolitikken* ['Norwegian National Audit Office report on goal fulfilment in climate policy']. Document 3:5 (2009–2010).

Rindefjäll, T., E. Lund, J. Stripple (2011) "Wine, fruit and emission reductions: The CDM as development strategy in Chile." *International Environmental Agreements: Politics, Law and Economics*.

Schneider, L. (2007) *Is the CDM fulfilling its environmental and sustainable development objectives? An evaluation of the CDM and options for improvement*. Öko-Institut. Berlin.

Sida [the Swedish International Development Cooperation Agency] (2009) *Review of the Swedish Energy Agency pilot project for CDM capacity building in East Africa*.

SOU [Swedish Government Official Report] 2000:45 *Handla för att uppnå klimatmål!* ['Act to achieve the climate objective!']

Sutter, C., J. C. Parreño (2007) "Does the current clean development mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects." *Climatic Change* 84, p. 75–90.

SÖ [Sweden's International Agreements] 1993:13 *Förenta nationernas ramkonvention om klimatförändring* ['United Nation's framework convention on climate change'], New York 9 May 1992

Arsredovisning för staten ['Central government annual report'] 2002.
Comm. 2002/03:101.

Internet

CDM project cycle. The information has been downloaded from cdm.unfccc.int/Projects/diagram.html on 15 December 2010.

CDM EB meeting archives. The information has been downloaded from cdm.unfccc.int/EB/archives on 16 September 2010.

Document details. Carbon market downbeat on 2010 climate pact: survey. The information has been downloaded from the website for World Business Council for Sustainable Development on 24 January 2011.

Fakta om klimatkonventionen ['Facts about the climate convention']. The information has been downloaded from the Swedish Environmental Protection Agency's website on 15 September 2010.

Least developed countries. The information has been downloaded from the UN's website on 30 August 2010.

Shortcomings of CDM. The information has been downloaded from the website for CDM Watch on 21 October 2010.

Sveriges CDM och JI-program ['Sweden's CDM and JI programmes']. The information has been downloaded from the Swedish Energy Agency's website on 15 December 2010.

Utsläpp av växthusgaser i Sverige 1990–2009 ['Emissions of greenhouse gases in Sweden 1990–2009']. The information has been downloaded from the Swedish Environmental Protection Agency's website on 25 January 2011.

Utsläppshandeln i praktiken ['Emissions trading in practice']. The information has been downloaded from the Swedish Environmental Protection Agency's website on 13 March 2010.

Interviews, etc.

Interview with Swedish Energy Agency on 25 May 2010.

Interview with Swedish Energy Agency on 1 June 2010.

Interview with Swedish Energy Agency on 8 June 2010.

Interview with Swedish Energy Agency on 21 June 2010.

Interview with Swedish Energy Agency on 19 August 2010.

Interview with Swedish Energy Agency on 24 August 2010.

Interview with Swedish Energy Agency on 10 September 2010.

Interview with Swedish Energy Agency on 8 October 2010.

Interview with Swedish Energy Agency on 25 November 2010.

Interview with Ministry of the Environment on 3 June 2010.

Interview with Ministry of the Environment on 6 September 2010.

Telephone conversation with Ministry of the Environment on 29 September 2010.

Telephone conversation with Ministry of the Environment on
17 November 2010.

Interview with Tricorona on 17 February 2010.

Interview with Tricorona on 9 September 2010.

Emails

Email from Emma Lund, doctoral student at Lund University,
dated 9 November 2010.

Email from the Swedish Energy Agency dated 9 March 2010.

Email from the Swedish Energy Agency dated 27 August 2010.

Email from the Swedish Energy Agency dated 1 September 2010.

Email from the Swedish Energy Agency dated 4 September 2010.

Email from the Swedish Energy Agency dated 6 September 2010.

Email from the Swedish Energy Agency dated 8 September 2010.

Email from the Swedish Energy Agency dated 16 September 2010.

Email from the Swedish Energy Agency dated 21 September 2010.

Email from the Swedish Energy Agency dated 15 October 2010.

Email from the Swedish Energy Agency dated 25 October 2010.

Email from the Swedish Energy Agency dated 27 October 2010.

Email from the Swedish Energy Agency dated 4 November 2010.

Email from the Swedish Energy Agency dated 5 November 2010.

Email from the Swedish Energy Agency dated 8 November 2010.

Email from the Swedish Energy Agency dated 11 November 2010.

Email from the Swedish Energy Agency dated 22 December 2010,

Email from the Ministry of the Environment dated 14 September 2010.

Email from the Ministry of the Environment dated 29 October 2010.

Glossary

This glossary is based on the list of terms and concepts included in Energimyndigheten [Swedish Energy Agency] report ER 2008:28, *Utvecklingen på utsläppsmarknaden 2008* ['Trends in the emissions market in 2008']. We have made some adjustments for the CDM and JI operations.

AAU:	<i>Assigned-amount unit.</i> The international emission rights assigned to each individual Party to the Kyoto Protocol at the start of the first commitment period in 2008. Each AAU represents one tonne of carbon dioxide equivalents, and the total allocation of AAUs constitutes the maximum allowed emissions during that period. The number of AAUs to be assigned is calculated by each Party but determined by auditors at the Climate Convention Secretariat.
APCF	<i>Asia Pacific Carbon Fund</i> is a CDM fund administered by the Asian Development Bank. The fund concentrates on CDM projects in Asia's developing countries focusing on renewable energy, energy efficiency measures or methane gas capture. A proportion of the fund's capital is to be used on buying emission credits after the first commitment period of the Kyoto Protocol (i.e. after 2012).
Additionality	Additionality means that the result of the climate measures in the form of emission reductions would not have taken place without CDM and JI projects.
CDM	<i>Clean Development Mechanism.</i> Emission reductions by means of investments in individual projects carried out in countries that have not made any commitments under the Kyoto Protocol to achieve quantified emission reductions.
CDM Executive Board	Supervisory body for CDM under the UN. The tasks of the CDM Executive Board includes developing technical rules and recommendations for the execution of CDM projects and to approve, register and monitor CDM projects. The Board issues CDM credits following a satisfactory audit (verification and certification) by an accredited independent auditor.
CER	<i>Certified Emission Reduction.</i> Deriving from projects in the framework of the Clean Development Mechanism (CDM), CERs are issued by the CDM Executive Board in the CDM Registry and can then be transferred to other accounts. CERs can be issued for reductions from 2000 onwards. One CER corresponds to a reduction of one tonne of carbon dioxide equivalents.

