



The European Emissions Trading Scheme and its implementation in the Netherlands

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Table of Contents

PART I CONCLUSIONS, RECOMMENDATIONS AND MINISTERIAL RESPONSE

1	About this audit	1
1.1	Dutch Kyoto policy	1
1.2	The European Emissions Trading Scheme	4
1.3	Background to this audit	8
1.4	Audit questions and approach	9
2	Conclusions and recommendations	11
2.1	Total allowances for the second trading period	12
2.2	Allocation of allowances	16
2.3	Overlap with sustainable energy policy	19
2.4	Monitoring, supervision and verification	20
3	Ministerial response and afterword by the Netherlands Court of Audit	23
3.1	Ministerial response	23
3.2	Afterword by the Netherlands Court of Audit	27
	Overview of conclusions, recommendations and commitments	30

PART II FINDINGS

1	Introduction	33
2	CO₂ emission's cap for the second trading period	34
2.1	Introduction	34
2.2	Direct check of verified CO ₂ emissions in 2005	35
2.2.1	Dutch proposal and response of the European Commission	35
2.2.2	Comparable CO ₂ emissions in 2005	37
2.3	CO ₂ targets for 2010	39
2.3.1	Assumptions underlying the CO ₂ projections	40
2.3.2	Target for the industry and energy sector	43
2.3.3	Target for the transport sector	45
2.3.4	Target for the built environment sector	47
2.3.5	Target for the agriculture sector	48



2.4	Achievement of the foreign Kyoto policy target	49
2.4.1	Achievement of Joint Implementation and Clean Development Mechanism goals	49
2.4.2	Reducing risks	52
3	Allocation of emission allowances	54
3.1	Introduction	54
3.2	Criteria for the allocation of CO ₂ emission allowances	54
3.2.1	Main allocation rule	54
3.2.2	Historical emissions	55
3.2.3	EE or energy efficiency factor	55
3.2.4	Energy conversion efficiency ratings	58
3.3	Compensation for the termination of the MEP scheme	60
3.4	Transparency of the allocation	61
3.4.1	Calculation of the EE factor	61
3.4.2	Allocation of emission allowances to newcomers	62
4	Overlap with sustainable energy policy	63
4.1	Introduction	63
4.2	Forms of overlap	64
4.3	Other reasons for sustainable energy policy	66
4.4	The government's provisional position	67
5	Monitoring, supervision and verification	69
5.1	Introduction	69
5.2	Verification of emissions reports	69
5.2.1	Structure and implementation of the verification process	69
5.2.2	Results of the verification for 2005	71
5.2.3	Provision of verification services	72
5.3	Validation of monitoring plans	73
5.3.1	Organisation of the validation process	73
5.3.2	Implementation of the validation	74
5.3.3	Quality and comparability of the monitoring plans	74
5.4	Supervision by the Dutch Emissions Authority	75
5.4.1	Organisation of the supervision	75
5.4.2	Supervision	76
Appendix 1	Abbreviations	78
Appendix 2	Benchmarking methods	79
Appendix 3	Powers of the Court of Audit	81
Appendix 4	Methodology	83



Part I Conclusions, recommendations and ministerial response



1 About this audit

1

In this audit, the Court of Audit examined how the Netherlands has implemented the system that the European Union (EU) has been using since 2005 to reduce the emission of the greenhouse gas carbon dioxide (CO₂). The system is based on the principle that enterprises that generate large quantities of CO₂ (like power stations and industry) must have 'emission allowances'. These allowances are tradable, meaning that companies that succeed in reducing their CO₂ emissions can sell off surplus allowances to other companies.

In this audit we looked at how the Dutch government's policy choices regarding the implementation of the European Emissions Trading Scheme for CO₂ (the EU ETS) have helped fulfil the agreements set down in the Kyoto Protocol.

In this introductory chapter, we explain Dutch Kyoto policy and the EU ETS (§ 1.1 - 1.2). This is followed by a description of the background and approach of the audit and the questions asked (§ 1.3 - 1.4). In chapter 2 we discuss the conclusions and recommendations to emerge from the audit, and in chapter 3 we summarise and respond to the relevant ministers' reactions.

Part II of the report deals with the actual findings of the audit.

1.1 Dutch Kyoto policy

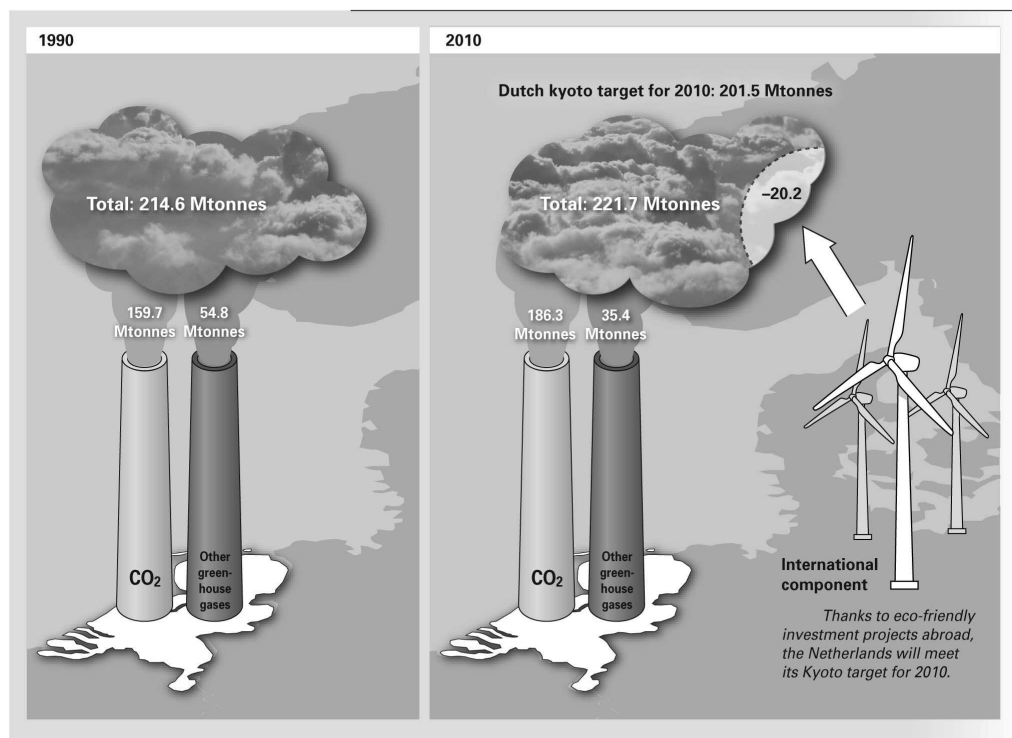
The climate is changing. This can have serious repercussions for the environment, both here in the Netherlands and around the world. According to the bureau of the United Nations Framework Convention on Climate Change (UNFCCC), climate change is most likely man-induced. Our industry, our electricity needs, our mobility and our agriculture are responsible for the emission of large quantities of greenhouse gases such as CO₂, which appear to be accelerating global warming.

To reduce the amount of greenhouse gases in the atmosphere, agreements have been made at international level in the form of the UN



Framework Convention on Climate Change (1992) and the Kyoto Protocol to that Convention (1997). The Netherlands is a signatory to both these treaties, ratifying them in 1993 and 2002, respectively. Under the Kyoto Protocol the Netherlands is obliged to reduce its annual emission of greenhouse gases by an average of 6% over 1990 levels during the 2008 – 2012 period.¹ This means that in 2010² the Netherlands is permitted to emit approximately 202 million tonnes (Mtonnes)³ of 'CO₂ equivalents'.⁴ This figure is sometimes referred to as the Netherlands' Kyoto goal.

Figure 1 The Dutch Kyoto target for 2010 versus 1990 emission levels
In Mtonnes of CO₂ equivalents



¹ For the European Community as a whole the corresponding figure is 8%. The responsibility for achieving this target value was parcelled out among the various member states (Council Decision of 25 April 2002, 2002/358/CE).

² The year 2010 is regarded as the average year for the 2008 – 2012 period.

³ 1 Mton = 1 million tons

⁴ A CO₂ equivalent is a unit of account used for comparing the relative contribution of different greenhouse gases to the greenhouse effect. The gases are ranked according to their global warming potential (GWP). Methane, for example, has a GWP of 21. This means that, over the course of a century, one kilo of methane will contribute 21 times more to the greenhouse effect than one kilo of CO₂.



Foreign component

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Thanks to eco-friendly investment projects abroad, the Netherlands will meet its Kyoto goal for 2010.

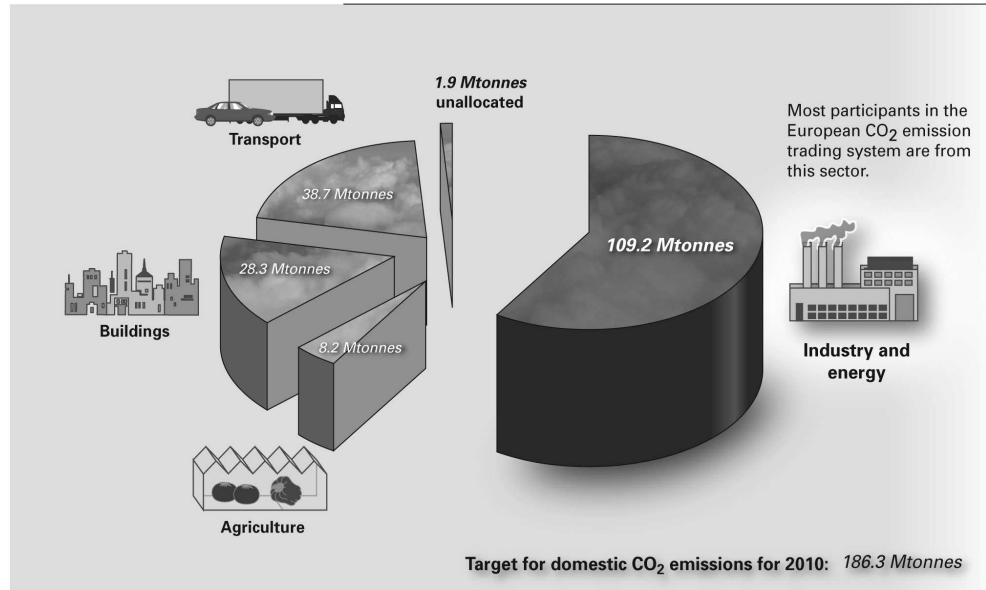
Dutch Kyoto policy, which is designed around the Dutch Kyoto goal, has both a domestic and an foreign component. As shown in figure 1, this policy seeks in large measure to attain the Kyoto goal by way of *foreign* measures. This means investing in projects in Eastern Europe and in developing countries that will reduce local CO₂ emissions through for example increased energy efficiency conservation or the use of sustainable energy. It is hoped that in this way, CO₂ emissions abroad can be reduced by 20 Mtonnes of CO₂ equivalents between 2008 and 2012. The Netherlands is entitled to count this reduction as a contribution towards its own Kyoto goal. This means that the Netherlands can emit approximately 222 Mton of CO₂ equivalents in 2010. By comparison, the corresponding figure for 1990 was over 214 Mton.

To achieve the *domestic* component of the target (222 Mtonnes in 2010), the government has set target values for the four sectors in the Netherlands that emit CO₂:⁵ industry and energy, transport, buildings (residential and non-residential) and agriculture (see figure 2). The official measures taken and instruments used to attain the target value will vary by sector. A large proportion of the sector 'industry and energy' is covered by the EU ETS. The sectors 'transport', 'buildings' and 'agriculture', on the other hand, fall largely outside the system.

⁵ There is a separate target value for the emission of other greenhouse gases, including methane (CH₄), nitrous oxide (N₂O) and chlorofluorocarbons (CFCs). These other gases lay outside the scope of this audit.



Figure 2 Domestic CO₂ targets for 2010 (broken down by sector)



1.2 The European CO₂ Emissions Trading Scheme

The EU ETS, which allows companies to buy and sell emission allowances, has been in place since 1 January 2005. The basic principles of the system are set down in the European Directive on the trade in greenhouse gas emission allowances.⁶ Pursuant to this directive, every member state is required to participate in the system. For the time being, the system deals only with CO₂.

A CO₂ emission allowance entitles a company⁷ to emit a certain amount of CO₂. If a company emits more CO₂ than can be covered by its emission allowances, it can either purchase additional allowances from other companies within the EU or take measures to lower its CO₂ emissions. Companies are also able to sell surplus emission allowances. The trade in emission allowances is international: Dutch companies can also buy emission allowances from companies based in other EU member states. The EU determines which companies are obligated to participate in the system, at present, mainly companies active in the industry and energy sector.

⁶ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (OJ L 275 of 25/10/2003).

⁷ Or, technically speaking, an 'installation.



Allocation of emission allowances

5

It is up to each EU member state to decide how many CO₂ emission allowances to make available within a given period. Then the member state determines how to divide them up among the participating companies. Both steps are set down in a National Allocation Plan (NAP). In the Netherlands the competent authorities are the Minister of the Environment and Spatial Planning (VROM) and the Minister of Economic Affairs (EZ). The National Allocation Plan and the total number of emission allowances provided for must be approved by the European Commission.

An allocation plan is valid for a specified trading period. The first trading period (Phase I) runs from 2005 to the end of 2007; the second trading period (Phase II) runs from 2008 to the end of 2012. The first period is meant to be a learning phase, during which the member states and participating companies can gain the necessary experience.

In early 2007 the European Commission reduced the proposed number of emission allowances for Phase II for a large number of member states, arguing that the countries in question could be even cleaner and more energy efficient.

The Dutch total amount was cut by 5%. This means that participating Dutch companies will have fewer CO₂ emission allowances for the second trading period than had been initially proposed by the government.

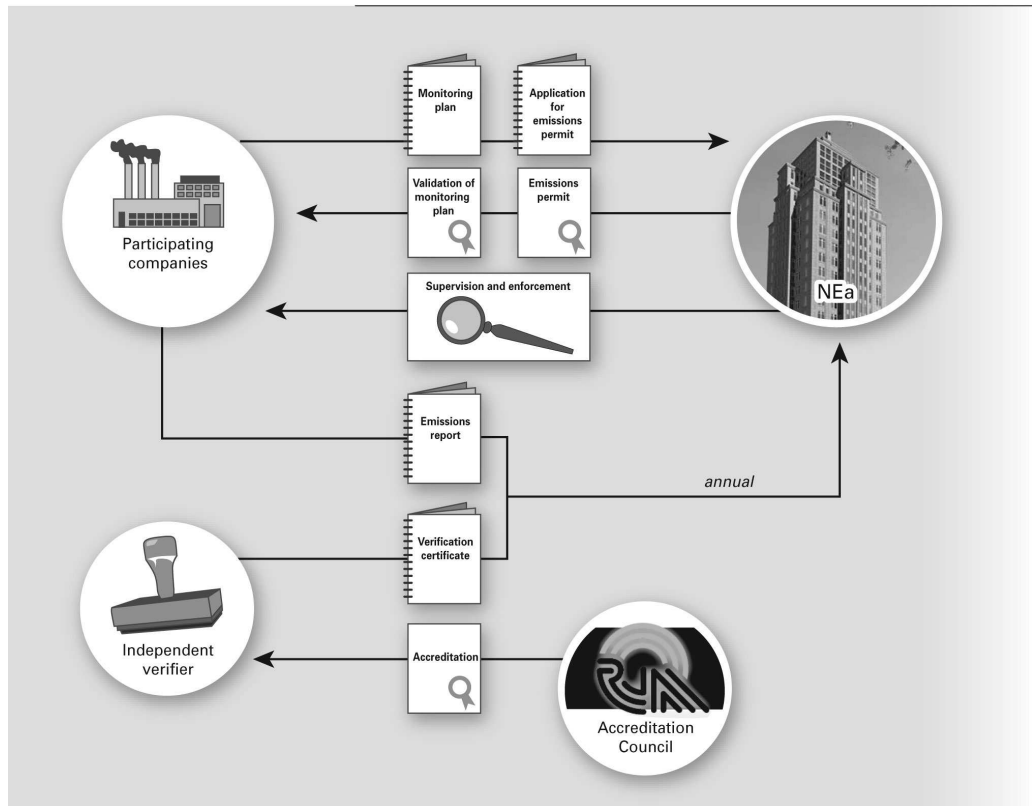
For the second trading period the Netherlands is making available approximately 86.5 Mtonnes worth of CO₂ emission allowances for the EU ETS. That number represents over 40% of the Dutch Kyoto goal. Emissions trading is thus an important part of the Dutch strategy for achieving its Kyoto goal.

Monitoring, supervision and verification system

The effectiveness of the EU ETS depends on reliable emissions data. To ensure that this is the case, the scheme is equipped with a monitoring, supervision and verification system (see figure 3).