CO₂e	<i>Carbon dioxide (CO₂) equivalent.</i> The amount of a greenhouse gas expressed in terms of the amount of CO ₂ that would exert the same climate impact; for example, 1 tonne of methane is equivalent to 21 tonnes of carbon dioxide (1 tonne methane = 21 CO ₂ e).
DFP	<i>Designated Focal Point.</i> National responsible project authority for JI projects.
DNA	<i>Designated National Authority.</i> National responsible project authority for CDM projects.
DOE	<i>Designated Operation Entity.</i> Independent auditor accredited by the UN.
Emission credit	Emission credits are generated from emission-reducing projects in other countries and can be either certified emission reductions (CER) or emission reduction units (ERU). One emission credit from CDM and JI projects corresponds to one tonne of carbon dioxide (or 1 CO ₂ e).
ERU	<i>Emission Reduction Unit.</i> Deriving from Joint Implementation (JI) projects, an ERU is in reality an AAU that has been converted into an ERU in the registry of a Party after the relevant emission reduction has been verified. ERUs can be issued from 2008 onwards, once the Parties have determined their assigned quantities and are thus able to convert AAUs into ERUs. One ERU corresponds to a reduction of one tonne of CO ₂ equivalent.
EU ETS	<i>European Union Emissions Trading Scheme.</i> Trade in emission rights began in January 2005 and covers about 12,000 installations in the industrial and energy sectors. During the 2008–2012 trading period, this trade will take place in parallel with the first commitment period of the Kyoto Protocol, and the EU ETS will be opened up to international trade in AAUs, CERs and ERUs.
FCF	<i>Future Carbon Fund.</i> A climate fund started by the Asian Development Bank in 2008 in order to acquire emission credits for the period after 2012.
Gold Standard	<i>Gold Standard.</i> An independent organisation that has developed a standard with more specific sustainability criteria than the UN system. The standard has been developed by a group of non-governmental organisations within the area.
JI	<i>Joint Implementation.</i> Emission reduction by means of investments in individual projects in countries that have made commitments under the Kyoto Protocol to achieve quantified emission reductions.
JISC	<i>Joint Implementation Supervisory Committee.</i> Supervisory committee for JI projects, and international administration under UNFCCC that audits JI projects.

Kyoto Protocol	An international agreement which was concluded in 1997 as part of the United Nations Framework Convention on Climate Change (UNFCCC) and which is the basis for commitments by a large number of industrialised countries to reduce their emissions by, on average, 5 per cent by 2008–2012 compared with 1990 levels. The protocol entered into force in 2005 and is binding on the countries that have ratified it. Countries may use three flexible mechanisms in their efforts to bring about emission reductions: Emission Trading, Joint Implementation (JI) and the Clean Development Mechanism (CDM).
LoA	<i>Letter of Approval.</i> Approval from an official project authority.
MCCF	<i>Multilateral Carbon Credit Fund.</i> A fund administered jointly by the European Bank for Reconstruction and Development and the European Investment Bank. MCCF acquires emission credits from both JI and CDM projects in Eastern Europe and Central Asia.
NEFCO	<i>Nordic Environmental Finance Corporation.</i> A Nordic environmental financing company that is subject to the Nordic Council of Ministers.
Non-trading sector	The non-trading sector covers those operations that are not covered by the system for emission rights, such as transport and housing.
PCF	<i>Prototype Carbon Fund.</i> Set up by the World Bank. PCF was a pioneer on the market for project-based mechanisms and has had an important role for the growth of a global emissions market. Examples of projects supported via PCF are wind power in the Philippines, small-scale water power in Costa Rica, electricity production from deposit gas in South Africa and upgrading and efficiency measures for a district heating system in Bulgaria.
PIN	<i>Project Idea Note.</i> A document that describes the idea for a CDM or JI project.
PDD	<i>Project Design Document.</i> A document that describes a CDM or JI project. The PDD is a prerequisite for validation in CDM projects (and for determination in JI projects) and a requirement before registration of projects.
Primary market	The primary market includes transactions where project owners sell ERUs or CERs. Project owners and buyers often conclude a purchasing agreement at an early stage of the implementation of the project, i.e. before the technology investment has been completed.
Secondary market	Transactions where the seller of ERUs or CERs is not the project owner but, for example, an intermediary or a bank.
Supplementarity principle	The rule of the Kyoto Protocol and the Marrakech Accords prescribing that trade in emission rights and the project mechanisms (JI and CDM) will be used only as a supplement to national measures aiming to control and reduce emissions.

SUS	The Swedish registry for emission trading, established at the Energy Agency. The EU Emissions Trading Directive requires each Member State to have such a registry in which to record emission-right transactions within the trading scheme. The SUS is also Sweden's national registry under the Kyoto Protocol, where compliance with its national commitment is being monitored.
TGF	<i>Testing Ground Facility.</i> A regional fund for climate cooperation established within the framework for regional energy cooperation between 11 countries in the Baltic area, Baltic Sea Region Energy Cooperation (Basrec). The purpose of the fund is to be responsible for the financing of joint climate projects within the region in accordance with the Kyoto Protocol's mechanism for joint implementation (JI).
UNFCCC	<i>United Nations Framework Convention on Climate Change.</i> Also called the Climate Convention.

Appendix 1 Climate policy globally and within the EU

We are here providing a background to why one third of Sweden's milestone target for 2020 shall be achieved through contributions abroad. We describe briefly how climate policy has developed globally and within the EU. However, the Swedish National Audit Office's audit of the central-government sector's purchases of emission credits is limited to Sweden's climate objective.

Global climate policy – the UN's Climate Convention

The United Nations Framework Convention on Climate Change (UNFCCC), also called the Climate Convention, was signed in Rio de Janeiro in 1992 and came into force in 1994. The Climate Convention is a framework for measures against climate change and has today been signed by 192 countries.²¹⁶

According to the Convention, the overriding goal for the UN's work against climate change is that the content of greenhouse gases shall be stabilised at a level that means that mankind's impact on the climate system does not become dangerous.²¹⁷

Representatives of the Convention Parties meet regularly at Conferences of the Parties, COP. The Conferences of the Parties are the highest decision-making body for the Convention. To date, 16 Conferences of the Parties have been held, the most recent in Cancún in 2010. There are several working groups linked to the Convention. One of the tasks of the working groups is to prepare the Conferences of the Parties.²¹⁸ The work within the Convention is largely based on studies made by the Intergovernmental Panel on Climate Change (IPCC).²¹⁹

²¹⁶ Naturvårdsverket's [Swedish Environmental Protection Agency] website on 15 September 2010.

²¹⁷ Sweden's International Agreements, SÖ 1993:13.

²¹⁸ Ad Hoc Working Group on Further Commitments for Annex 1 Parties under the Kyoto Protocol (AWG-KP) and Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA). UNFCCC's website on 15 September 2010.