Figure 3 System for monitoring, supervision and verification



Companies participating in CO₂ emissions trading need an emission permit. To obtain this permit, a company must submit a monitoring plan to the Dutch Emissions Authority (NEa).⁸ The monitoring plan, which describes how the company intends to keep track of its emissions, is validated by the NEa on the basis of the statutory norms. If the monitoring plan meets the relevant requirements, the NEa will issue an emission permit. The NEa then supervises compliance with the conditions of the permit. At the end of each calendar year all participants must produce a report detailing their CO₂ emissions for this year. A statement from an independent verifier (accredited by the Dutch Accreditation Council) must be enclosed with this report to confirm the reliability of the CO₂ emissions data.⁹ Both the report and the statement are then submitted to the NEa. In the end, the companies must turn in enough emission allowances to cover their verified CO₂ emissions for the past year.

⁸ The NEa was established by the Ministry of Housing, Spatial Planning and the Environment (VROM). On 1 January 2008 the NEa will become a permanent VROM agency. Until that time it will have the status of a temporary agency.

⁹ Act implementing the EC directive on trading in greenhouse gas emissions, Emission Allowances Trading Decree.



Fluctuations in the market price for CO₂ emission allowances

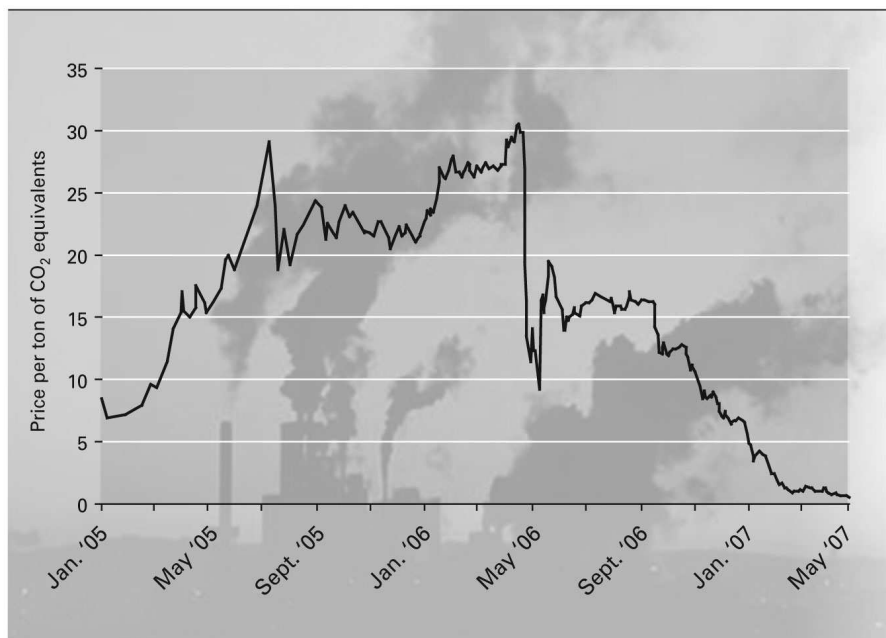
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In the first six months after the launch of the EU ETS in January 2005, the price of CO₂ emission allowances rose considerably, as a result of both the cold winter of 2005 and the limited number of active market participants. In May 2006 the price of CO₂ emission allowances fell sharply, by some €20 per allowance.¹⁰ This happened after the release of emission data for the year 2005. It turned out that participating companies had discharged far less CO₂ than the total allowances distributed. In part, this can be attributed to the generous allocation practices of many member states in the first trading period. Another factor was the relatively warm winter, which drove down demand for emission allowances. By late 2006 the price of one emission allowance had dropped to less than €7. In the first four months of 2007 this trend continued thanks to the warm winter, further lowering the unit price to just €0.50.

The graph in figure 4 illustrates the fluctuations in the price of CO₂ emission allowances since the introduction of the system.

Figure 4 Market price of CO₂ emission allowances

From January 2005 to May 2007



The above graph shows of the prices of futures contracts for 2005, 2006 and early 2007 as registered with the European Climate Exchange. Under these contracts the emission allowances are issued on 1 December of the year in question at the pre-agreed price.

Source: www.emissierechten.nl.

For some time now, the price of CO₂ emission allowances for the second trading period (2008 – 2012) has been higher than that for the first

¹⁰ One emission allowance entitles a company to discharge one ton of CO₂.



period. In April 2007, an emission allowance for 2008 cost nearly €20. Given the European Commission's strict assessment of the allocation plans for the second trading period (see above), the market is anticipating a scarcity of CO₂ emission allowances from 2008 onward.

8

Windfall profits

Participants in emissions trading can pass on the costs of the CO₂ emission allowances to their customers. This is part of the strategy behind the system: price incentives will motivate companies to be more mindful of their energy consumption. However, because the emission allowances for the first trading period were issued at no cost to the recipients, the increased prices for customers led to windfall profits (i.e. increased profits not offset by increased costs) for the companies.

In the Netherlands it was principally the electricity producers that benefited in this way. In consultation with parliament the government decided to reduce the windfall profits for this sector (Ministry of Economic Affairs, 2006a). In the allocation plan for the second trading period, electricity producers will be receiving fewer emission allowances.¹¹

The future of the ETS

The EU regards the Kyoto goal as a interim objective. In early 2007 the European Council decided that the release of greenhouse gases must be at least 20% lower than 1990 levels by 2020. It is quite likely that the EU ETS will play an important part in meeting this goal. In 2007 the European Commission opened a debate on modifying the trading system to improve its effectiveness and feasibility. One major issue is how to broaden the trading scheme to include other sectors (e.g. aviation) and other greenhouse gases. Another issue under discussion is the option of introducing underground CO₂ storage into the trading scheme at some point in the future.

1.3 Background to this audit

On paper, the EU ETS is an effective instrument. Theoretically, actual CO₂ emissions can never exceed the total emission allowances allocated to a given company.

In general the effectiveness of the ETS for a given substance can be inhibited by a number of factors:

¹¹ This applies to producers that provide more than a certain net amount of electricity to the power grid.



- An unduly large number of emission allowances in relation to the actual quantity of the substance being discharged will result in low market prices that give little incentive to curtail emissions.
- There is also an ever-present temptation for participating companies to misrepresent their emission figures as lower than they really are. The more companies that do this, the less successful such a scheme will be. This is why a reliable system is needed for determining how much of a given substance each participating company releases annually.

These factors formed the background to this audit.

1.4 Audit questions and approach

In this audit we assess whether the Netherlands has properly implemented the EU ETS in a way that meets the goals of Dutch Kyoto policy and ensures the effectiveness of the CO₂ emissions trading scheme. In addition, we put forward a number of proposals on enhancing the effectiveness and efficiency of the CO₂ emissions trading scheme in the Netherlands.

First and foremost, this audit is for the benefit of the Minister of the Environment and Spatial Planning (VROM) and the Minister of Economic Affairs (EZ), who are jointly responsible for the national allocation plan. In addition, the Minister of the Environment and Spatial Planning is in charge of the NEa, the relevant supervision agency.

In this audit we first examine how the competent ministers determined the total amount of CO₂ emission allowances and how this amount has been allocated among the various participating companies in the second national allocation plan (NAP2) for the period between 2008 and 2012 (see part II, chapters 2 and 3).

We also investigated to what extent the European CO₂ emissions trading system overlaps with existing Dutch sustainable energy policy. One of the central goals of this policy is, of course, to reduce CO₂ emissions (see section II, chapter 4).

Finally, we studied the monitoring, supervision and verification system, focusing primarily on the validation of the monitoring plans and the



enforcement of emission licence requirements by the NEa. We also analysed the final step in the system: the verification of the emission reports (see section II, chapter 5).

10

The audit was completed in December 2006. The data have been updated to 1 May 2007. This means that the totals for CO₂ emission allowances can, in certain cases, differ from those given in the final version of NAP2 by a few tenths of a Mtonne.



2 Conclusions and recommendations

11

The main conclusion of this audit is that by and large the Netherlands has properly implemented the EU ETS, though in setting and allocating the total number of CO₂ emission allowances, it placed rather too much emphasis on the interests and competitiveness of industry and electricity producers, at the expense of the Dutch Kyoto goal. Moreover, the implementation of the trading system was not always transparent. As a result of this, the Netherlands did less to contribute to the potential effectiveness and efficiency of the EU ETS than it could have. It is fair to say that the Netherlands is probably not the only member state in this position.

This main conclusion stems from the following subsidiary conclusions:

- The total amount of emission allowances the government initially planned to set aside for the second trading period imposed few restrictions on CO₂ growth, thereby giving rise to a not insignificant risk that the Netherlands would fail to meet its Kyoto goal.
- The allocation of CO₂ allowances was dominated by the financial interests and the competitiveness of the participating companies. The process was also insufficiently transparent; the allowances were allocated partly on the basis of confidential information that is not available to the public (including the Court of Audit) and is thus impossible to verify.
- Owing to the introduction of the EU ETS (in 2005), existing Dutch sustainable energy policy has become less effective in reducing CO₂ emissions. The policy should have been subjected to a cost-benefit analysis after the introduction of the ETS. This has yet to occur.
- At this point there is no reason to conclude that the data provided by Dutch companies about their CO₂ emissions are not sufficiently reliable. There is, however, room for improvement in the monitoring, supervision and verification system.

These subsidiary conclusions are explained in the following sections, each of which ends with number of recommendations.



2.1 Total allowances for the second trading period

12

The total amount of emission allowances the government initially planned to set aside for the second trading period imposed few restrictions on CO₂ growth, thereby giving rise to a not insignificant risk that the Netherlands would fail to meet its Kyoto goal.

NAP2: precedence given to economic interests

In September 2006 the Netherlands submitted its national allocation plan for the second trading period (NAP2) to the European Commission (EZ and VROM, 2006). Our audit focused on this version of NAP2.

The proposed allocation for emission allowances as described in NAP2 was determined not just by the Kyoto goal but also by economic interests. The emission allowances, the vast majority of which is to be allocated free of charge, represent a substantial sum of money. As an example: at a market price of €10 per CO₂ emission allowance, the value of the total number of allowances allocated by the Netherlands annually between 2008 and 2012 amounts to just under €800 million. Obviously, when it comes time to distribute these rights, companies are not shy about asserting their interests. The government kept a close eye on the plans of other member states and their potential effect on the competitiveness of Dutch companies. Another point of concern for the government was the chance that new companies would base their choice of where in the EU to locate their company on a country's allocation practices.

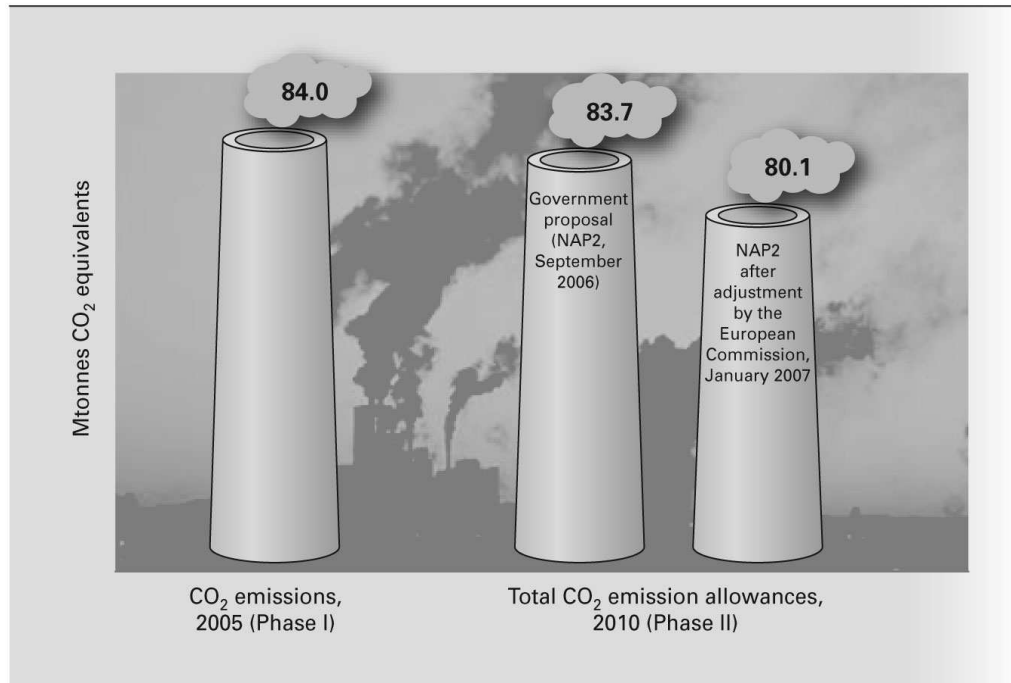
Direct review of verified CO₂ emission for 2005

The Dutch companies participating in the second trading period of the EU ETS discharged a total of 84,0 Mtonnes of CO₂ in 2005. We used this verified statistic as a point of comparison for the total amount of emission allowances that the government proposed in September 2006 to make available for the second trading period (see part II, § 2.2 for the reasoning behind this comparison).

For the second trading period the government intended to issue a total of 83.7 Mtonnes worth of CO₂ emission allowances, just under the total amount of verified emissions for 2005. In other words the governments proposal seemed to leave little leeway for growth in the amount of CO₂ emissions over the course of the second trading period.



Figure 5 Total quantity of CO₂ emission allowances for the second trading period to CO₂ emissions for 2005 (304 companies)



Source: SenterNovem.

However, following new EU agreements, certain types of installations (e.g. dryers) will no longer be covered by the ETS for a number of participating companies (EZ and VROM, 2006). For a completely 'like-with-like' comparison with 2005, emissions from these installations would have to be subtracted from the total verified amount for CO₂ emissions for that year. This reveals that the proposed figures for the second trading period impose few restrictions on the growth of CO₂ emissions (see part II, § 2.2).

Risks to the Dutch Kyoto goal

Under the version of NAP2 presented by the government to the European Commission in September 2006, the Netherlands would run a not insignificant risk of failing short of its Kyoto goal. Below, we discuss the major uncertainties surrounding both the domestic and foreign aspects of Dutch Kyoto policy.

With respect to the *domestic* component of the Kyoto policy, there is a good chance that the sectors 'transport' and 'buildings' will exceed their CO₂ emissions targets by a considerable margin. Many of the supplementary measures announced by the government in its Climate Policy Evaluation (VROM, 2005) and its 'CO₂ emission target letter' (VROM, 2006a) are open to criticism. Criticism was also expressed by the



European Commission, in response to the September version of NAP2. There is also the possibility that CO₂ emissions by non-participating company operating in the industrial and greenhouse agricultural sectors may increase more rapidly than first thought (see part II, § 2.3).

14

We believe that there should have been a greater degree of coordination between these CO₂ targets and the total number of CO₂ emission allowances for the second trading period. The risks to the targets for the 'transport' and 'buildings' sectors could then have led to a reduction in the total amount of emission allowances for Dutch participants in the European CO₂ ETS. Yet in the September version of NAP2 the government stated that the Kyoto goal was attainable, so there was no need to adjust the targets.

The success of the *foreign* component of Dutch Kyoto policy is still uncertain. To start with, not enough contracts have been signed with private investors in Eastern Europe and the developing world. The process has been behind schedule for some time. Another risk is that contracted projects will not materialise or will fail to achieve the planned level of emission reductions, possibly as a result of delays (see part II, § 2.4).¹²

To ensure that the foreign target is met, the government is considering another strategy: acquiring emission capacity through the Green Investment Scheme, chiefly from countries of the former Eastern bloc¹³. The purchase of this emission capacity is a politically controversial issue, given that this capacity is not the by-product of climate policy but rather the result of the innumerable changes to occur in Eastern Europe since the Wall came down.

The purpose of the Green Investment Scheme is to induce seller countries to use the proceeds from the sale of excess emission capacity for environmental projects aimed at increasing energy efficiency. We question whether this requirement is enforceable or even realistic. Furthermore, we would note that this instrument does not provide the government with any certainty that the foreign component of the Dutch Kyoto goal will be met. For this to work, countries with excess emission capacity must meet the conditions of the international agreements governing CO₂ administration within an agreed time limit and put their excess allowances on the market in a timely fashion (i.e. between 2008 and 2012). There are no guarantees this will happen (see part II, § 2.4).

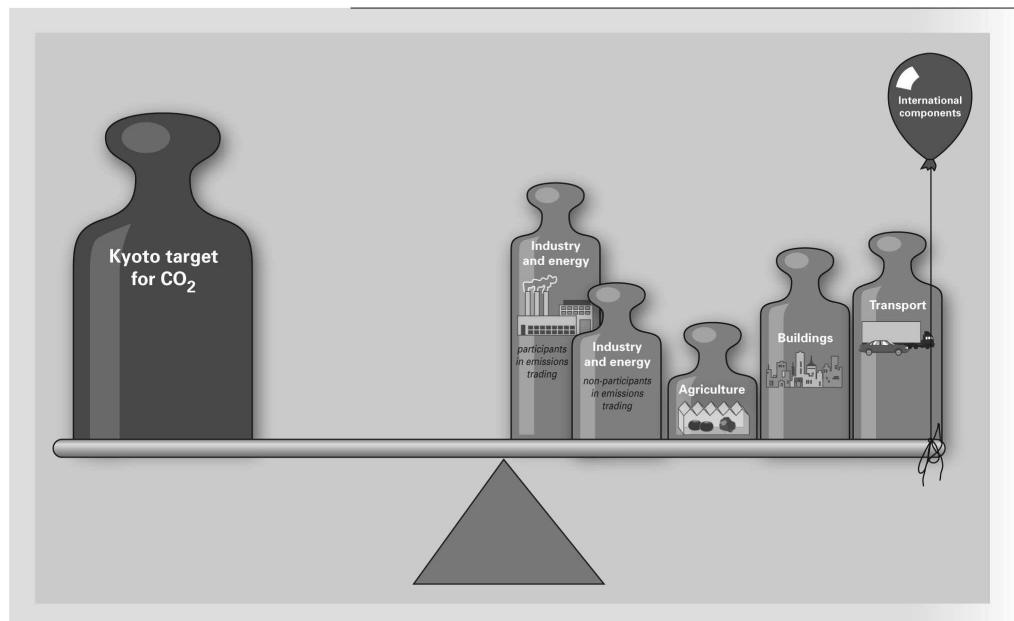
¹² Delays in the contracting process are also a drain on efficiency, due to the rising price of the contracts; attaining the foreign objective will cost more than projected.

¹³ Technically speaking, this means trade in so-called Assigned Amount Units.



In summary, we feel that the government should have taken greater account of the other aspects of domestic and foreign Kyoto policy in determining the total amount of emission allowances. If that had been the case, the government might have been more alert to possible setbacks in the Kyoto policy, such as the chance that domestic sectors would exceed their CO₂ targets. Another advantage to a holistic approach is that CO₂ reduction is more expensive for certain sectors than others (CO₂ Trading Committee, 2002).

Figure 6 Targets per sector and the Kyoto target for 2010: finding a good balance



Risks diminished after adjustment by European Commission

In January 2007 the European Commission decided that the Netherlands would have to reduce its proposed total amount of allowances by 5% (or 4.6 Mtonnes of CO₂ equivalents). The Dutch government adopted this decision in full. As a result, Dutch companies will be allocated fewer credits for the second trading period than the government had initially planned (see figure 5). Thanks to this adjustment the Netherlands now has a substantial buffer for absorbing setbacks in its Kyoto policy. The risk that the Netherlands will not meet its Kyoto goal has diminished considerably.

Recommendations

Under the current rules, the EU ETS does not offer the EU member states (including the Netherlands) enough of an incentive to be strict in setting the total amount of emission allowances prior to a new trading period. In the upcoming debate in Brussels on the modification of the trading



system, the government would be well advised to plead for a greater measure of harmonisation among the member states with regard to determining allowance totals. We would also counsel prudence in managing the buffer of 4.6 Mtonnes of CO₂ equivalents. In other words, it should not be used at the first available opportunity to remedy a setback.

16

2.2 Allocation of allowances

The allocation of CO₂ allowances was dominated by the financial interests and the competitiveness of the participating companies. The process was also insufficiently transparent; the allowances were allocated partly on the basis of confidential information that is not available to the public (including the Netherlands Court of Audit) and is thus impossible to verify.

The government devoted a great deal of time and energy to the allocation of emission allowances, even though the allocation of the allowances has little to no effect on the environmental impact of the EU ETS. The environmental impact, it should be remembered, is determined by the total *amount* of allowances issued to the participants.

The allocation of the emission allowances was dominated by the financial interests and competitiveness of the participating companies. As a result, certain aspects of the allocation process are complicated and opaque. This has not furthered the instrument's efficiency.

Bonus/penalty system for early action

In allocating the emission allowances, the government employed a bonus/penalty system that was organised in such a way that only 50 larger companies could benefit from it, at the expense of the other participants.

Under the system, companies that have acted early to improve their energy efficiency are rewarded (with additional emission allowances), while those that fail to do so are penalised. Yet only companies that are signatories to the Covenant on Energy Efficiency Benchmarking¹⁴ are

¹⁴ This is a 1999 agreement between the State of the Netherlands and the largest consumers of energy (defined as those that consume at least 0.5 Petajoule per year). Under the terms of the agreement, participating enterprises must be ranked as a world leader in energy efficiency by 2012. In exchange for this the government will not impose any additional domestic measures aimed at energy conservation or CO₂ reduction (see part II, § 3.2.3).



eligible for this bonus. The other participants will never receive a bonus, though they may be given penalties.

17

We question whether the government has provided sufficient justification for such a system of bonuses and penalties. NAP2 is silent about the *results* achieved by the early actions that are rewarded with bonuses. Estimates that do exist are contradictory (see part II, § 3.2.3).

In calculating the bonuses and penalties for the companies that are party to the Covenant, NAP2 makes use of formulas found in the Dutch Covenant for benchmarking energy efficiency. However, the Covenant does not impose the strictest of standards on the companies being assessed. A more rigorous review procedure could mean a smaller bonus or even a penalty instead of a bonus – and thus fewer emission allowances (see part II, § 3.2.3 and § 3.2.4 and annexe 2).

In our view the drawback of such a system is the risk that individual companies will be given more emission rights than needed. This risk is bound up with not only the method of allocation (to say nothing of the bonus factors), but also with total number of allowances to be issued for the second trading period. It should be mentioned that the chance of over-allocation has diminished since the government reduced the maximum for the bonus factor in response to the European Commission.

Improper grounds for allocation

It is our opinion that certain allowances in NAP2 were allocated partly for reasons that have nothing to do with the goals of CO₂ emissions trading. Specifically, the emission allowances were used to compensate coal-fired power stations for the termination in 2006 of the Dutch scheme for stimulating sustainable electricity (MEP). In accordance with this scheme, producers of green energy would be eligible for grants (see § 3.3 of part II).

We do not feel that the EU ETS is intended to be used for these purposes. Moreover, the extra conditions and calculations necessitated by these additional considerations further complicate the allocation process, even though the European Commission has urged the member states to keep their allocation plans for the second trading period as simple as possible.



Lack of transparency

18

In a number of respects the allocation process is not sufficiently transparent. This certainly applies to the calculations that go into determining the bonus/penalty factor for companies that have signed on to the Covenant on Benchmarking. The data on energy efficiency are from the Energy Efficiency Benchmarking Verification Authority (VBE), the same body that calculates the bonus/penalty factor. We were unable to check the accuracy of the data or the processing methods of the VBE, as the Ministry of Economic Affairs does not believe that the Netherlands Court of Audit is authorised to carry out an inspection of the VBE (see part II, annexe 3).

The two competent ministries, by contrast, *are* authorised to monitor the work of the VBE, but in the course of our audit neither EZ or VROM took the opportunity to do so. For both the first and second trading period, not enough information is available on the emission allocation process.

We are concerned about this lack of transparency. The government is right to safeguard the independence of the VBE, but we are now facing a situation in which public oversight of the allocation of emission allowances has been seriously complicated, even for parliament.

Moreover, NAP2 is unclear about what requirements newcomers will have to meet with respect to the allocation of allowances. On the one hand, NAP2 states that the standard will be the 'best state of the art'. On the other, NAP2 reports that newcomers are to be judged against 'world leaders' as established in accordance with the rules of the Covenant on Benchmarking. The definition of a 'world leader' given in the agreement is, however, less stringent than that of 'the best state of the art'. It is difficult to tell how ambitious the government is seeking to be with regard to this point.

Recommendations

The allocation of CO₂ emission allowances should be harmonised more across the EU. We are in favour of a simpler and more transparent allocation of emission allowances. One way of achieving this aim so would be through the use of auctions. This would, however, necessitate the amendment of the EU Emissions Trading Directive.

Another possibility would be a single, centrally run European reserve for newcomers. If benchmarks or CO₂ norms per unit product continue to be used in the allocation of emission allowances, they should be set at European level. With a view to ensuring transparency and efficiency, the total number should be kept to a manageable level. We would ask the



government to urge that these recommendations be reflected in the amended Directive. Furthermore, we would advise the government to ensure that the allocation of emission rights proceeds in the most transparent way possible, so that the process is both visible and verifiable.

19

2.3 Overlap with sustainable energy policy

Owing to the introduction of the EU ETS (in 2005), existing Dutch sustainable energy policy has become less effective in reducing CO₂ emissions. The policy should have been subjected to a cost-benefit analysis after the introduction of the ETS. This has yet to occur.

Before the introduction of the EU ETS, the Netherlands already had several policy instruments in place for encouraging the use of sustainable energy and/or the reduction of CO₂ emissions. From a budgetary perspective, the aforementioned MEP scheme and the Energy Investment Tax Credit (EIA) are the most important of these¹⁵ (see part II, § 4.2).

Since the launch the ETS, existing policy has become far less effective, at least with respect to the reduction of CO₂ emissions. Now that the total amount of allowances for the Netherlands has been established for the second trading period, the CO₂ emissions for the Dutch participants are set in stone. And those companies that do succeed in reducing their CO₂ emissions thanks to effective sustainable energy policy will find themselves with surplus allowances, which can then be sold on to other Dutch or foreign companies, thereby enabling the latter to increase their own CO₂ emissions.

Most of the instruments associated with sustainable energy policy have other goals in addition to the reduction of CO₂ emissions, such as the promotion of energy efficient technology or the enhancement of energy supply security. Since the advent of the EU ETS, the cost-benefit ratio for all instruments of sustainable energy policy has become less favourable, as the instruments have been rendered less effective (or even completely ineffective) at reducing CO₂ emissions. This means that a cost-benefit analysis should have been performed on each instrument to determine its effectiveness in the new situation. This has yet to occur.

¹⁵ A total overview of all the instruments can be found in the recent evaluation of the sustainable energy policy (Harmsen & Menkveld, 2005). That audit subdivides the instruments into four categories: covenants, fiscal instruments, grant schemes and regulations.



The overlap between the EU ETS and the other instruments of sustainable energy policy was discussed by the government in 2002, a few years before the start of the ETS. At that time the government adopted a provisional position, pending the further evolution of the trading system. It is clear from the Climate Policy Evaluation (2005), which was issued just under a year after the start of the emission trade, that the government still recognises the problem of overlap. As yet, however, the government has not finalised its position on the matter.

20

Recommendation

We would advise the government to conduct a cost-benefit analysis of every instrument associated with the sustainable energy policy, and on that basis reconsider the advisability of that instrument.

2.4 Monitoring, supervision and verification

At this point there is no reason to conclude that the data provided by Dutch companies about their CO₂ emissions are not sufficiently reliable. There is, however, room for improvement in the monitoring, supervision and verification system.

Every part of the monitoring, supervision and verification system must contribute to the reliability of CO₂ emissions data. In the Netherlands it is principally the verification of the emissions reports that ensured the reliability of emissions data for the first trading year, 2005. During the period covered by this audit, the validation of the monitoring plans and the supervision of the companies by the NEa were found to be suboptimal.

Monitoring plans

In verifying the emission reports for 2005, the verifiers determined that the monitoring plans were often substandard and/or out of date, and in some cases it was found that the plans were not even being followed. Our research has shown that monitoring plans drawn up by similar companies differ in quality and depth.

Validation by the NEa has not always produced monitoring plans of the desired quality. In part, this can be attributed to the tight deadlines under which the NEa conducted the validation project. Another reason is the fact that the NEa is a new organisation (having been created in 2004), which had not had much experience by the time of the audit, or the time to implement improvements.



The NEa's supervision activities

The NEa monitors and enforces compliance with the laws and procedures governing CO₂ emissions trading. For this purpose the NEa visits companies with a CO₂ emissions permit to carry out an audit or an in-depth investigation. In both 2005 and 2006 the NEa conducted fewer audits and in-depth investigations than it had planned. The preparations for these supervision activities could not yet be described as risk-oriented, as they did not involve any risk analysis. The validation process, just to cite one example, could have provided the NEa with useful information for such an analysis.

Accreditation and verification

During the first trading period the number of verification services in the Netherlands remained limited. The main reason for this is that the government provided financial support for the verification services of the VBE.¹⁶ As a result, the VBE was able to verify the emission reports for the first trading year at no charge. With one exception, private-sector verifiers have little to no experience in verifying emissions reports. In addition, the accreditation process has yet to be fully harmonised at European level. Consequently, a verifier who has been accredited by one member state cannot automatically work in another.

We have also found that the accreditation of verifiers by the Dutch Accreditation Council was not completed on schedule, meaning that the quality of the verifiers could not be documented in time.

Recommendations

In the second trading period the importance of good supervision will only increase, as emission allowances are expected to become scarcer and more expensive. There is an attendant risk that companies will therefore be more inclined to report lower emissions than they have actually emitted.

In the future, the reliability of the emissions data should be made less dependent on subsequent verification. The validation of the monitoring plans, the compliance supervision and the verification of the emission reports should be more balanced. The NEa can help achieve this balance by validating the monitoring plans more thoroughly. For example, the NEa could consider carrying out sector-by-sector comparisons of these plans before issuing emission permits. In addition, the NEa should base

¹⁶ In 2006 and 2007 the financial contribution was gradually cut back. In those years there was a 'discount' on the rates of the VBE.



its supervisory activities more on risk analysis. The information to emerge from the validation process could be useful in this respect. **22**

To enhance the quality of the monitoring, supervision and verification system as a whole, we feel that more information should be made available to the NEa from the verification stage. To that end, the verifiers' statement about the emission reports should offer more insight into the workings of the system. One option is to require the verifiers to incorporate recommendations on improving monitoring for the benefit of the company in their statements.

Finally, the government should continue to push for the EU-wide harmonisation of the accreditation of verifiers. This issue could be raised in talks on amending the trading system.



3 Ministerial response and afterword by the Netherlands Court of Audit

23

The Minister of Economic Affairs and the Minister of the Environment and Spatial Planning responded to our report in a joint letter of 5 September 2007. The ministers' response led us to modify certain aspects of our final report. Their letter is summarised below. The full text can be found (in Dutch) on our website, www.rekenkamer.nl.

3.1 Ministerial response

The ministers expressed appreciation for the timing of the audit, as it forms an important contribution both to the debate in Brussels about amending the CO₂ trading system and to the preparations for implementing the second trading period.

The Netherlands is firmly committed to amending the Emissions Trading Directive in such a way as to guarantee maximum harmonisation throughout the EU. In the ministers' view, the trade in greenhouse gas emission allowances will succeed only if it is approached by all member states in the same fashion and implemented in essentially the same way.

The ministers are pleased with our conclusion that by and large the Netherlands has properly implemented the EU ETS. They emphasise that it is a new instrument created under tight time constraints, necessitating a great deal of pioneering.

Total emission allowances, 2008-2012

The ministers do not share our conclusion about the risks surrounding the feasibility of the Dutch Kyoto goal. According to all available data, they claim, the Netherlands will have no trouble meeting its Kyoto goal for 2012, even without the cutback in emission allowances imposed by the European Commission. The ministers go on to say that the total amount of emission allowances is based on the targets for the various sectors



(which are themselves derived from the Kyoto goal) and that every sector is expected to remain below its respective target by 2012.

24

The ministers intend to follow our recommendation to manage the 4.6 Mtonnes buffer prudently by lowering the foreign component of the target from 20 to 15 Mtonnes per year. In doing so, they argue, they will be able to avoid having to set aside additional funds to offset the rise in the price of investment projects in Eastern Europe and in developing countries, without jeopardising attainment of the Kyoto goal.

In response to our comments regarding the Green Investment Scheme, the ministers concede that it is a new instrument and that the Netherlands is a trendsetter in this regard. An undertaking of this kind naturally entails a measure of uncertainty and risk. In the ministers' opinion, it is significant to note that the Commission – the supervisory authority, which monitors member states' progress towards their Kyoto targets – also accepts this instrument.

Allocating emission allowances

The ministers agree that the current system for allocating emission allowance contains an element of economic protection, in which domestic industry is shielded from distortions in the market that could result from an excessively generous allocation of allowances in other EU countries. This 'upward pressure' on the allocation process can only be alleviated through far-reaching harmonisation within the EU. The importance of harmonisation, the ministers contend, extends to all elements of the trading system: setting targets, auctioning and allocating allowances and even certain aspects of the implementation. For these reasons, harmonisation is a keystone of the Dutch negotiating position in talks on amending the Directive.