²¹⁹ Naturvårdsverket's [Swedish Environmental Protection Agency] website on 15 September 2010.

The Kyoto Protocol

At a Conference of the Parties in Kyoto in December 1997, a decision was reached to adopt the Kyoto Protocol, which entailed binding commitments from a large number of countries to reduce their emissions of greenhouse gases.²²⁰ During the period 2008–2012, the Parties to the Protocol are to reduce their emissions of greenhouse gases by at least 5 per cent calculated from emission levels in 1990. The Kyoto Protocol came into force in February 2005.

The Parties' emission commitments under the Kyoto Protocol can be achieved either through a reduction in emissions in the own country or, as a complement, through projects in other countries that generate emission credits or through emission trading.²²¹ These supplementary measures are called flexible mechanisms. The three flexible mechanisms included in the Kyoto Protocol are international emission trading and the two project-based mechanisms CDM (Clean Development Mechanism) and JI (Joint Initiative).

When the decision about the Kyoto Protocol was taken in 1997, the work of creating rules and processes concrete in order for the Parties to carry out their emission commitments began. The work resulted in an agreement at a Conference of the Parties in Marrakesh in 2001. The Marrakesh Agreement included clarifications about how the flexible mechanisms could be used.²²²

The Marrakesh Conference of the Parties also decided to set up the CDM Executive Board. The Board has the task of monitoring that the rules for CDM are adhered to, including the registration and verification procedure for CDM projects (see Appendix 2).²²³ During the period from 2001 to 2005, when the Kyoto Protocol came into force, the Board's work concentrated on preparation for the practical implementation of the CDM process, such as accrediting independent auditors and issuing guidelines for the calculation of emission reductions. After 2005, as well as continuing with the method development work, the Board has concentrated on approving the registration of CDM projects, verification and issuing emission credits (CERs).²²⁴

²²⁰ 37 industrialised countries and the European Union according to information on the UNFCCC's website on 15 September 2010.

²²¹ The Kyoto Protocol also offers opportunities for countries with commitments to limit emissions through being credited with absorption of carbon dioxide in "carbon sinks", where carbon is bound into plants through photosynthesis.

²²² Report of the Conference of the Parties on its seventh session, held at Marrakesh from 29 October to 10 November 2001.

²²³ CDM Executive Board's website on 15 December 2010.

²²⁴ CDM Executive Board's website on 16 September 2010.

A new climate agreement will probably be delayed

The same year the Kyoto Protocol came into force, 2005, a Conference of the Parties decided to begin the process of reach a decision about new commitments after 2012. In 2007, the Parties agreed to the so-called Bali Road Map, which included new formats for negotiations and discussions, with the goal of reaching a decision at the Conference of the Parties in Copenhagen in December 2009.²²⁵ This resulted in the work intensifying with a number of discussions, so-called Climate Change Talks, during 2008 and 2009.²²⁶ Despite this, the negotiations at the Conference of the Parties in Copenhagen did not lead to any decision about new commitments after 2012. However, 114 countries signed the so-called Copenhagen Accord, which entails among other things that the signatory countries will report their intentions about emission reductions up to 2020 to the UN.

The discussions and negotiations aimed at reaching a decision about binding commitments continues. In December 2010, a new Conference of the Parts was held in Cancún in Mexico. The question about the future of the Kyoto Protocol was tabled. The Copenhagen Accord was formalised as a part of the UN process. The Parties decided on the two degree goal for 2050, with a reassessment according to best available science aiming for a temperature rise of at most 1.5 degrees Celsius. The accord also means that carbon dioxide storage is also allowed for the project-based mechanisms. The Conference of the Parties in Cancún further decided to establish a global green climate fund and about continued measures for arresting the devastation of the rain forest (REDD+).

The EU operates an active climate policy

The starting point for the EU's climate policy is the goal that global warming should be limited to at most two degrees Celsius compared to the pre-industrial level. The EU has a special programme against climate change, European Climate Change Programme, which was set up in 2000. In 2001, during the Swedish chairmanship, the Council of Europe adopted a strategy for sustainable development, with the climate issue as an important constituent.

A number of EU Directives with climate policy motives have been introduced within areas such as environment, energy, transport and agriculture. Directives relating to electricity from renewable sources, energy performance of buildings ad trading in emission rights are some of these Directives.

²²⁵ Bali Action Plan: Report of the Conference of the Parties

²²⁶ CDM Executive Board's website on 16 September 2010.

The EU's work with the implementation of the Kyoto Protocol

The EU has had and has a propelling role in international climate work, for example in relation to making sure the Kyoto Protocol could come into force. The EU approved the Kyoto Protocol through a decision in the Council in Ministers in April 2002.²²⁷ In conjunction with its approval of the Protocol, the EU issues a special declaration that the EU's quantified commitment concerning a reduction in emission of 8 per cent by 2012 compared with the level of 1990, will be fulfilled through measures by the Community and its member states within their respective areas of authority.²²⁸ This means that the EU decided on an internal allocation of the emission commitments for the member countries, with the aim of achieving the joint commitment according to the Kyoto Protocol. This is called the EU's burden-sharing. The result of the burden-sharing for Sweden's part entails that emissions are permitted to rise by 4 per cent compared to the 1990 levels.

Trading system for emission rights and the Link Directive

The EU's system for emission trading (Emission Trading Scheme, ETS) is an instrument for achieving the EU's total commitment according to the Kyoto Protocol and for achieving the EU's goal for a 20 per cent reduction in emissions by 2020. ETS is the first major trading system for greenhouse gases in the world. Within the EU, emission units, or emission rights as they are more often called, have been allocated to each member country for the period 2008–2012 according to a special burden distribution. A certain amount of a member country's total number of emission rights are allocated each trading period to installations that cause emissions.²²⁹ The installations shall participate with these emission rights in ETS. ETS started in January 2005.²³⁰

In 2004, the EU agreed on the Link Directive, which regulates how emission credits from CDM and JI can be used in the EU's emission trading system.²³¹ The Link Directive regulates the actual linking of CDM and JI to the trading system; that is to say how Parties and companies can use them to achieve their commitments.²³²

²²⁷ Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder. Official Journal of the European Community No 130, 15/05/2002, p.0001–0003.

²²⁸ The European Community's explanation in accordance with the article 24.3 in the Kyoto Protocol, see appendix III until the Council's decision 2002/358/EG, third part.

²²⁹ Ordinance (2007:742) on an Amendment to the Ordinance (2004:1205) concerning Emission Trading.

²³⁰ Naturvårdsverket's [Swedish Environmental Protection Agency] website on 15 March 2010.