It is the ministers' contention that the practice of taking account of companies' financial interest and competitiveness in distributing the allowances is warranted. Even though climate change is a global problem, there is as yet no global system of emissions trading. Compelling companies to relocate to another country does not help solve the climate problem, though it could hurt the Dutch economy and adversely affect energy supply security. This is why competitiveness was a factor in the allocation process. And this is unlikely to change until the ETS has been sufficiently harmonised throughout the Union. The ministers also drew attention to the fact that companies covered by the emissions trade are obliged to remain below a rigid CO₂ target, and failing to do so will have



consequences. In that respect the companies are certainly not being given an easy ride, as the ministers point out.

25

The ministers disagree with our position that the implementation of the ETS has not been adequately transparent in all respects. In arriving at this conclusion, they examined the *actual effect* of the inaccessible benchmarking data for individual companies on the allocation process versus the allocation process for the companies that did not fall under the Covenant on Benchmarking. According to the ministers this effect is, on balance, negligible and other companies are not handicapped by these allocation practices. For these reasons the ministers believe that there was an acceptable level of transparency in the development of the National Allocation Plan.

The ministers acknowledge that their ministries did not take the opportunity to review the allocation process during the period that the audit was being conducted. In the meantime the VROM Inspectorate (with the assistance of both ministries' audit departments) has been charged with the task of conducting a quality review of the allocation process. This review will be carried out before the draft Allocation Order is published so the results can be incorporated into that document.

In addition, the ministers observe that any company that met the criteria for the Covenant on Benchmarking Energy Efficiency could join on a voluntary basis. For this reason, they argue, there are no grounds for claiming that a specific group has received preferential treatment.

In response to our contention that emission allowances were sometimes issued for inappropriate reasons (namely, to compensate coal-fired power stations for the discontinuation of the MEP scheme), the ministers say the following. Under the Emissions Trading Directive the use of biomass leads to an allocation reduction for the company in question. Now that participants in the Covenant on Coal are unable to obtain a permit for the use of biomass or lay claim to the MEP, the ministers found it necessary to lower the reduction in emission allowances in NAP2 for the companies concerned. They point out that the burning of biomass or the introduction of other sustainable, CO₂-reducing measures in coal-fired power stations, as set down in the Covenant on Coal, helps realise the objectives of the Directive on the Promotion of Electricity Produced from Renewable Energy Sources, which requires that sustainably produced electricity accounts for 9% of Dutch electricity consumption by 2010¹⁷.

¹⁷ Directive 2001/77/EG.



The new grant instrument for sustainable energy and other grant instruments will take account of the value of the allotted emission allowances, thus ensuring that participants in the Covenant on Coal are not doubly rewarded for the use of biomass. This will apply as long as the compensation measure in NAP2 remains in force.

In response to our view that NAP2 is insufficiently clear about the demands placed on newcomers with regard to the allocation of allowances, the ministers stress that the government's aims can best be defined as the 'best state of the art'. They share our observation that the terminology used in NAP2 is not completely consistent and indicate that this issue will be addressed in the near future.

Overlap with sustainable energy policy

The ministers endorse our view that there is some overlap between the ETS and existing Dutch sustainable energy policy. They do however point out that not all companies in the Netherlands are covered by the ETS and that even non-participants are bound to the CO₂ target for the industry and energy sectors. They suggest that the necessary CO₂ reduction could be facilitated with other instruments. Moreover, the ministers contend, it is primarily political objectives that determine what instruments will be selected, and climate policy and energy policy have had different objectives for years.

The ministers state that the government nevertheless evaluates its range of instruments on a regular basis with a view to assessing their costs and benefits. The Netherlands Bureau for Economic Policy Analysis is currently examining the costs and benefits of the sustainable energy policy, taking into account the effect of emissions trading.

The ministers also indicate that the *Clean and Efficient* programme modernised sustainable energy policy and that targets relating to greenhouse gas reduction, sustainable energy and energy conservation have been made more ambitious. In the industrial and energy sectors, emissions trading is the principal instrument used for this purpose. According to the ministers, existing and supplementary agreements have been altered to reflect this.

Monitoring, supervision and verification

The ministers welcome our observation that there is no reason to conclude that the data on CO₂ emissions from Dutch companies are not sufficiently reliable. They agree with us that there is room for improvement and have taken our recommendations to heart.



The validation of the monitoring plans is already being handled more thoroughly than the first time, and starting in 2008 the NEa will engage in information-oriented supervision based on risk analysis. The ministers appreciated our recommendation to make more information from the verification stage available to the NEa, and they intend to examine options for expanding the statements issued by verifiers. The ministers also endorse our recommendation to press for greater harmonisation in the accreditation of verifiers during the talks on amending the ETS Directive. This aim will form part of the Dutch negotiating position.

The ministers disagree with our assertion that financial support for the verification services of the VBE had curtailed the growth of private-sector verification services during the first trading period. From the start of the first allocation period, parties were free to act as verifiers. However, at that time there was no real market for that service, and the efforts of the VBE were therefore necessary to ensure the appropriate level of quality. Finally, the ministers state that as of 2008 the verification will no longer be performed by the VBE but left up to the market. If requested to do so, the VBE will share its experiences from the first trading period with the other parties.

3.2 Afterword by the Netherlands Court of Audit

We thank the ministers for their constructive response to our audit. We are pleased with the government's plans to push for further harmonisation of the ETS throughout the EU.

Totals for the second trading period

The ministers state that the Netherlands would have had no difficulty in meeting its Kyoto goal even without the reduction imposed by the European Commission. However they had made no comment on the risks identified in our audit. We would also like to point out that the most recent *Environment Report* (MNP, 2007) issued by the Netherlands Environmental Assessment Agency contends that the Netherlands will probably attain its Kyoto goal if the government succeeds in acquiring 100 Mtonnes worth of emission allowances from foreign sources. Yet the government is now proposing reducing the foreign target to 75 Mtonnes (i.e. 15 Mtonnes per year over the length of the Kyoto period), thereby making impossible to satisfy this condition. This brings us to the issue of the buffer created by the adjustment imposed by the European Commission, and the question of how it should be managed. We feel that



the decision to use the buffer straightaway to reduce the foreign target, even before the Kyoto period begins, has made the attainment of the Kyoto goal less certain. This prompts us to wonder what level of assurance the government seeks regarding the attainment of the Kyoto goal.

28

Allocating emission allowances

We realise that the material effect of the benchmark data on the allocation of emission allowance is, on balance, limited. Nevertheless, as a matter of principle, we strongly believe that the allocation of allowances should proceed as transparently as possible. The use of benchmark data that are inaccessible to independent verifiers undermines that principle.

In this connection we are pleased that the VROM Inspectorate has been given the task of examining the allocation process and the data used in it. We will pay close attention to the progress and results of this review.¹⁸

Although joining the Covenant on Benchmarking Energy Efficiency is voluntary, it is not an option for companies that consume less than a certain quantity of energy annually.

The allocation of additional emission allowances to participants in the Covenant on Coal - to compensate for the discontinuation of the MEP scheme - remains, in our view, an inappropriate use of emissions trading.

Overlap with sustainable energy policy

The ministers endorse our findings that there is an overlap between the CO₂ emission trading system and existing Dutch sustainable energy policy. The promises made and the follow-up plans announced by the ministers are insufficiently specific. We are unclear about the implications of the government's decision to let the emission trade be 'the guiding instrument' in the *Clean and Efficient* programme.

As we wrote in Chapter 2, the government adopted a provisional position on the matter of overlapping policy as far back as 2002 pending the further evolution of the trading system. Now that the first trading period is almost behind us, we can see no reason why the government should not finalise its position.

Monitoring, supervision and verification

¹⁸ The Netherlands Court of Audit has a system for reviewing the effects of its audits. We monitor ministries for an extended period to determine whether they follow our recommendations and/or honour their commitments. We periodically publish the results of this monitoring in retrospective reports.



We are pleased that the ministers have adopted all our recommendations pertaining to monitoring, supervision and verification. We intend to follow the future development of the Dutch Emissions Authority closely.



Overview of conclusions, recommendations and commitments

Section	Conclusions	Recommendations	Commitments
2.1	<i>The total amount of emission allowances the government initially planned to set aside for the second trading period imposed few restrictions on CO₂ growth, thereby giving rise to a not insignificant risk that the Netherlands would fail to meet its Kyoto goal.</i>	<ul style="list-style-type: none"> In the negotiations over a revised ETS, NL should press for more harmonisation in setting the total allowance amounts among the member states. The existing buffer of 4.6 Mtonnes should be managed prudently. In other words it should not be used at the first possible opportunity to compensate for setbacks. 	<ul style="list-style-type: none"> NL will work hard to achieve the greatest possible degree of harmonisation. For the time being, the buffer will be used to reduce the foreign component of the Kyoto policy.
2.2	<i>The allocation of CO₂ allowances was dominated by the financial interests and the competitiveness of the participating companies. The process was also insufficiently transparent; the allowances were distributed partly on the basis of confidential information that is not available to the public (including the Netherlands Court of Audit) and is thus impossible to verify.</i>	<ul style="list-style-type: none"> In the negotiations over a revised ETS, NL should press for: a simpler and more transparent allocation of emission allowances (possibly by auctioning more); a single, centrally run European reserve for newcomers; and EU benchmarks or CO₂ norms per unit product. The allocation of emission allowances should be as transparent as possible, both in its structure and implementation. 	<ul style="list-style-type: none"> The recommendation on the negotiating position will be adopted in full and incorporated in the Dutch negotiating position in Brussels. NL will continue to aspire to an even more transparent allocation process; a review will be conducted of said process for the second trading period.
2.3	<i>Owing to the introduction of the EU ETS (in 2005), existing Dutch sustainable energy policy has become less effective in reducing CO₂ emissions.</i>	<ul style="list-style-type: none"> A cost-benefit analysis should be performed for every sustainable energy instrument again and the use of each such instrument 	<ul style="list-style-type: none"> The cost-benefit relationship is being evaluated by the NL Bureau for Economic Policy Analysis. Emissions



		<p>should be reconsidered individually.</p>	<p>trading is the key element of the Clean and Efficient programme. Existing and supplementary agreements related to sustainable energy are drafted and adjusted with this in mind.</p>
2.4	<p><i>At this point there is no reason to conclude that the data provided by Dutch companies about their CO₂ emissions are not sufficiently reliable. There is, however, room for improvement in the monitoring, oversight and verification system.</i></p>	<ul style="list-style-type: none"> • Validation of monitoring plans should be more thorough. • Risk analysis should be integrated into the supervision process. • Verification certificates should provide more information about the working of the system. • In the negotiations over a revised ETS, NL should press for a greater degree of harmonisation among verifiers. 	<ul style="list-style-type: none"> • In progress. • In progress. • A feasibility study will be made. • In progress.



Part II Findings



1 Introduction

In part I of this report we provided introductory information on the Dutch Kyoto policy and the EU system to trade CO₂ emission allowances. The background, question and organisation of the audit were also considered. In part II, we look in greater detail at the four conclusions and recommendations presented in part I.

In chapter 2, we look at the total amount of emission allowances ("the cap") the Dutch government provided for the second trading period. We discuss the relationship between the total amount of allowances (as laid down in the second National Allocation Plan in September 2006), the Dutch Kyoto goal and the related domestic and foreign goals of the Kyoto policy.

Chapter 3 considers the allocation of CO₂ emission allowances to the participating companies. It looks at the government's main allocation criteria and the transparency of the allocation.

In chapter 4 we discuss the overlap between the Dutch sustainable energy policy and the EU CO₂ emissions trading scheme (EU ETS). We also look at the other sustainable energy policy goals (apart from the reduction in CO₂ emissions) and the government's current position on the overlap.

Chapter 5 considers the monitoring, supervision and verification system in place for CO₂ emissions trade. We discuss the verification of CO₂ emissions reports, the validation of monitoring plans by the supervisor (the Dutch Emissions Authority, NEa) and the NEa's supervision of the participating companies' compliance with legislation.



2 Total amount of CO₂ emission allowances for the second trading period

34

2.1 Introduction

The Dutch government has taken a number of policy decisions for the Netherlands to achieve its Kyoto goal of reducing CO₂ emissions to a maximum of 201.5 Mtonnes by 2010. The total amount of CO₂ emission allowances for the second period of the EU ETS (2008-2012) is key to these policy decisions. In this chapter we consider the relationship between the total amount of CO₂ emission allowances and the Dutch Kyoto goal and the related domestic and foreign goals of the Kyoto policy. Figure 2.1 (see next page) shows the policy goals for 2010 and the relationship between them.

In section 2.2 we compare the total amount of CO₂ emission allowances available for the second trading period with the verified total CO₂ emitted by the Dutch participants in 2005. We then look at the other Kyoto policy decisions relating to the total amount of CO₂ emission allowances. In section 2.3 we consider the CO₂ targets for 2010 for the domestic sectors "industry and energy", "transport", "buildings" and "agriculture". In section 2.4, we discuss the outputs required to achieve the foreign climate policy of reducing the emission of CO₂ equivalents by an average of 20 Mtonnes per annum in the period 2008-2012. This reduction will be achieved by means of two instruments in the Kyoto Protocol, Joint Implementation (JI) and the Clean Development Mechanism (CDM), and through the purchase of surplus emission allowances from foreign governments.



2.2 Direct check of verified CO₂ emissions in 2005

35

2.2.1 Dutch proposal and response of the European Commission

Dutch proposal

In September 2006, the Dutch government submitted the Netherlands' allocation plan for the second trading period (NAP2) to the European Commission. The government wanted to allow the existing Dutch participants a total of 83.7 Mtonnes of CO₂ emission allowances, 3.9 Mtonnes of which would be auctioned. With the addition of reserves for new companies ("newcomers") and the consequences of any legal decisions, the government provided a total of 90.4 Mtonnes in CO₂ emission allowances.

Response of the European Commission

The European Commission responded to the Dutch proposal in January 2007. It concluded from its own calculations that the total amount proposed by the Netherlands for the second trading period was too high and decided that the total of 90.4 Mtonnes should be reduced by 5% (i.e. 4.6 Mtonnes). In its letter of 5 March 2007, the government wrote that it would accept this reduction.



Figure 2.1 Goals and targets of the Dutch Kyoto policy (in Mtonnes CO₂ equivalents for 2010)

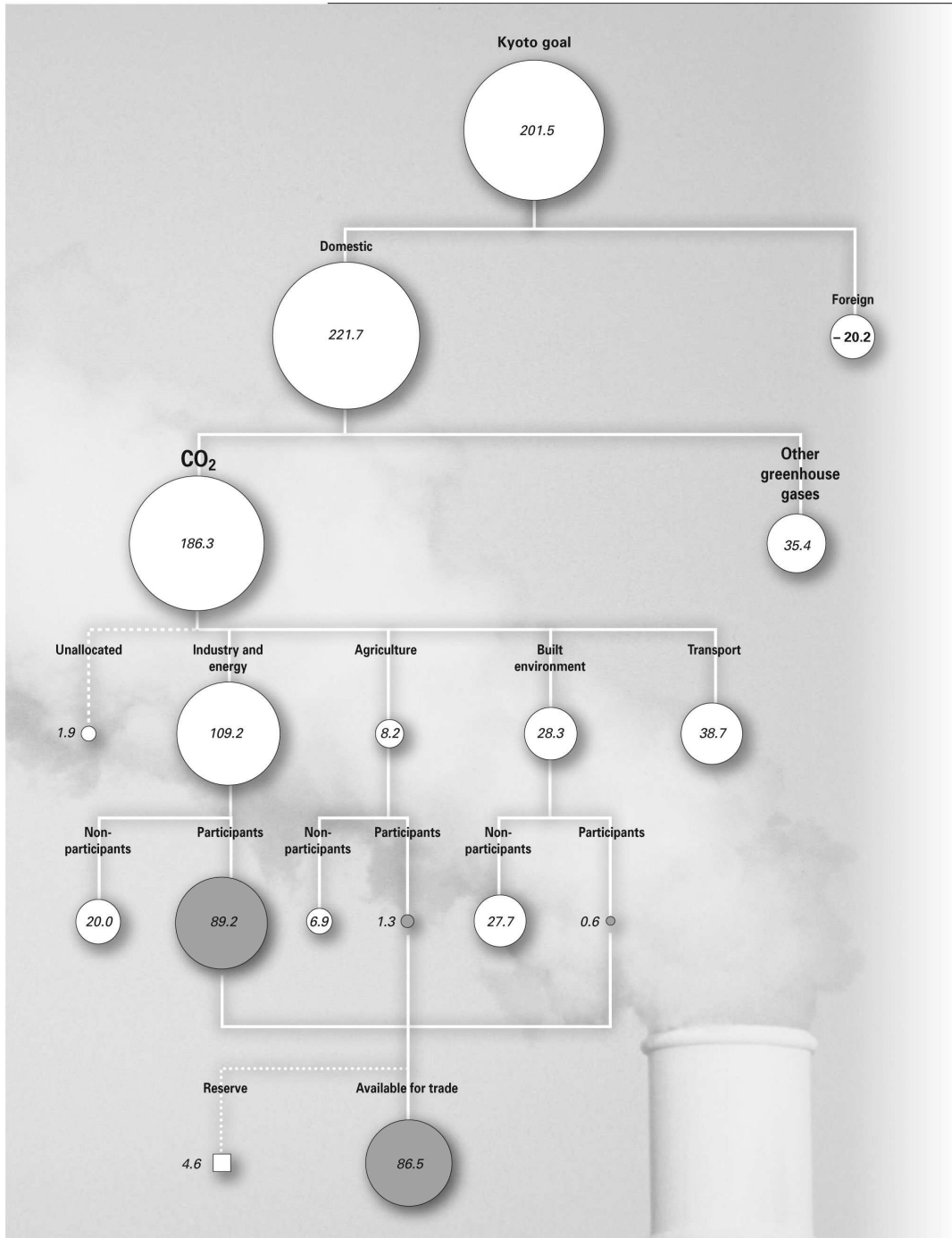


Table 2.1 shows the situation after adoption of the European Commission's decision.