²³¹ Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms. The Link Directive thus entailed changes to the original so-called Trade Directive.

²³² *De projektbaserade mekanismerna enligt Kyotoprotokollet och länkdirektivet* ['The project-based mechanisms according to the Kyoto Protocol and the Link Directive'], Ds 2005:19.

Changes ahead of the period after 2012

In December 2008, the EU adopted a new climate and energy package with the goal of the EU countries reducing their emissions of greenhouse gases by 20 per cent by 2020 compared to the 1990 levels. The goal shall increase to 30 per cent if other industrialised countries make similar commitments.²³³ The energy and climate package entails that by 2020, the EU shall reduce emissions of carbon dioxide by at least 20 per cent, increase the proportion of renewable energy to at least 20 per cent and save energy equivalent to 20 per cent of consumption.

For Sweden's part, the EU's goal means that Swedish emissions for the non-trading sector shall reduce by 17 per cent by 2020 compared to 2005. The Swedish Environmental Protection Agency assesses that according to the latest national forecast, Sweden will achieve its commitment of a 17 per cent reduction in emissions without using emission credits from other countries.

In order to achieve the goals in the energy and climate package, the member countries have also made a decision about new and amended EU legislation.²³⁴ Among other subjects, the Amendment Directive regulates how emission trading is to be carried out within the EU after 2012. A consequence of this regulation is that the European Commission in 2010 has publicised how many emission rights may be issued each year from 2013.

The Amendment Directive also includes provisions stating how balances of emission credits (CERs and ERUs) from the period 2008–2012 can be utilised as from 2013. According to the Directive, Parties and companies have various options:

- Request the issue of an equivalent number of emission rights as verified CERs/ERUs up to and including 2012 to be valid from 2013.
- Exchange of CERs/ERUs verified from 2013 from projects registered before 2013 against emission rights valid from 2013.
- Exchange of CERs relating to new projects in the least developed countries and verified from 2013 against emission rights valid from 2013.²³⁵

²³³ *En sammanhållen klimat- och energipolitik – Klimat* ['An integrated climate and energy policy - Climate']. Govt. Bill 2008/09:162.

²³⁴ Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.

²³⁵ *Ändringar i systemet för handel med utsläppsrätter* ['Changes in the system for trading in emission rights'], Govt. Bill 2009/10:28.

As no new climate agreement was signed in Copenhagen in December 2009, Parties and companies may also use balances from projects to reduce emissions in accordance with agreements entered into with countries outside the EU.

Apart from the rules mentioned above, the preamble of the Amendment Directive also states the objective any use of emission credits (CERs and ERUs) should have after 2013. For example, it states that the use of CERs and ERUs should be compatible with the Community's goal for the proportion of renewable energy and should promote energy efficiency, innovation and technical development.²³⁶ It also states that it is important that the emission credits correspond to actual, verifiable, additional and permanent reductions in emission that also entail clear advantages in terms of sustainable development. According to the preamble, the EU should introduce a process that makes it possible to exclude certain project types.²³⁷ The preamble further states that it is suitable to provide guarantees that emission credits from projects started in the least developed countries after 2012 are approved even if no international agreement has been entered into.²³⁸

The EU wishes to reform CDM

From the EU's strategy for the continued global climate work²³⁹ and from statements made by the Climate Commissioner²⁴⁰, it emerges that the Commission considers that CDM should be reformed and in the long term be replaced by other market-based mechanisms. CDM is considered to have failings such as in terms of environmental integrity and effectiveness. The Commission wishes to see institutional and administrative changes to CDM and a clearer focus on the least developed countries. The Commission proposes

²³⁶ Point 28 of the preamble.

²³⁷ Point 29 of the preamble.

²³⁸ Point 31 of the preamble. The EU refers in a special document to the UN's definition of least developed countries (downloaded from the UN website on 30 August 2010. Title of the EU document: *Definition of Least Developed Countries in the context of Article 11a(4) of Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009, amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community* (O.J. L 140, 5.6.2009, p.77).

²³⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - International climate policy post-Copenhagen: Acting now to reinvigorate global action on climate change. Brussels, 9.3.2010 COM(2010) 86 final.

²⁴⁰ Connie Hedegaard, European Commissioner for Climate Action; *Carbon markets as a source of longterm finance*. Speech/10/408. Geneva Dialogue on Climate Financing, Geneva 3 September 2010.

that the EU with its emission trading system as the basis takes the initiative both to the reform of CDM and to the development of new market-based mechanisms.

During the autumn of 2010, the Commission started work on developing a proposal to introduce restrictions of the use of emission credits from so-called industrial gas projects.²⁴¹ The reason is that criticism has been put forward that this type of CDM project is not additional.

Both the Commission's statements that CDM should be wound up and that future proposals for restrictions on emission credits from certain types of project have faced criticism from companies and organisations trading on the so-called carbon dioxide market. Market operators have stated that they consider the Commission's actions are creating uncertainty and obstructs new investments in order to reduce emissions of greenhouse gases.²⁴²

²⁴¹ European Commission, memo/10/391 and memo/10/387.

²⁴² Open letter from IETA (International Emissions Trading Association) to the EU's Climate Commissioner, 24 August 2010.

Appendix 2 The CDM process

How are climate projects in other countries implemented?

Within the UN, there is a comprehensive system for approval of projects and verification and issuing of emission credits.²⁴³ Here we describe how a CDM project is implemented. JI projects are implemented in a similar way.

A climate project is based on project ideas emanating from a project developer or project owner (Point 1, Figure 5). The ideas are disseminated through trade fairs or networks, or through advertisements/tenders from the project owner/developer. The Swedish Energy Agency as purchaser of emission credits can also advertise its interest in acquiring emission credits, but this is now done to a lesser extent.

The project idea behind the CDM project is described and identified, normally in a document called Project Idea Note (PIN), which includes the basic information about the project (Point 2, Figure 5).

Based on the identification of the project, a project description is then produced called Project Design Document (PDD), which includes detailed information about the project, among them the expected volume of emission credits during the term of the project (Point 3, Figure 5). The project description also states whether the project is to run for a ten year period or for three times seven years, i.e. 21 years.