Table 2.1 Total amount of allowances in the Netherlands, 2008-2012, after European Commission's decision (in Mtonnes per annum)

Total amount of CO ₂ allowances for industry and energy (target)	109.2
Less: non-participants and process emissions not subject to the Directive	- 20.0
Emissions trading: industry and energy participants	89.2
Add: agriculture participants (1.3 Mtonnes) and buildings participants (0.6 Mtonnes)	+ 1.9
European Commission reduction	- 4.6
Total amount of allowances including reserves after European Commission's decision	86.5
Reserves for newcomers and legal decisions	- 6.4
Total amount of allowances for existing companies	80.1

Source: Ministry of Economic Affairs, 2007

2.2.2 Comparable CO₂ emissions in 2005

We compared the total amount of allowances set by the government for existing participants for the second trading period with the verified CO₂ emissions of Dutch participants in 2005. The comparison provides an insight into the level of the government's ambitions.¹⁹

There are two problems, however, with a comparison with 2005:

1. For three reasons, the group of 304 companies participating in NAP2 are not directly comparable with the group of 207 companies that participated in the EU ETS in the Netherlands in 2005:²⁰
 - 74 "completely new" companies are expected in the second round;
 - 76 companies that were eligible for the opt-out in the first round must participate in the second round;
 - for various reasons, 53 participants in the first round are not expected to participate in the second round.

¹⁹ The European Commission also used 2005 as a reference year to assess NAP2. The Dutch government has informed the Commission that it does not think 2005 is a representative year because the country used a relatively large amount of biomass to generate electricity in that year and electricity imports were high. CO₂ emissions were therefore lower in 2005 than in previous years. The Commission did not accept these arguments.

²⁰ Based on figures available at the end of April 2007. The consequences of the Commission's decision for the total number of participating companies in 2010 were not fully known at the time. The overall figures for 2005 and 2010 will probably not differ significantly from the figures presented here.

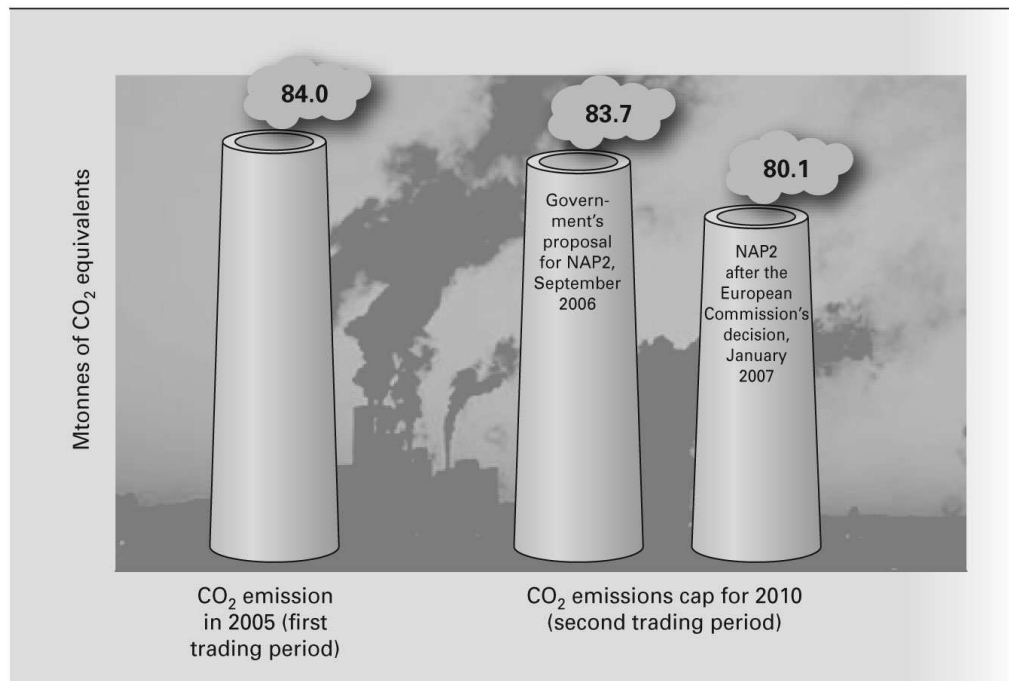


2. The EU has tightened up the definition of "combustion installation" for the second trading period. For a number of companies, some of the combustion installations that qualified for NAP1 no longer qualify for NAP2. They include certain types of dryers, hot oil boilers, hot oil furnaces and gas turbine/compressor combinations. For the companies concerned, fewer of their CO₂ emissions will be subject to the Directive; Energy Research Centre of the Netherlands (ECN) has calculated that approximately 6.6 Mtonnes will be involved (Kroon, 2006). See also section 2.3.3.

38

The first problem can be solved relatively simply by making the two groups of companies (from 2005 and 2010) as comparable as possible. The result of this comparison is shown in figure 2.2.

Figure 2.2 CO₂-emissions cap for the second trading period in comparison with the CO₂ emitted in 2005 (304 companies)



Source: SenterNovem.

The figure shows that the total amount of emission allowances for this group of companies for 2010 is nearly 4 Mtonnes less than that for 2005. At first sight, this seems to be a very ambitious ceiling but this impression must be qualified on several counts:

1. The calculation of CO₂ emissions in 2005 is based on the broad definition of combustion installation. If NAP2's narrower definition had been used, the volume of emissions in 2005 would have been 6.6 Mtonnes lower.



2. It is estimated that high oil prices will reduce CO₂ emissions by the industry and energy sector as a whole by 3 Mtonnes in 2010 but this reduction is not included in the total amount of emission allowances for 2010 (VROM, 2006a. See also section 2.3).
3. The package of policy measures presented in *Energy Report 2005* (EZ, 2002a) is expected to reduce the CO₂ emitted by the sector as a whole by an estimated 1.4 Mtonnes in 2010; this reduction, too, is not included in the total emissions in 2010.²¹
4. If there is a significant increase in CO₂-emitting activities, the existing companies can draw on the reserve for newcomers (subject to certain conditions).

39

If the first factor alone is taken into account, the total amount of allowances for Dutch companies for the second trading period allows for an annual increase in CO₂ emissions of approximately 0.7%. This is before the other factors listed above are taken into account. An annual increase in CO₂ emissions of approximately 0.7% matches the historical growth of CO₂ emitted by the industry and energy sector in the period 1990-2004 (see next section).

This observation relates to the total amount of allowances *after* the reduction made by the European Commission. As noted above, in September 2006 the government had initially proposed a more generous total amount, namely 83.7 Mtonnes. After allowing for the redefinition of combustion installations, this would have permitted an annual increase in CO₂ emissions of more than 1% in 2008-2012. This is equal to the increase in CO₂ emissions from the industry and energy sector projected in ECN's scenario with the highest economic growth expectations (see the following section). The government's initial proposal would therefore have imposed few restrictions on the increase in CO₂ emitted by the Dutch participants in the CO₂ emissions trading scheme.

2.3 CO₂ targets for 2010

The domestic Kyoto goal, a maximum emission of 221.7 Mtonnes of CO₂ equivalents in 2010, is made up of 186.3 Mtonnes of CO₂ and 35.4 Mtonnes of other greenhouse gases (CO₂ equivalents). The domestic CO₂ goal itself has no intrinsic significance but is the sum of the targets set for 2010 for the four sectors that emit CO₂ (agriculture, transport, buildings, and industry and energy) plus a residual unallocated volume or buffer of 1.9 Mtonnes. As shown in figure 2.1, the level of the targets is

²¹ VROM (2005), table 3-9.



related directly to the total tradable CO₂ emission allowances provided by the government in NAP2. In this section we consider the risks surrounding the CO₂ targets by comparing the targets for each sector with the CO₂ emission projections for the same period. We first look at the main assumptions underlying the CO₂ projections.

40

2.3.1 Assumptions underlying the CO₂ projections

Scenarios

The NAP2 targets for each sector and the overall total amount of allowances are based on *Reference Projections Energy and Emissions 2005-2020* (ECN & MNP, 2005). The main assumptions underlying the CO₂ projections are based on a growth scenario of expected economic activity, population size and oil prices. The growth scenario used to calculate the sector targets and NAP2 was the "Global Economy" scenario of the Netherlands Bureau for Economic Policy Analysis (CPB). This scenario has the highest rate of population growth and the highest rate of economic growth.

Historical growth of CO₂ emissions

We compared the targets for each sector and the CO₂ projections in the Global Economy scenario (VROM, 2006a, p. 6) with the historical growth of CO₂ emissions in the period 1990-2004 (see table 2.2). The comparison found that several step changes are expected and/or are being sought.

Table 2.2 Historical, projected and targeted annual growth in CO₂ emissions

	Historical average annual growth 1990-2004*	Average annual growth 2004-2010**	
		Projection*** (90% certainty)	Target
Agriculture	- 1.8%	1.4%	2.7%
Transport	1.9%	1.6%	- 0.1%
Buildings	0.0%	- 0.1%	- 1.0%
Industry and energy	0.7%	1.0%	0.8%
Total	0.7%	1.0%	0.4%

* Source: MNP, 2006a, p. 162

** Source: VROM, 2006a, p. 6

*** Projections include the impact of additional pipeline policy (see section 2.3.3)

The most striking step change is the development of CO₂ emissions in the transport sector. The target for this sector is an absolute *reduction* in CO₂ emissions but in the recent past CO₂ emissions from this sector have



increased by 1.9% a year. The projection for this sector is also opposite to the government's target. In the agriculture sector, both the target and the projected growth rate are opposite to the historical, negative trend. In the buildings sector, historical CO₂ emissions have been stable and a modest reduction is expected: a far greater reduction, however, has been targeted. For the industry and energy sector, the target for 2010 might be difficult to achieve given the projected growth rate of 1% per annum. In the period up to 2004, CO₂ emissions from this sector had increased at a slightly lower rate (0.7% per annum).

Use of oil prices in estimates

A key variable in the CO₂ emission projections is the price of oil. Oil prices have risen sharply in recent years. The Ministry of VROM adjusted its oil price forecast upwards in April 2006 from EUR 25.40 to EUR 30.40 per barrel (VROM, 2006a). At the time, this was equal to USD 38. The minister thinks this adjustment will have a substantial impact on CO₂ emissions (table 2.3).

Table 2.3 Impact of high oil prices on CO₂ emissions in 2010 (Mtonnes)

Sector	Reduction in CO ₂ emissions in 2010
Agriculture	- 0.7
Transport	- 0.7
Buildings	- 0.3
Industry and energy	- 3.0
Total	- 4.7

Source: VROM, 2006a, p. 6.

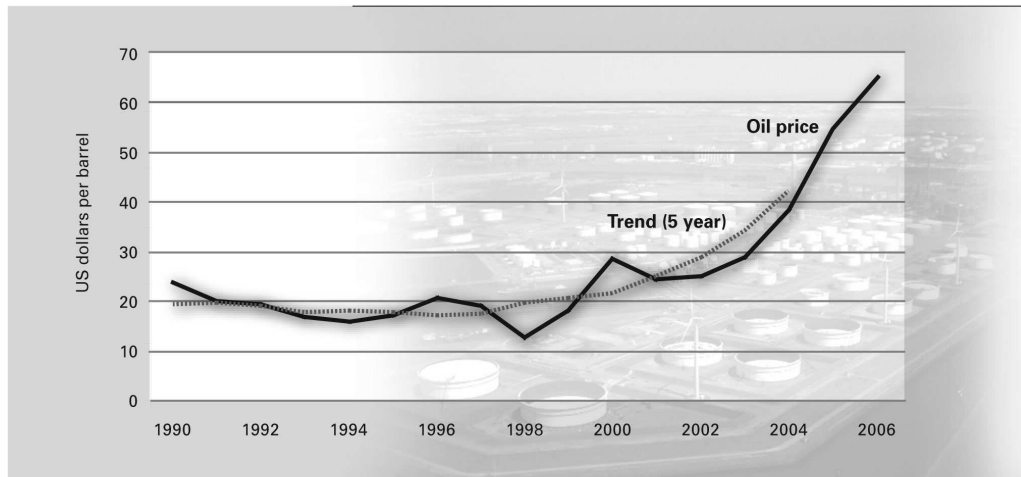
The increase in oil prices in comparison with the reference projections will reduce CO₂ emissions from the industry and energy sector by 3 Mtonnes. This adjustment to the projection, however, has not led to a reduction in either the target for the industry and energy sector or the total amount of allowances. The Ministry of VROM explained that the total amount of emission allowances was the outcome of consultation with the private sector.²² The Ministries of VROM and Economic Affairs (EZ) did not wish to reopen consultations so that the total amount of allowances would reflect the impact of higher oil prices on CO₂ emissions. VROM thought that adapting the target and the total amount of emission allowances to higher oil prices would lead to concessions in other areas and the net impact would therefore be nil.

²² Interview with staff from the Ministry of VROM, Climate Change and Industry Department, 31 August 2006.



At USD 38 per barrel, the oil price the government used in its "target letter" of April 2006 (VROM, 2006a) was actually lower than the price expected for the period to 2010. Oil prices both then and now are considerably higher than USD 38 per barrel (see figure 2.3).

Figure 2.3 Development of oil prices, 1990-2006



Source: www.platts.com

Oil prices have risen sharply in recent years following a long period of relative stability. In October 2006, the market price was around USD 59 per barrel. Following peaks of more than USD 70 in April 2007 owing to diplomatic tensions with Iran, the price of oil at the beginning of May 2007 was above USD 60. Some analysts expect the price to remain high in the years ahead.²³ In *Welfare, Prosperity and Quality of the Living Environment*²⁴ the Dutch planning agencies assume a far more modest long-term increase from USD 21 to USD 40 per barrel.

Given the trends of the past few years, the uncertainties about future developments and the substantial impact that oil prices have on CO₂ emissions, an in-depth sensitivity analysis would not have been out of place. It is doubtful that just one alternative price level can adequately account for all the uncertainties. For the critical year 2010 in particular, for which the total amount of allowances has been set, it would not have been illogical to test the sensitivity of the CO₂ projection against a series of oil prices, not just against the price of USD 38 per barrel. That would

²³ According to a CPB memorandum of 1 August 2006, futures contracts concluded in 2005 for delivery in seven years' time price oil at more than EUR 48 (USD 60) per barrel in 2012.

²⁴ *Welfare, Prosperity and Quality of the Living Environment*, a joint study by the Netherlands Environmental Assessment Agency, the CPB and the Netherlands Institute for Spatial Research, considers the long-term development of the living environment and the use of space in the Netherlands (Jansen, Okker & Schuur, 2006).



have provided more insight into the robustness of the figures presented in table 2.3.

43

2.3.2 Target for the industry and energy sector

The target set in NAP2 for the industry and energy sector is 109.2 Mtonnes. In NAP1 the target had been 112 Mtonnes per annum. The reduction from 112 Mtonnes to 109.2 Mtonnes is the outcome of technical corrections (VROM, 2006a). In practice, the target and thus the starting point for the allocation in NAP2 are the same as in NAP1. The participants in the emissions trading scheme account for about 80% of all CO₂ emitted by the industry and energy sector. Given the total amount of allowances set for the participants, the Kyoto emissions goal for the industry and energy sector is therefore largely fixed. The uncertainty about achieving the industry and energy sector's target therefore relates to CO₂ emissions that are not covered by the emissions trading scheme.

Size of the non-participants

Pursuant to European rules and agreements, certain companies and combustion installations, such as waste incinerators, will remain outside the emissions trading scheme. In some sectors, moreover, process emissions are not included. These are CO₂ emissions that are not produced by incineration processes but by the chemical or physical conversion of raw materials. ECN has calculated that the total volume of CO₂ emissions by non-participants is currently 20.7 Mtonnes (Kroon, 2006).