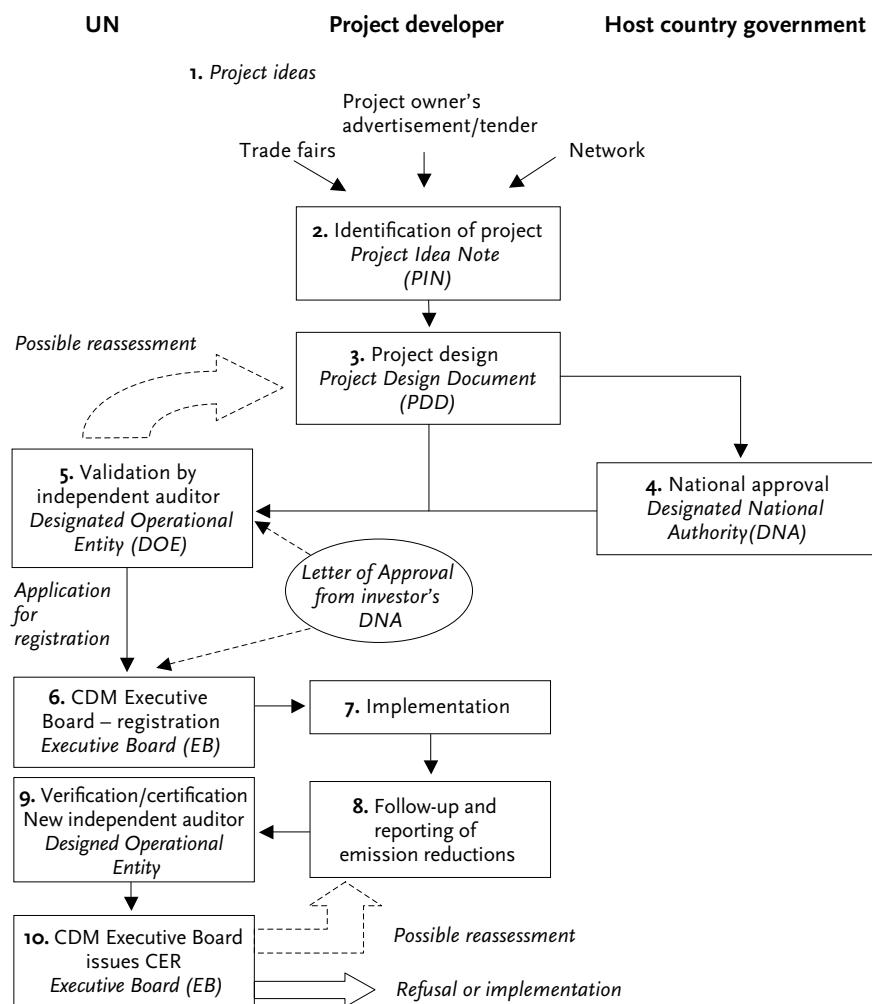
The project shall then be approved by the host country's official project authority²⁴⁴ (Point 4, Figure 5). This approval means that the host country confirms that the country has ratified the Kyoto Protocol, that the participation in the CDM project in question is voluntary and that the project contributes to sustainable development in the host country.

²⁴³ The UN's website (UNFCCC) has the official documents for each CDM and JI project that the UN requires, such as project descriptions (PDD). However, the website is difficult to access.

²⁴⁴ The project authority is called the Designated National Authority (DNA) for approval of CDM projects.

The UN's validation/approval begins with an independent auditor, who is accredited by the UN (Point 5, Figure 5). The independent auditor scrutinises the project description (PDD) and checks there is approval (Letter of Approval, LoA) from the host country's official project authority. In order to enable transfer at a later stage of the verified emission credits to the investor country, approval (LoA) is also required from the investor country's official project authority; in Sweden's case the Energy Agency. This approval is usually obtained in conjunction with approval (LoA) being issued by the host country, but it may also occur later, even following registration. The project description is published for 30 days, in order to gain points of view from countries and other stakeholders. The independent auditor thereafter assesses whether the project can be approved, or if a new, reworked document with supplements needs to be requested from the project developer or project owner.

Figure 5. The CDM process



Source: Processing by the SNAO

Once the project description is approved by the independent auditor, the auditor sends a request for registration to the CDM Executive Board (Point 6, Figure 5). The registration request is accompanied by a validation report, the scrutinised project description and an approval from the host country (LoA). Usually, an approval (LoA) from the investor country's official project authority also accompanies the request. The CDM Executive Board then decides whether the project can be registered.

Once the UN through the CDM Executive Board has approved the project, the project can begin to generate emission credits (Point 7, Figure 5).

In order to then receive emission credits, the project developer/owner must then prove that a reduction in emissions actually has occurred (Point 8, Figure 5).

Thereafter, this reduction in emissions must be verified and certified by an independent accredited auditor (Point 9, Figure 5), who must not be the same auditor as scrutinised the project description before the registration. The verification and certification are carried out continuously, usually on an annual basis, during the term of a project.

Finally, the CDM Executive Board approves and issues the emission credits (Point 10, Figure 5). Only after the Board has issued the emission credits can these be transferred to the body that by agreement has undertaken to acquire the emission credits. However, the Board can also refuse a request to issue, or demand a reassessment of the verified emission credits.

Appendix 3 Alternative interpretations of and arithmetical examples for the milestone target

The national milestone target for 2020 means that emissions are to be reduced by 20 million tonnes compared to the 1990 levels. This target only applies to the non-trading sector. One third of the reduction is to be achieved through emission credits. As it has not been determined at what rate emissions are to reduce, how large the reductions in emissions shall be during the period up until 2020 or when the period is to start, we account for some possible interpretations below, and provide arithmetical examples in addition to the two extremes we showed in Chapter 3. To begin with, we present one of the Swedish Energy Agency's arithmetical examples and thereafter two interpretations that are possible with the wording of the target used in the Climate Bill. These examples range between the extremes of 6.7 million and 100 million emission credits. The total cost of achieving the milestone target is then at the lowest SEK 670 million and at the highest SEK 10 billion, with an assumption of a price of EUR 10 per emission credit.²⁴⁵

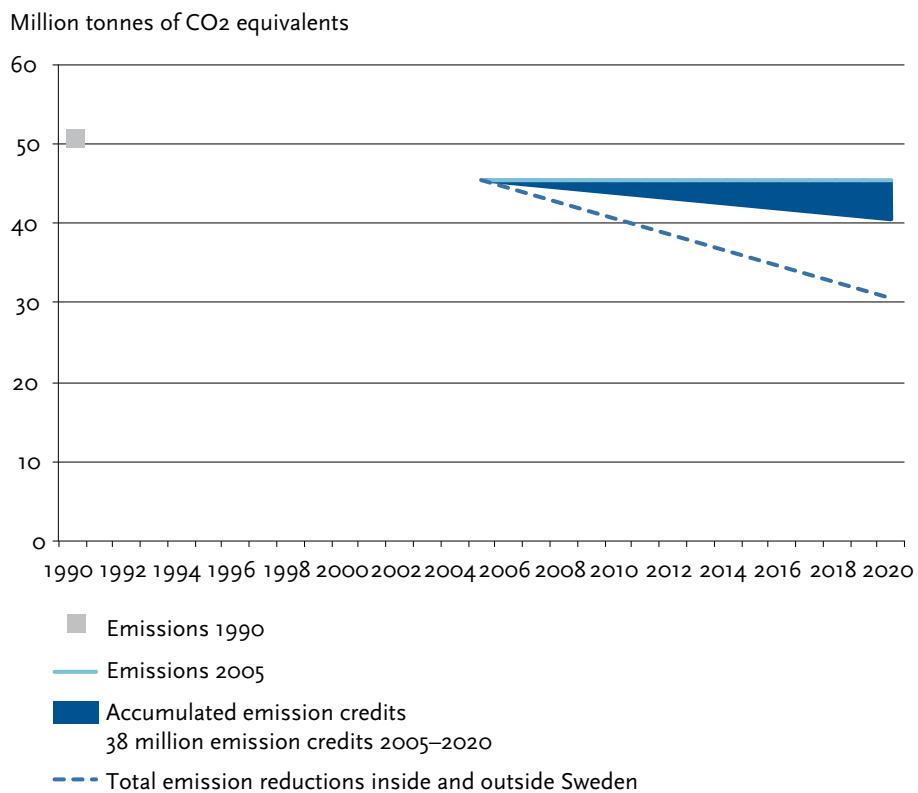
The Energy Agency's arithmetical example

In one of the Energy Agency's arithmetical examples, the starting year for the emission reductions in other countries is 2005. If the starting year is 2005, the requirement according to the Agency amounts to 38 million emission credits for 2005–2020.²⁴⁶ Based on an assumed price of EUR 10 per emission credit, this would entail an estimated total cost for that third of the milestone target that may be achieved through emission credits of SEK 3.8 billion.

²⁴⁵ According to the Swedish Environmental Protection Agency, this price assumption is relatively low.

²⁴⁶ Memo from the Swedish Energy Agency to the Ministry of the Environment dated 10 June 2010.

Figure 6. Accumulated emission credits 2005–2020 and linear total emission reductions inside and outside Sweden for the non-trading sector compared with emissions for 2005 (Swedish Energy Agency's arithmetical example).



Source: Swedish Energy Agency and Swedish Environmental Protection Agency.
The information has been processed by the SNAO.

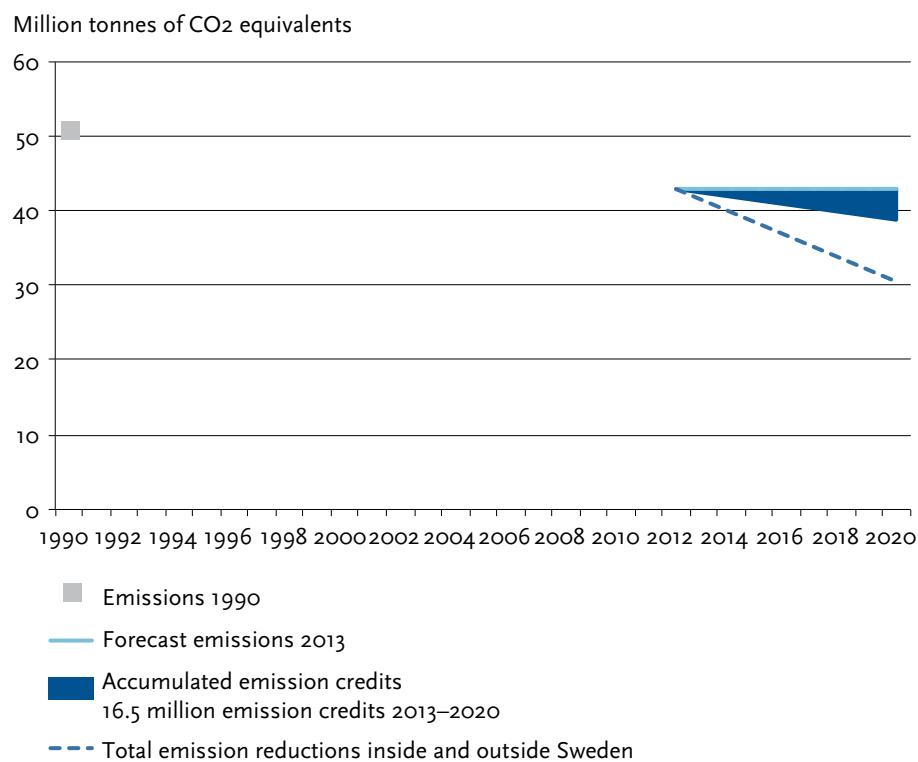
Possible other interpretations

Below we present a further two interpretations of the period 2013–2020 using two different calculation methods for the first alternative. The Riksdag has decided that the interim target for 2012, which is to be achieved without using emission credits, shall remain in place. It is therefore possible to assume that the milestone target for 2020 relates to the period 2013–2020, using 1990 as reference year.

Alternative 1: Emission reductions during the period 2013–2020

In this alternative, the milestone target for 2020 is achieved through gradual annual reductions in emissions 2013–2020. If we assume that emissions in 2013 are around 42.9 million tonnes²⁴⁷ and that emissions reduce in a linear manner to 30.5 million tonnes by 2020, this would mean that emissions reduce by a total of approximately 50 million tonnes.²⁴⁸ One third of the total reductions in emissions corresponds to a requirement of approximately 16.5 million emission credits. Assuming a price of EUR 10 per emission credit, this would entail a total cost for that third of the milestone target that may be achieved with the help of emission credits of SEK 1.7 billion.

Figure 7. Accumulated emission credits 2013–2020 and linear total emission reductions inside and outside Sweden for the non-trading sector compared with emissions for 2013.