Table 2.4 Deductions in the industry and energy sector (in Mtonnes of CO₂)

Deduction	Historical figures	2010 including growth and contraction expectations
Industrial companies, < 20 MWth	3.9	3.7
Gas engines owned by the energy sector	1.3	1.0
Construction sector (excluding mobile plant)	0.7	0.7
Oil and gas extraction and gas distribution (residual)	0.3	0.3
Waste incinerators	1.7	2.0
Process emissions from National Inventory Report 2005 (RIVM)		
Other incineration process emissions in NIR	1.0	1.0
Emissions no longer in allocation plan*	8.1	8.05
Total deduction	20.7	20.65

* Of which 6.6 Mtonnes as a result of narrower EU definitions and 1.5 Mtonnes as a result of companies that had not yet applied for an opt-in.

Source: ECN

In NAP2, the government had proposed to the European Commission that if a company did not have at least one combustion installation with a nameplate power rating²⁵ of 20 MWth or higher it should not participate in the emissions trading scheme. There are many such small companies and the CO₂ emission per combustion installation is negligible. The Commission did not accept this proposal. Pursuant to the EU Directive on CO₂ emissions trading, companies that have an *aggregate* incineration capacity of at least 20 MWth must participate in the emissions trading scheme. A number of small companies will therefore have to participate in the scheme.

The estimate of non-participating sources is based in part on emission data from the national monitoring of greenhouse gases. Details on each sector's process emissions can be found in *National Inventory Report 2005*, published by the National Institute of Public Health and the Environment (RIVM) (Klein Goldewijk et al., 2005). Most process emissions (approximately 2.7 Mtonnes per annum) are produced by the chemical industry. The 8.1 Mtonne deduction is attributable principally (for 6.6 Mtonnes) to the narrower EU definition of combustion installation.

²⁵ Nameplate power rating: a combustion installation's total nominal thermal input.



Growth forecasts for non-participants

The volume of CO₂ emitted by the participants in the emissions trading scheme is forecast to increase between now and 2010. Process emissions and emissions by companies and combustion installations not subject to the system, by contrast, are not forecast to increase between now and 2010 (see table 2.5). In the case of non-participating combustion installations, this seems to be contradictory: one part of the company will grow, another will not. The development of the non-participants, however, might be underestimated. NAP2 estimates the sector's CO₂ emissions with 90% certainty at 109.7 Mtonnes per annum, 0.5 Mtonne per annum higher than the target. This uncertainty is due to the non-participants.²⁶

Increase in electricity supply from greenhouses

It became known in mid-2006 that ECN expected the greenhouse farming sector to supply more electricity owing to the increase in the number of cogeneration plants (see section 2.3.5). NAP2 anticipates this by including 0.5 Mtonne in the reserve for newcomers. This 0.5 Mtonne, however, is a transfer from the agriculture sector. It would have been more logical to deduct it from the total amount of allowances for the industry and energy sector since the increase in electricity supplied by greenhouse farmers will influence the electricity market.

2.3.3 Target for the transport sector

CO₂ target and CO₂ projection

In NAP2 the government set a CO₂ emissions target for the transport sector of 38.7 Mtonnes in 2010. This is the same as the target set in the target letter (VROM, 2006a). The CO₂ projection for the transport sector was increased slightly in the target letter from 39.7 Mtonnes to 39.9 Mtonnes. This increase was the outcome of three separate adjustments (see table 2.5).

Table 2.5 Adjustments to CO₂ projection for the transport sector (in Mtonnes)

Projection at the time of Climate policy evaluation memorandum (50% value)	Adjustment for Welfare, Prosperity and Living Environment (incl. 2% biofuels)	Higher oil price (USD 38/barrel)	Pipeline policy: - Speed reduction - New driving 3 - EU light commercial vehicles	2010 estimate (50% value)
39.7	+ 1.8	- 0.7	- 0.9	39.9

Source: VROM, 2006a.

²⁶ In the target letter of April 2006 (VROM, 2006a), the 50% and 90% expected values were 110.2 Mtonnes and 110.7 Mtonnes respectively. NAP2 does not explain these differences.



The forecast for 2010 has an expected value of 50%: there is a 50% probability that the transport sector will emit 39.9 Mtonnes of CO₂ or less in 2010. But there is also a 50% probability that it will emit more than 39.9 Mtonnes in 2010. The probability of exceeding the target (38.7 Mtonnes) is therefore higher than 50%.

In response to the upward adjustment of the projection for the transport sector, the government decided to increase the proportion of biofuels in motor fuels from 2% (in 2007) to 5.75% (in 2010). A 5.75% addition of biofuels in 2010 is expected to reduce CO₂ emissions by 1.4 Mtonnes in that year. The government therefore expects the transport sector to emit 38.5 Mtonnes of CO₂ in 2010.

Risks

The target for the transport sector is surrounded by considerable risks. Firstly, the target of 38.7 Mtonnes in 2010 means that the transport sector's emission of CO₂ must *decrease* (as shown in section 2.3.1) whereas both the projection and the historical trend suggest the opposite will occur. The question is whether such a step change can be achieved in the years ahead, if only because, in accordance with the Mobility Policy Document (V&W, 2005), a volume policy is no longer conducted for the sector.

Secondly, the impact of the "additional pipeline policy" is uncertain. This additional policy package includes the following measures:

- *"New Driving 3"*. This is a public awareness campaign that will be carried out in 2006-2010 to encourage more people to drive economically and to sustain the benefits of the first two campaigns. The estimated impact in 2010 is a reduction in CO₂ emissions of 0.3 Mtonnes. The question, however, is whether the third campaign's impact will be sustained in 2011 and 2012 once it has ended. The government is not yet planning a further campaign for after 2010.
- *The EU agreement on CO₂ emissions from light commercial vehicles*. The agreement includes a CO₂ emission target for light commercial vehicles of 120 g CO₂/km in 2012. The estimated impact in 2010 is a reduction of 0.4 Mtonne. As both ECN and MNP noted in *Option Document 2010-2020* (ECN & MNP, 2006), this measure is not compulsory. It is therefore far from certain that the targeted emission reduction will be achieved.
- *Lower speed limit*. This measure originally entailed a reduction in the maximum speed limit on all motorways in the Randstad conurbation to 100 km/hour as from 1 January 2006. It was thought that this



measure would reduce CO₂ emissions by 0.2 Mtonne in 2010. In October 2006, however, the Minister of Transport, Public Works and Water Management (V&W) announced that a system of "dynamic speed limits" was being studied in which the permanent speed limit would be temporarily increased or decreased depending on the volume of traffic (V&W, 2006). According to the minister, the target for the transport sector is a matter of concern; she observes that the projections do not take account of any increase in CO₂ emissions due to increases in the speed limit.

47

In *Environmental Balance 2006* (MNP, 2006a), the MNP notes that this package of measures will probably not be enough to achieve the targeted 0.9 Mtonne.

Thirdly, the government has probably overestimated the impact of the increased use of biofuels (from 2% in 2007 to 5.75% in 2010). However, an average of 5.75% must be added throughout the Kyoto period (2008-2012) to achieve the target. The compulsory addition of 5.75%, however, is applicable only in 2010 and will not increase further in 2011 or 2012. Since 5.75% will not be added in 2008 and 2009, it is uncertain how this shortfall can be made up. Furthermore, it is not yet certain whether the 2% target for 2007 will be achieved. In this light, the feasibility of the 5.75% target in 2010 is in doubt.

2.3.4 Target for the buildings sector

In NAP2, the 2010 emissions target for the buildings sector is 28.3 Mtonnes. The volume of CO₂ emitted in 2010 is also projected at 28.3 Mtonnes, with an expected value of 50%. According to the State Secretary for VROM, the target will therefore be missed if there are any unforeseen setbacks. Planned policy intensifications must have the desired impact and be realised on time, according to the state secretary's target letter of April 2006 (VROM, 2006a). The only policy intensification to be prepared in 2006 was the introduction of tradable energy saving certificates that would reduce emissions by 0.3 Mtonne in 2010. This measure was postponed in anticipation of the new government.

There is a significant risk that the target for the buildings will not be achieved. VROM uses the least certain scenario of 50% and little time is available for the energy saving certificates to have an impact. Furthermore, no contingency measures are in place to prevent the target from being missed. The 1.5 Mtonne difference between the estimate with



a 50% expected value and that with a 90% expected value is indicative of the extent to which the target might be missed. **48**

A limited number of companies in the buildings sector are taking part in the EU ETS. A small proportion of the target for this sector (0.6 Mtonne) has therefore been transferred to the total allowances available for emissions trading.

2.3.5 Target for the agriculture sector

The target set for the agriculture sector in NAP2 is 8.2 Mtonnes per annum, comprising 7.2 Mtonnes from greenhouse farming and 1.0 Mtonne from other forms of agriculture.

In a report issued in 2006, ECN expected greenhouse farming to emit at least 8.0 Mtonnes of CO₂, possible even 8.4 Mtonnes (Van Dril & Kroon, 2006). ECN informed us in December 2006 that an even higher volume was very likely. The CO₂ emitted by the agriculture sector as a whole will therefore be about 9.0-9.4 Mtonnes. This is about 0.8-1.2 Mtonnes higher than the target. The ministry with primary responsibility (Agriculture, Nature and Food Quality (LNV)) has not taken any contingency measures.

The expected additional emissions from greenhouse farming will be due to an increase in the number of cogeneration plants, partly as a result of an increase in scale. This was not foreseen in the studies underlying the target. Some of the additional emissions will probably be traded and will therefore not represent a risk to the Kyoto goal. ECN estimates that 2 Mtonnes of the CO₂ emitted by greenhouse farming will ultimately be subject to the emissions trading scheme (with a margin of uncertainty of 0.7 Mtonne):

- approximately 1 Mtonne on the adoption of NAP2;
- approximately 1 Mtonne between now and the end of 2010 due to the developments described above. The participating greenhouse farmers must obtain emission allowances for these emissions, where possible by using the scheme for newcomers.

NAP2 increases the tradable allowances by a further 1.3 Mtonnes. This is equal to the lower limit of ECN's estimate. Of the 1.3 Mtonnes, 0.5 Mtonne has been added to the reserve for newcomers.



2.4 Achievement of the foreign Kyoto policy target

49

The performance target for the foreign Kyoto policy consists of the purchase of 100 Mtonnes of certified emission allowances in 2008-2012, equal to 20 Mtonnes per annum. The government has thus created a relatively wide margin for the domestic sector's CO₂ emissions.

It has been agreed with the House of Representatives that the Minister of EZ must purchase 34 Mtonnes of certified emission allowances by means of Joint Implementation (JI) projects in industrialised countries that have Kyoto targets, chiefly in Eastern Europe.²⁷ The Minister of VROM must purchase 67 Mtonnes of certified emission allowances in developing countries by means of the Clean Development Mechanism (CDM).²⁸ Both JI and CDM are primarily investment projects involving a variety of private actors, ranging from manufacturing companies and semi-private utility companies to engineering consultancies and property developers. The projects will reduce the emission of greenhouse gases through, for example, the use of cleaner technologies and/or reduced energy consumption. By contributing money and experience to these projects, the Netherlands will obtain part of the emission reductions achieved. These reductions (in the form of certified emission allowances) will help the Netherlands achieve its Kyoto goal.

2.4.1 Achievement of Joint Implementation and Clean Development Mechanism goals

There is a realistic risk that the Netherlands will not achieve its JI and CDM goals. There are three reasons for this:

- the contracting of projects is significantly behind schedule;
- contracted projects will probably reduce emissions by far less than expected;
- price increases will increase costs and create further uncertainties.

Contacting behind schedule

Table 2.6 shows that contracting for both JI and CDM is behind schedule. The schedule has also been adapted on several occasions.

²⁷ Pursuant to article 6 of the Kyoto Protocol, countries can transfer CO₂ reductions from one party to another by means of Joint Implementation. Agreements to transfer reductions are laid down in memoranda of understanding between two governments. Joint Implementation is an instrument in the Kyoto Protocol that countries can use to achieve their greenhouse gas reduction commitments.

²⁸ The Clean Development Mechanism (CDM) is the second instrument in the Kyoto Protocol that allows industrialised countries to achieve their greenhouse gas reduction commitments. The CDM encourages investments in clean technologies in developing countries.



Table 2.6 2010 CDM and JI goals, planning and achievement

	2010 goal (set in 2003)	Planned 2005*	2005 achievement*	Planned 2006*	Outcome 30-11-2006***
JI	34 Mtonnes	29.2 Mtonnes	18.1 Mtonnes	29 Mtonnes	18 Mtonnes
CDM	67 Mtonnes	56 Mtonnes	25.9 Mtonnes	60 Mtonnes**	35 Mtonnes

* Source: VROM, 2006a

** Source: National budget 2007

*** Source: Ministries of EZ and VROM

The Netherlands Environmental Assessment Agency (MNP, 2006b) warns in its assessment of the government's JI and CDM measures that it is not yet certain that the targeted volume of 100 Mtonnes will be purchased on time. More parties are seeking to buy reductions and the supply of projects is not increasingly proportionately. The time-consuming procedures also cause delays. The timeliness of contracting is an important factor because delays can affect the delivery of CO₂ reductions by the projects concerned. The projects' during the 2008-2012 Kyoto period might therefore be lower than expected.

The shortfall in JI contracts is due chiefly to the framework contracts with the European Bank for Reconstruction and Development, the International Bank for Reconstruction and Development and the International Finance Corporation. On behalf of the Ministry of EZ, these banks select suitable projects and draw up contracts. The banks are developing a "pipeline" of projects that, according to EZ, will reduce CO₂ emissions by about 30 Mtonnes. The shortfall has arisen partly because of a late start and partly because the two banks failed to reach their milestones. The banks put the shortfall down to the increase in the number of countries seeking projects and to institutional problems in Russia and Ukraine, which account for two thirds of the contracts in the pipeline. The emission reductions to be achieved through other means are nearly all covered by project contracts.²⁹

VROM is also working with a system of framework contracts with banks that select projects and draw up contracts. According to VROM, there is a shortfall in CDM contracts because project initiators are reluctant to act and because the prices offered by VROM are too low. Some projects were recently taken out of the pipeline because other parties had offered more than VROM. The parties that carry out the framework contracts have raised their portfolios to the desired level again with other projects.

²⁹ These other means are ERUPT (Emission Reduction Unit Procurement Tender), a public tendering system for JI projects, and participation in the Prototype Carbon Fund.



Contracted projects deliver lower emission reductions

Projects might not go ahead or might deliver lower emission reductions than planned if they are, for example, delayed or rejected by the JI Supervisory Committee or the CDM Executive Board or fail to satisfy the monitoring requirements. VROM reckons the risk of the CDM Executive Board rejecting a project is low. According to the ministry, only six or seven of the 400 projects assessed in recent years have been rejected. CE, the evaluator of the JI projects, thinks it is uncertain that all the projects contracted will be approved by the JI Supervisory Committee (Faber et al., 2005). The Ministry of EZ has contracted projects without waiting for the criteria to be agreed. If the JI Supervisory Committee uses the same criteria as the CDM Executive Board, CE believes 6 Mtonnes in contracted projects will be rejected. The ministry has said that it will now use the methodologies applicable to CDM projects for future contracts.

Climate Policy Evaluation Memorandum 2005 (VROM, 2005, pp. 68-70) puts the total risk of non-delivery on CDM projects at 10-20%. Our own investigation of the rejection of CDM projects found that there was currently no reason to assume otherwise. The evaluation memorandum estimates the risk of JI project rejections at 12-27%.

Price increases

The prices paid for JI and CDM reduction units have increased in recent years. To achieve the goals, budgets have been raised and further increases are being prepared.

The average price of CDM units was about 50% higher in 2006 than in 2005 and the average price of JI units was about 65% higher in 2006 than in 2005. VROM expects CDM prices to increase further in the years ahead, in part because demand is outstripping supply. Under the Linking Directive, participants in the emissions trading scheme can cover their emissions with CDM units. JI price levels are still lower than CDM price levels. JI units, too, can be purchased by participants in the CO₂ emissions trading scheme. The increase in prices is shown in table 2.7 below.



Table 2.7 JI and CDM prices, 2005-2006 (in US dollars)

	Average price/tonne in 2005	Average price/tonne January-September 2006
JI (ERU)	4.84	7.98
CDM (CER)	7.10	10.50

Source: World Bank and International Emissions Trading Association

To achieve the foreign Kyoto targets, the government has increased the available budgets: in the 2006 Spring Memorandum, the JI and CDM budgets were raised by EUR 32 million and EUR 48 million respectively (EZ, 2006b; VROM, 2006b). Further budget increases are being prepared in anticipation of future price increases. Both VROM and EZ have requested additional budgets from the Minister of Finance. A final decision will be taken in spring 2007. Even with these increases, the CDM budget will probably still be less than the original available budget of EUR 681 million.