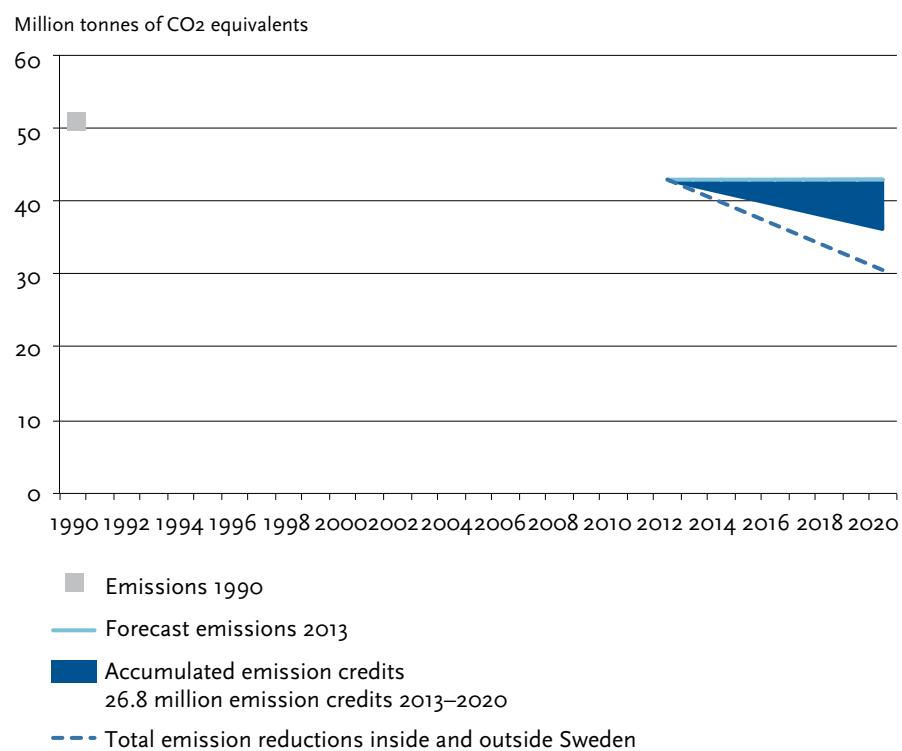
Source: Swedish Environmental Protection Agency. The information has been processed by the SNAO.

²⁴⁷ Swedish Environmental Protection Agency's calculation based on Sweden's ceiling for emissions outside the trading sector for 2013 corresponding to emissions during 2008.

²⁴⁸ $42.9 - 30.5 = 12.4$ million tonnes $\times 8$ years / 2 = 49.6 million tonnes.

There are further ways of calculating how many emission credits would be required during the same period. One calculation is based on the number of emission credits increasing gradually to 6.7 million in 2020. If the requirement for emission credits is to increase in a linear manner from 2013, this means that the central-government sector would need in total a maximum of 26.8 million mission credits.²⁴⁹ Assuming a price of EUR 10 per emission credit, this would entail a total cost of SEK 2.7 billion.

Figure 8. Accumulated emission credits 2013–2020 and linear total emission reductions inside and outside Sweden for the non-trading sector compared with emissions for 2013 (calculation based on gradual increase of emission credits).



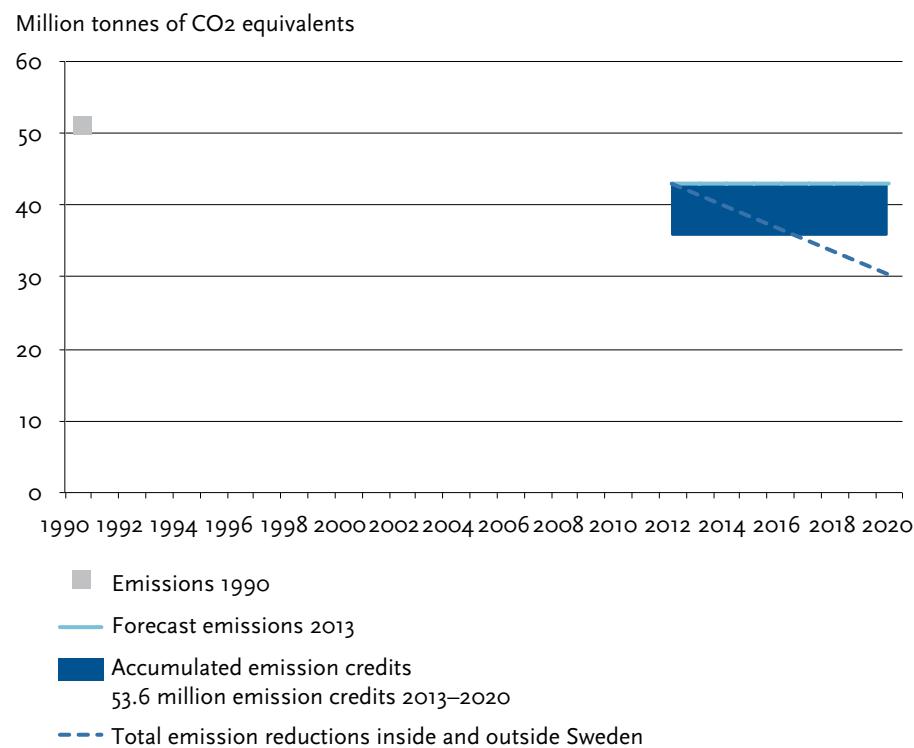
Source: Swedish Environmental Protection Agency. The information has been processed by the SNAO.

²⁴⁹ 6.7 million tonnes × 8 years / 2 = 26.8 million tonnes

Alternative 2: 6.7 million emission credits annually

One interpretation based on *Sveriges femte nationalrapport om klimatförändringar* ['Sweden's fifth national report on climate change'] is that central-government sector may use approximately 6.7 million emission credit per year.²⁵⁰ From which year this applies the Government has not decided, but in this alternative we have chosen to account for the outcome for the period 2013–2020. The total requirement for emission credits would then be at most 53.6 million.²⁵¹ An estimated total cost for that third of the milestone target that may be achieved with the help of emission credits is then SEK 5.4 billion. If the starting year is earlier than 2013, the requirement for emission credits and the cost of these will be higher.

Figure 9. Accumulated emission credits 2013–2020 according to an annual requirement of 6.7 million emission credits and linear total emission reductions inside and outside Sweden for the non-trading sector compared with emissions for 2013 (possible interpretation according to Sweden's fifth national report).



Source: Swedish Environmental Protection Agency. The information has been processed by the SNAO.

²⁵⁰ *Sveriges femte nationalrapport om klimatförändringar* ['Sweden's fifth national report on climate change'], Miljödepartementet [Ministry of the Environment] Ds 2009:63, p.34. Another interpretation based on the national report is that central government may use a maximum of approximately 6.7 million emission credits 1990–2020. Table 5.29, p.71.

²⁵¹ 6.7 million tonnes x 8 years = 53.6 million tonnes.

Appendix 4 Tables of expected deliveries

Table 4. Purchase agreements entered into in relation to CDM and JI projects from 2002 up to and including 30 June 2010 as well as expected emission credits according to agreements and number of emission credits delivered up to and including 2009.