The price uncertainties represent an efficiency risk. The cost of achieving the foreign target is not clear. It is also uncertain whether the budget increases requested at the beginning of 2007 will be sufficient to purchase the required volume of emission reduction units. There is also a risk that the target will not be achieved. It is not yet certain whether the government will provide sufficient funds to achieve the foreign target.

2.4.2 Reducing risks

The Ministers of VROM and EZ are trying to mitigate the risk of not achieving the foreign target through other means as well as by increasing available budgets (see above).

Overcommitment

VROM is trying to mitigate the effect of project rejections by contracting projects for 110% of the CDM target. The minister intends to purchase additional reduction units later, for example on the spot market, to make up for any remaining shortfall in emission allowances. Buying on the spot market will probably be far more expensive.

Additional clauses in contracts

EZ has stated that it will build more assurances into new JI contracts. Clauses will be included on alternative sources of reduction units instead of monetary fines in the event of non-delivery.



Green Investment Scheme

53

The government recognises that the CDM and JI targets might not be achieved yet it intends to keep to the foreign Kyoto policy target. It is therefore considering the use of the Green Investment Scheme. This instrument is designed to complement emissions trade between states.³⁰ The Netherlands could purchase emission allowances from, in particular, countries in the former East Bloc. Critics call this trade "hot air" since these countries' surplus emission allowances are not the consequence of climate policy but of economic collapse following the fall of the Wall. The House of Representatives has already spoken out against this solution (House of Representatives, 2002).

Under the Green Investment Scheme, selling countries can invest the proceeds in environmental projects to improve energy efficiency and reduce CO₂ emissions. It is open to question, however, whether the "green" criteria are realistic, enforceable and auditable. There is a risk that "hot air" will be purchased from countries with a surplus without the proceeds being used to reduce CO₂. An official report from the Ministry of VROM notes:

"Another question is whether they [emission allowances] will actually be green. A significant policy intensification will be needed in the countries concerned and it is not yet clear whether that will be possible (even though the value of the [emission allowances] might work miracles)."

The same report also notes that there are real doubts about whether Russia and Ukraine, which have the most surplus emission allowances, will satisfy the international requirements set for participants in interstate emissions trade before 2012. A study by the Climate Strategies network found that institutional problems form the main obstacles in Russia (Tangen et al., 2002).

³⁰ Emissions trade between states is the third instrument in the Kyoto Protocol that enables countries to achieve their greenhouse gas reduction commitments.



3 Allocation of emission allowances

54

3.1 Introduction

In this chapter we describe how the government intends to allocate emission allowances to the companies participating in the second trading period of the EU ETS. The government describes how the allocation method works in NAP2. We first consider the government's main allocation criteria (section 3.2). We then look at the government's allocation of emission allowances to compensate coal-fired power stations for the termination of the Grant Scheme for the Environmental Quality of Electricity Production (MEP) (section 3.3). We close this chapter by looking at the transparency of the allocation of CO₂ emission allowances (section 3.4).

3.2 Criteria for the allocation of CO₂ emission allowances

3.2.1 Main allocation rule

NAP2 contains several formulae to calculate the allocation of emission allowances to existing companies. The main allocation rule is:

$$A = HE \times GF \times EE \times C$$

Where:

A = The emission allowances allocated to a company

HE = A company's historical emissions averaged over three years in 2001-2005

GF = The forecast growth of CO₂ emissions in 2006-2010

EE = The energy efficiency factor, taken from the Energy Efficiency Benchmarking Covenant and the Long-Term Agreements on Energy Efficiency³¹

³¹ The Long-Term Agreements on Energy Efficiency were concluded between the government and companies and institutions to increase the effective and efficient use of energy.



C = A correction factor. This is the same for all companies. It reduces the sum of the individual allocations based on the first three variables so that it is equal to the total amount of allowances.

55

Our audit concentrated on the EE factor and in particular on the link made with the Energy Efficiency Benchmarking Covenant ("Benchmarking Covenant"). In NAP2, 90% of the emission allowances are allocated to companies that are party to the Benchmarking Covenant, as shown in the table below.

Table 3.1 NAP2 allocation of emission allowances by type of covenant

	N	Proportion of total emission allowances*
Benchmarking Covenant	122 (40%)	90%
Long-Term Agreements	138 (45%)	6%
Non-participation	44 (15%)	3%
Total	304	

* Based on the indicative allocation in NAP2, September 2006

Source: SenterNovem

3.2.2 Historical emissions

IN NAP2, a company's average historical emission is calculated over a period of three years in the period from 2001 to 2005. The company itself chooses the three years. It is thought that this will make sufficient allowance for special circumstances. If a plant is out of operation for major maintenance or on account of a serious malfunction, it would be unfair to base the historical emission and thus the allocation of emission allowances on such an unrepresentative year.

It is thought that the companies will choose the three years in 2001-2005 that had the highest emission volumes. Data we have seen from SenterNovem suggest that this is indeed what most companies have done.

3.2.3 EE or energy efficiency factor

Energy efficiency agreements

One of the principles of NAP2 is that the allocation of emission allowances to individual companies must be consistent wherever possible with existing public/private agreements to improve energy efficiency, such as those laid down in the Benchmarking Covenant and the Long-Term Energy



Efficiency Agreements. The same principle had also been used in NAP1. The aim of the Benchmarking Covenant is to have the participating companies permanently improve their energy efficiency and, in particular, reduce their CO₂ emissions. The companies that sign the Covenant undertake to raise the energy efficiency of their process plant to the best international standard as quickly as possible but in any event by 2012. Since there is a lower limit on the participants' energy consumption, the parties to the Covenant are large and very large energy consumers. The Long-Term Agreements are covenants with small and medium-sized companies and industries.

In concrete terms, the EE factor in NAP2 for the "Benchmarking" companies lies between 0.85 and 1.1.³² A value higher than 1.0 is regarded as a bonus for the company and a value lower than 1.0 as a penalty. The exact value of the EE factor is derived from information already available on the company for the purposes of the Benchmarking Covenant. The definitions and calculation rules are also taken from the Covenant.

Table 3.2 EE factor for Benchmarking Covenant companies

EE factor	NAP1*	NAP2
0.85	3	1
Between 0.85 and 1.0	27	26
1.0	48	45
Between 1.0 and 1.1	19	21
Between 1.1 and 1.15	36**	29**
Total number of companies	133	122

* Including the "Benchmark-plus" companies. These companies do not participate in the Covenant but are members of a group in which other companies do participate. This category was abolished in NAP2.

** Maximum value set at 1.1.

Source SenterNovem

The companies that are party to the Long-Term Agreements are given a standard EE factor of 1. Companies that participate in neither the Benchmarking Covenant nor the Long-Term Agreements are given an EE factor of 0.85. If such a company can provide objective and reasoned evidence that it has already taken energy efficiency measures, it is given an EE factor of 1. The proposed allocation method is therefore relatively favourable to a group of 50 larger companies at the expense of the other

³² In the version of NAP2 (September 2006) submitted to the European Commission, the government proposed a maximum bonus factor of 1.15. On the Commission's recommendation, the government set the maximum at 1.1 in its letter of 5 March 2007.



participants. According to a statement by SenterNovem, the bonus CO₂ emission allowances allocated to Benchmarking companies are worth 2.2 Mtonnes (for the year 2010).³³

57

In the remainder of this chapter, we consider only the calculation of the EE factor for the companies that are party to the Benchmarking Covenant. As already noted, this group accounts for 90% of the emission allowances allocated.

Calculation of the EE factor

The EE factor is the ratio of the best international energy efficiency standard and a particular company's energy efficiency standard. The best international standard must therefore be known before the EE factor can be calculated. A consultant determines the relevant international standard for the companies participating in the Benchmarking Covenant and establishes any gap between the best international standard and the company in question (see also appendix 2). The completeness and reliability of the consultants' benchmarking studies are checked by the Energy Efficiency Benchmarking Verification Agency (VBE).

Our audit found that the Covenant does not use the strictest definition of best international standard for the main forms of benchmarking. The companies are not, for example, assessed against the most energy efficient operator in the world (see appendix 2). A stricter definition of the best international standard could lead to the companies concerned receiving a lower bonus or even a penalty instead of a bonus.

Comments on the use of the bonus factor

The European Commission has decided that, for the sake of fairness, member states may base the allocation of CO₂ emission allowances on whether companies have taken early action to improve their energy efficiency.³⁴ Companies that have taken early action must not be disadvantaged and companies that have not taken early action must be treated less generously. In the Commission's words: "The application of this criterion necessarily implies fewer allowances available for installations that have not undertaken early action". The use of a penalty therefore agrees with the European Commission's sentiments on early action. We think it is less logical, however, to reward companies that have taken early action by giving them a more generous allocation of emission allowances (NAP2 refers to "positive appreciation of energy efficiency").

³³ This figure is obtained by means of a comparison with a maximum EE factor of 1.

³⁴ COM (2003) 830 final.



The European Commission has also indicated that early action is already adequately rewarded by allowing companies to select an "early" base year, i.e. a year in which the early action had had little if any impact and historical emissions were still relatively high. As noted above, Dutch companies were allowed to select their own base year for the second trading period. In this light, it is not necessary to reward early action in another way.

A final question is whether the bonus factor was applied correctly when early action had had a discernible impact. In such cases, it is uncertain whether the Benchmarking Covenant has had a positive impact on reducing energy consumption and CO₂ emissions, and, if so, what the impact was. We would first observe that the use of a bonus in NAP2 is not supported by estimates of the reductions attributable to the Covenant. Some of the estimates actually contradict each other. VBE's annual reports state that the CO₂ reductions have been substantial³⁵ but the ECN and MNP make more conservative estimates. *Reference Projections Energy and Emissions 2005-2020* attributes no positive effect whatsoever to the Benchmarking Covenant (ECN & MNP, 2005, p. 174). The Netherlands Bureau for Economic Policy Analysis (CPB) has also questioned the effectiveness of the Covenant (Broer, Mulder & Vromans, 2002). The CPB gives the example of Corus Staal in IJmuiden. The benchmarking study found that this facility already operated to the best international standards. The CPB concluded "the Covenant provides no additional stimulus for this company to make energy savings".

3.2.4 Energy conversion efficiency ratings

In NAP2, the government set relatively flexible efficiency requirements for the allocation of CO₂ emission allowances to electricity generators. Thanks to the flexible efficiency requirements, the generators receive more allowances than they would if the efficiency requirements were higher.

NAP2 contains fixed efficiency ratings for facilities that convert fuel into electricity and/or heat ("energy conversion") – principally power stations but also cogeneration facilities – as shown in table 3.3. The efficiency

³⁵ The evaluation of the first round of benchmarking studies found that a number of VBE's assumptions had led to overestimations of the energy saving (PwC, 2003).



ratings are used to calculate both the EE factors and the historical emissions of the energy conversion facilities.³⁶

Table 3.3 NAP2 efficiency ratings for energy conversion (NAP1 between brackets)

	Electricity generation
Gas and oil	52% (50%)
Coal	39% (39%)
Blast furnace gas	40% (40%)

Source: NAP1 and NAP2

The government has adopted these values from the Benchmarking Covenant. NAP1 had used an efficiency rating of 50% for gas and oil-fired facilities. The efficiency rating for coal-fired facilities in both NAP1 and NAP2 was 39%. (See also appendix 2.)

We have the following comments on these efficiency ratings.

- The efficiency ratings are fuel specific. In general, the benchmarking is less strict if specific organisations or processes are compared with each other.
- The efficiency rating for coal is particularly low. The relatively high EE factors and historical emissions calculated for the coal-fired power stations currently in operation in the Netherlands have therefore led to a more generous allocation to this category than a stricter efficiency rating would have. By way of comparison, the most recent benchmarking round for coal-fired power stations in the EU put the very highest operating efficiency rating at about 44.5%.

Efficiency of coal-fired power stations
<p>"Generation of electricity using coal started at the end of the 19th century. The first power stations had an efficiency of around 1%, and needed 12.3 kg of coal for the generation of 1 kWh. This meant 37 kg CO₂ emissions per kWh. With increasing experience, in combination with research and development, these low efficiency levels improved rapidly. In the year 1910, efficiency had already increased to 5%, reaching 20% by 1920.</p> <p>"In the fifty's, power plants achieved 30% efficiency, but the average efficiency of all operating power plants was still a modest 17%. Continuous development resulted around the mid 80's in an average efficiency of 38% for all power stations, and best values of 43%" (Schilling, 2005).</p>

³⁶ A lower efficiency rating implies a higher fuel consumption and therefore a higher CO₂ emission to generate the same amount of electricity.



3.3 Compensation for the termination of the MEP scheme

60

On 18 August 2006, the Minister of EZ terminated the Grant Scheme for the Environmental Quality of Electricity Production (MEP) with immediate effect. The scheme had been introduced to promote the generation of green electricity. Since then, power stations that co-fired coal and biomass have no longer been able to submit new grant applications. The government has used the allocation of CO₂ emission allowances to compensate coal-fired power stations for the ending of the MEP grant. NAP2 contains several separate provisions on the allocation of emission allowances to coal-fired power stations (pp. 45-46).

In NAP2, the co-firing of biomass leads to a *reduction* in the emission allowances allocated to the companies in question. Given the intended Kyoto goal for 2012 (a 3.2 Mtonne reduction in CO₂ emissions), NAP2 seeks an average reduction in CO₂ emissions of about 2.5 Mtonnes per annum in 2008-2012. This volume, the outcome sought from the subsidised co-firing of biomass, is the total reduction that should be made in the allocation to coal-fired power stations in each year during the planning period. NAP2 shows, however, that only half the reduction will actually be made and the other half (emission allowances representing an average of about 1.25 Mtonnes of CO₂ per annum) must still be allocated to coal-fired power stations. The reason for this, according to NAP2, is that achievement of the target for coal-fired power stations is impeded by two factors:

1. an environmental permit is sometimes not been available for the use of biomass;
2. the MEP grant for new projects has been reduced to zero.

It is uncertain whether there were adequate grounds to halve the reduction. Information from Statistics Netherlands (CBS, 2006) indicates that the co-firing of biomass had already cut CO₂ emissions by 2.6 Mtonnes in 2005. An evaluation of the Coal Covenant (Van Seggelen & Mazier, 2006) found that the operators of coal-fired power stations expected the co-firing of biomass to reduce CO₂ emissions by a further 3.13 Mtonnes in 2012. Based on an average CO₂ reduction of about 2.5 Mtonnes per annum, the annual emission allowances allocated to the power stations concerned would be about 1.25 Mtonnes per annum higher than necessary for the planning period.³⁷

³⁷ See also our audit report entitled, *Grant Scheme for the Environmental Quality of Electricity Production (MEP)* (Netherlands Court of Audit, 2007).



3.4 Transparency of the allocation

61

3.4.1 Calculation of the EE factor

The Court of Audit still cannot audit in full the precise allocation of CO₂ emission allowances to the Benchmarking companies, which together received about 90% of all emission allowances in NAP2.

No insight into the reasons for and calculation of EE factors

To apply the allocation criteria for CO₂ emission allowances, data must be collected and processed on all participating companies. The data are collated, managed and used by SenterNovem (an agency of the Ministry of EZ) and VBE. SenterNovem and VBE verified the data provided by the participants for the individual allocations. VBE checked the information provided by the companies participating in the Benchmarking Covenant. There are about 120 of these companies and most of them have high CO₂ emissions. VBE also set the EE factors for these companies based on the benchmarking studies verified by VBE itself. VBE also verifies the historical emissions of these companies.

In particular, we wanted to check the calculation of the EE factors set for the companies participating in the Benchmarking Covenant. However, we were unable to carry out a proposed audit at VBE, where the data are located, on account of a difference of opinion with EZ regarding the Court of Audit's powers (see appendix 3). SenterNovem also has no insight into how VBE calculates the EE factors or into the benchmarking studies that VBE verified for the calculation. Only VBE has access to the reference data provided by the companies participating in the Benchmarking Covenant.

EZ/VROM ownership

The Ministers of EZ and VROM are able to check the allocation of CO₂ emission allowances to the Benchmarking companies.³⁸ So far, however, they have not checked (or had checked) the quality of the information used by VBE or of the calculations based on that information.

³⁸ Both ministries have had this power since the introduction of NAP2. In the closing phase of NAP1, VROM came to the conclusion that it was necessary for legal reasons to have access to the data on which it and EZ based the Allocation Decree. Following discussion with VBE, in which VBE claimed the data were confidential, VROM and EZ received the access necessary for the first Allocation Decree.



3.4.2 Allocation of emission allowances to newcomers

62

With a view to the efficiency of climate policy, new companies ("newcomers"), including new power stations, should be subject to strict emission requirements. It is not clear from NAP2, however, what requirements will be set for newcomers. It is difficult to judge the government's ambition level in this area.