CDM and JI projects	Agreements signed year	Acc. to agreements through 2010	Acc. to agreements through 2009	Delivered through 2009
Tamil Nadu	2003	400 000	210 000	88 000
Santa Elisa	2004	225 000	189 000	189 000
Vale e Rosario	2004	84 000	84 000	84 000
Moerna	2004	44 000	44 000	44 000
Timisoara	2005	119 000 ¹⁾	53 000 ²⁾	0
Viri Nigula	2006	105 000 ¹⁾	91 000 ²⁾	0
Gansu 1046	2006	189 000	55 000 ³⁾	0
Gansu Yumen 1081	2006	53 000	39 000 ³⁾	5 000
Datang portfolio	2008	268 000	0	0
Gohua portfolio	2008	86 000	0	0
Huadin portfolio	2008	135 000	0	0
Tieling	2009	55 000	0	0
Tongliao	2009	120 000	0	0
Boxing	2009	100 000	0	0
Sungai Kerling, Malaysia	2009	70 000	0	0
Rwanda (Mugonero, etc.)	2009	553 000	0	0
Rwanda (Shyira, etc.)	2009	536 000	0	0
A Roang, Vietnam	2010	200 000	0	0

continued on next page

continued

CDM and JI projects	Agreements signed year	Acc. to agreements through 2020	Acc. to agreements through 2009	Delivered through 2009
Dark Pring, Vietnam	2010	220 000	o	o
Sao Hill Energy, Tanzania	2010	407 000	o	o
Sotravic, Mauritius	2010	660 000	o	o
Aerowatt, Mauritius	2010	210 000	o	o
Total		4 839 000	765 000	410 000

- 1) Revised purchase agreement 2010 where the number of emission credits have been reduced.
- 2) Expected emission reductions according to the project description (PDD) in the original agreement
- 3) Expected emission reductions according to the project description (PDD) in the agreement

Source: Purchase agreements for CDM and JI projects and the Swedish Energy Agency's annual report for 2009. Information processed by SNAO. Figures are rounded off to the nearest 1000.

Table 5. Agreements entered into through funds from 2002 up until and including 30 June 2010 as well as number of emission credits according to agreements and number of emission credits delivered up to and including 2009.

Funds	Agreements signed year	Acc. to agreements through 2020	Acc. to agreements through 2009	Delivered through 2009
PCF	2000	1 415 000	654 000 ¹⁾	166 000
TGF	2003	381 000	5 000	5 000
MCCF	2006	200 000	o	o
APCF	2007	856 000	22 000	5 000
FCF	2009	2 250 000	o	o
Total		5 102 000	681 000	176 000

- 1) Expected and actual emission reductions according to PCF Generation Report 23-12-2009.

Source: Fund reports and the Swedish Energy Agency's annual report for 2009. Information processed by SNAO. Figures are rounded off to the nearest 1000.

The SNAO has used the original agreement with expected emission reductions according to the project descriptions in the agreements as the starting point. No other documentation of expected deliveries from the projects exists at the Energy Agency. On the other hand, several funds have documented adjustments in expected deliveries of emission credits.

Appendix 5 Estimation of costs

In Chapter 4, the Swedish National Audit Office has estimated the total costs of the central-government sector's purchases of emission credits. Both the Swedish Energy Agency's internal and external costs are included in our estimate.

External costs for acquisitions of emission credits has been estimated by multiplying the Energy Agency's expected final deliveries of emission credits for the bilateral projects with the price per emission credit according to the purchase agreements. The price per emission credit is noted in the purchase agreements either in euro (EUR) or in dollar (USD). The SNAO has estimated the exchange rates so that EUR 1 = SEK 10 and USD 1 = SEK 7. For the funds, the SNAO has calculated how much money the Energy Agency has contracted for to date. In order to calculate the price per emission credit, we have used an average of the expected number of emission credits according to the Energy Agency's annual report for 2009.²⁵²

The internal costs for the acquisitions have been estimated partly through the Energy Agency's assessment of the number of staff²⁵³ for the years 2002–2005, partly through the Energy Agency's financial system and time reporting system for the period 2006–2010. Staff costs have been estimated by calculating an hourly cost per person and then multiplying this with the number of hours the person has worked.²⁵⁴

Cost per hour has been calculated by using the staff's monthly salaries.²⁵⁵ The monthly salaries have been recalculated into annual salaries. The annual salary has then been calculated per debited hour, which has been estimated at 1 600

²⁵² ER 2010:01 Annual Report 2009.

²⁵³ The Energy Agency's review of staff numbers 1999–2010 dated 9 August 2010.

²⁵⁴ When calculating the costs of direct acquisition, the time spent on accounts relating to the direct CDM and JI operation has been used.

²⁵⁵ In some cases, the SNAO has lacked information for some monthly salaries. In these cases, an estimated monthly salary has been used.

hours per year. Social costs and payroll overhead²⁵⁶ have then been added. In this work, we have been assisted by the SNAO's financial auditors.

We have also estimated the salary cost for the Ministry of the Environment as 20 per cent of one full-time employee according to information from the Ministry of the Environment.

The SNAO has also estimated the costs of operation closely linked to the CDM and JI operations, such as negotiation work and support to Swedish companies. These costs are limited to those incurred by the Energy Agency's climate unit. These costs consist primarily of staff costs.

²⁵⁶ The overhead costs of the Energy Agency as a whole was 75 per cent during the period 2006–2010. According to an email from the Energy Agency on 21 September 2010, the overhead cost of the climate unit is assessed as being 55 per cent during the same period. The SNAO has chosen to use the overhead costs of the climate unit in its calculations.

For more information on the SNAO,
please refer to our website:
www.riksrevisionen.se

The Swedish National Audit Office has audited the central-government sector's acquisitions of emission credits, which are a central part of Swedish climate policy. The emission credits come from so-called CDM and JI projects in other countries that are aimed at reducing emissions of greenhouse gases at lower cost than in Sweden. The emission credits are to be used in order to achieve Sweden's national milestone target for emission reductions up until 2020. The milestone target applies to the activities not covered by the EU's emission trading system. One third of the target is to be achieved through the purchases of emission credits.

The audit shows that the Government has not made clear how many emission credits are to be purchased or when. Therefore, grounds are lacking for determining whether the appropriations, which total SEK 1.6 billion, are too high, too low or reasonable. The cost may be at the lowest SEK 670 million and at the highest SEK 10 billion.

The central-government sector's purchases of emission credits are not done efficiently, effectively and transparently enough. In many cases, the Swedish Energy Agency lacks documentation of its work with both risk handling and follow-up. Reporting to the Riksdag is substandard, and provides no complete picture of how the emission credits are to contribute to the achievement of the milestone target.

ISSN 1652-6597
ISBN 978 91 7086 245 8

Orders:
Riksrevisionens publikationsservice
SE-114 90 Stockholm
Fax: 08-5171 41 00
publikationsservice@riksrevisionen.se