In NAP2, the allocation to newcomers will reflect the state of the art. "It will be based on the emissions of the best commercially operating unit in the world in energy terms. This can be derived from the current Benchmarking international standard or in a comparable manner" (p. 55). A footnote states that this is "the best international standard as adopted for the Benchmarking Covenant". However, as we noted elsewhere in this chapter, there is a difference between the best commercially operating unit in energy terms and the definition of the best international standard in the Benchmarking Covenant.

Regarding the allocation to new power stations, NAP2 states: "For electricity production units, no more emission allowances will be allocated than is customary for a comparable unit" (p. 56). It does not explain, however, what reference unit is intended. NAP2 creates the impression that the fuel-specific efficiency rating set for existing power stations (see table 3.3 in section 3.2.4) will also be used for new power stations. With a view to the efficiency of climate policy, it would seem more appropriate to use the strictest efficiency ratings for the next generation of power stations.



4 Overlap with sustainable energy policy

63

4.1 Introduction

Before the start of the EU ETS, the Netherlands had already taken a number of measures (schemes) to implement a sustainable energy policy, for example by promoting energy savings and sustainable energy production. Since the introduction of emissions trading, national policy on reducing CO₂ emissions has become less effective. The total amount of allowances set for the Netherlands also determines the CO₂ emission allowances allocated to the Dutch participants. The Dutch participants might retain more CO₂ allowances thanks to the sustainable energy policy but they can sell the surplus allowances to other (foreign) companies who can use them to increase their CO₂ emissions.

Climate Policy Evaluation Memorandum 2005 (VROM, 2005) considers the reduced effectiveness of sustainable energy policy in several areas. The government writes, for instance, that intensifying the policy on energy savings will make only a limited contribution to further reducing the Kyoto emissions in 2010 because:

"power stations, and thus electricity savings and renewable electricity, are subject to the CO₂ emissions trading scheme. Electricity savings and renewable electricity can reduce the physical emission but have no impact on the so-called Kyoto emissions, i.e. the emissions for which the Netherlands is internationally accountable".

In this chapter we take a closer look at the various ways in which the EU ETS and the sustainable energy policy overlap each other (section 4.2). We then consider the fact that most sustainable energy policy instruments are designed not only to reduce CO₂ emissions but also to achieve other goals (section 4.3). Finally, we consider the government's position to date on the overlap between policies (section 4.4).



4.2 Forms of overlap

64

The overlap between the EU ETS and the Dutch sustainable energy policy was first considered several years before the start of emissions trading. The Social and Economic Council (SER), for example, issued two reports on the introduction of CO₂ emissions trading and its position in the existing policy practice (SER, 2000; 2002). In a report issued in 2002, the Commission on CO₂ Trade provided a summary of all climate policy instruments in force at the time (Commission on CO₂ Trade, 2002) and analysed the overlap for all instruments. This revealed three forms of interaction:

- emissions trade and instrument x support or reinforce each other;
- both emissions trade and instrument x add value and can be continued alongside each other;
- emissions trade and instrument x overlap each other. The instrument should be replaced in due course.

For a well-considered assessment of the overlap, we must look closely at the precise (intended) effects and the target groups. It emerged from a study by ECN that there can be both a direct overlap and an indirect overlap between the EU ETS and the sustainable energy policy instruments (Sijm & Van Dril, 2003).

Direct overlap

There is a direct overlap between an instrument, such as a grant scheme, and the EU ETS when a company participates in the trading scheme and uses the instrument concerned. In such cases, "once the EU emissions trading scheme becomes operational, the effectiveness of all other policies to reduce the CO₂ emissions of *the participating sectors* becomes zero" (Sijm & Van Dril, 2003; our italics). An example of this is the Energy Investment Deduction scheme (EIA). The scheme was designed to promote the use of sustainable energy and to encourage businesses to invest in energy saving techniques. Under the EIA scheme, companies can deduct part of the investment costs from their profits so that they pay less corporation tax. In 2005 SenterNovem, which administers the EIA scheme, calculated that, of the eligible investments of EUR 614 million in 2003, nearly EUR 80 million (13%) had been invested by companies participating in the CO₂ emissions trading scheme. SenterNovem found a direct overlap of 6% in 2002 and of 19% in 2004 (Van Grootheest, Maurits & Tamminga, 2005).

Another example is the MEP scheme (see section 3.3) to increase the environmental quality of electricity production so that the Netherlands



achieves its European undertaking to produce 9% of the electricity consumed in the Netherlands from sustainable sources by 2010. Reducing CO₂ emissions is one of the MEP's key objectives. In concrete terms, electricity must be produced from renewable energy sources (such as biomass, wind, solar energy and water power) or from cogeneration. There is a direct overlap between CO₂ emissions trade and the MEP scheme at power stations that receive an MEP grant for co-firing biomass and that also participate in the CO₂ emissions trading scheme. Between 1 July 2003 and 1 July 2006, the Ministry of EZ paid out EUR 300 million in advance MEP grants (Van Seggelen & Mazier, 2006). It is highly likely that the lion's share of these payments was made to companies that participate in the CO₂ emissions trading scheme.

65

Indirect overlap

There is also an indirect overlap between the MEP scheme and the CO₂ emissions trading scheme (Sijm & Van Dril, 2003). The sustainable energy produced with the aid of MEP grants influences the electricity produced by power stations that participate in the EU ETS. There are two forms of influence. A greenhouse farmer who has a cogeneration facility, for example, can, firstly, produce his own electricity and, secondly, sell any surplus to an energy supplier. In both instances, less demand is made on the power stations' production capacity than if an MEP grant were not available. The power stations therefore have surplus emission allowances that they can sell to other companies. The reduction in the power stations' CO₂ emissions is negated elsewhere. This mechanism probably works for all investments subsidised by the MEP apart from the use of biomass in power stations. In other words, where there is no direct overlap between the MEP scheme and CO₂ emissions trading, there is an indirect overlap. In terms of CO₂ reduction, the MEP scheme and the CO₂ emissions trading scheme overlap each other completely.

Other schemes might also overlap the emissions trading scheme. SenterNovem has studied the indirect overlap between the EIA scheme and CO₂ emissions trading. The same mechanism is at play here as with the indirect overlap between the MEP scheme and the CO₂ emissions trading scheme. But since not all investments that are eligible for the EIA influence electricity consumption or production (e.g., reductions in gas consumption) the indirect overlap is smaller than that of the MEP scheme.



4.3 Other reasons for sustainable energy policy

With regard to the reduction of CO₂ emissions, the sustainable energy policy instruments have become partially or wholly ineffective. This does not necessarily mean, though, that they should be withdrawn. As well as reducing CO₂ emissions, most of the instruments serve other purpose (Sijm & Van Dril, 2003). Some of them are considered below.

- Firstly, an instrument might serve other environmental goals, for example improving air quality.
- Secondly, there might also be a socioeconomic goal. A scheme to promote sustainable energy, for example, will also encourage the development or dissemination of technology. According to ECN, this is an important consideration; the widespread dissemination and use of a technology lowers its cost and therefore the cost of sustainable energy.
- A third possible reason is to maintain or improve the security of energy supply. A study by the Netherlands Bureau for Economic Policy Analysis (De Joode et al., 2004) found that government policy directed specifically at securing energy supply was usually not cost effective: the benefits of the policy measures were often outweighed by the costs. Economically, it is usually more advisable to accept the cost of supply interruptions rather than prevent them at any cost. This means that governments should act with caution when taking measures to secure energy supply.

Costs and benefits of biomass grants
The Netherlands Bureau for Economic Policy Analysis (CPB) has investigated eight policy options to secure energy supply, including the formation of strategic reserves and the provision of grants for biomass. Biomass grants are particularly expensive, according to the CPB: even if the price of oil were to increase permanently by 20% the benefits of this policy option would be lower than the costs (De Joode et al., 2004).

It can be said of all instruments, however, that the cost benefit ratio has become less favourable. On the benefit side, the reduction in CO₂ emissions no longer counts and the cost benefit ratio must be reconsidered for each instrument and a political decision taken on its continued use. This has not yet happened.

"EU emissions trading scheme not effective"

Another reason to maintain the sustainable energy policy instruments alongside the EU ETS is that the scheme is not effective, at least not in the circumstances prevailing in late 2006/early 2007. At the time, market prices were at around EUR 1.00 per tonne of CO₂. An effective means to



save energy and promote sustainable energy would be a sharp increase in CO₂ prices. An internal study by the Ministry of EZ concluded that such prices would be unacceptable as they would seriously undermine the competitiveness of European industry. Furthermore, they would not solve the climate problem because the volume of CO₂ emitted by the rest of the world would continue to grow. Separate policy, EZ argues, is therefore required on sustainable energy and energy savings.

67

We would note here that separate policy on sustainable energy and energy savings would reduce CO₂ prices even further. Furthermore, the low prices seen in late 2006/early 2007 were the outcome of political decisions. The low prices in the first trading period were due chiefly to the generous allocations made by the EU member states, including the Netherlands, for the period 2005-2007. Since November 2006, spot prices for CO₂ emission allowances (per tonne of CO₂) and forward prices for 2008-2012 have clearly diverged. The market is therefore anticipating a scarcity in the forthcoming trading period. The projected scarcity is partly the outcome of measures taken by the European Commission to reduce the emissions total allowances proposed by a number of member states for the second trading period.

4.4 The government's provisional position

In anticipation of the further development of the EU ETS, in 2002 the Dutch government adopted a provisional position on the relationship between the scheme and Dutch sustainable energy policy. In response to a report issued by the SER in May 2002, the government wrote:

"The government accepts the conclusion that unnecessary layering of instruments must be avoided. [...] Future developments in emissions trading [...] and the other instruments, including the Benchmarking Covenant, will be considered in relation to each other. The government supports a European system of emissions trading. Given the current status of emissions trading, the government thinks it would be inappropriate to make changes to the existing instruments" (VROM, 2002).

The government took a similar position in *Energy Report 2002* (EZ, 2002a):



"Emissions trading, energy taxes and voluntary agreements are designed to achieve overlapping goals: energy conservation and CO₂ reduction. The possible introduction of emissions trading raises questions about the relationship between these three instruments. The advice of the Commission on CO₂ Trade (the Vogtländer Commission) and the proposal for an EU directive will play an important role in the discussions".

68

In *Climate Policy Evaluation Memorandum 2005*, which was published just under a year after the start of emissions trading, the government again recognised the relevance of the overlap (VROM, 2005). It did not, however, reconsider its position. To date, the government has still not taken a final political decision on continuing the individual instruments.



5 Monitoring, supervision and verification

5.1 Introduction

In this chapter we consider the monitoring, supervision and verification system in place for the CO₂ emissions trading scheme. We first look at the verification of CO₂ emissions reports in the Netherlands (section 5.2). We then discuss the validation of the monitoring plans by the Dutch Emissions Authority (NEa) (section 5.3). We close this chapter by looking at the NEa's supervision of the participating companies' compliance with legislation (section 5.4).

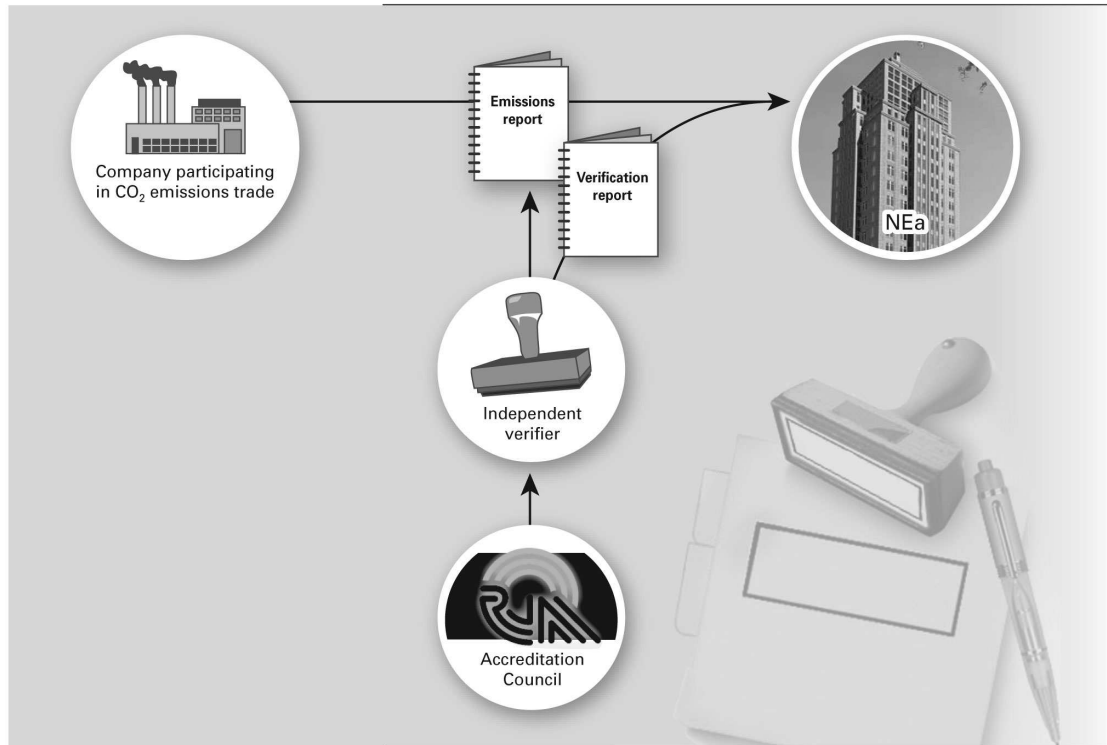
5.2 Verification of emissions statements

5.2.1 Structure and implementation of the verification process

All companies participating in the CO₂ emissions trading scheme must submit an emissions report each year to the Dutch Emissions Authority (NEa). The report must be verified by an independent third party. The independent verifier checks that the report and its disclosures are in accordance with the agreements made in the monitoring plan. It also establishes that the reported emission figures agree with the actual emissions.



Figure 5.1 The verification process



The company's monitoring plan is the starting point for the verification. Since it will already have been validated by the NEa, the verifier can assume that it is still applicable, i.e. that it is a true reflection of the company's current situation and operations – unless the verification proves otherwise. The verifier issues a statement on the verified emissions report to the NEa. The emissions report and the verification statement must be submitted to the NEa before 1 April of each year. Before a verifier can offer its services, it must be accredited. The competent body for this in the Netherlands is the Dutch Accreditation Council.

Verification protocol

The Ministry of VROM has drawn up a verification protocol based on European and national regulations in order to standardise the process so that verifications by different verifiers produce comparable results.

The verification provides *reasonable assurance* or *limited assurance*. In both cases, the verification process and the nature of the work are the same. The scope and depth are greater, however, if reasonable assurance is provided. For the verification for 2005, the Netherlands opted for limited assurance. The Ministry of VROM decided in 2005, however, that a verification statement providing limited assurance did not comply with



European rules³⁹ and with effect from the 2006 trading year, verification in the Netherlands will be directed at providing reasonable assurance.

71

Accreditation

The Accreditation Council is the Dutch government's designated accreditation body and accordingly accredits the verifiers of CO₂ emission data. In February 2005, VROM asked the Council to draw up an accreditation programme. It was the intention to have the verifiers accredited by August 2005. Delays completing the accreditation programme, however, postponed the start of the formal accreditation procedure until September 2005. As a result, the quality of the verifiers was not established on time. The Council did not accredit the first verifiers in the Netherlands until 2006, by which time the emission data for 2005 had already been verified.

5.2.2 Results of the verification for 2005

In total, 284 emissions reports were verified for the year 2005.⁴⁰ Most verifications were carried out by VBE (233 companies) and PricewaterhouseCoopers (PwC, 44 companies). The remaining reports were assessed by other verifiers. If a company's processes were simple, verifying the emissions report took an average of two to four days. In more complex situations, the verifiers took an average of eight to 15 days. Their work considered both CO₂ emissions and NO_x emissions. Since monitoring NO_x emissions is considerably more complex than monitoring CO₂ emissions, about two-thirds of the time was spent verifying the NO_x emission data.

Both VBE and PwC found that many companies were not yet or were no longer complying in full with their monitoring plans. Many companies, for example, had implemented few if any internal controls. The verifiers also found shortcomings in many monitoring plans. VBE noted that the more complex companies in particular had inadequately documented certain parts of their monitoring plans (VBE, 2006a, p. 18). The verifiers also found differences in the quality and depth of the monitoring plans of comparable companies. PwC said in an interview with the Court of Audit that key figures in many monitoring plans were inaccurate, e.g. those on emission and oxidation factors. PwC also referred to internal inconsistencies in the monitoring plans. A limited number of companies, finally, had not included new business activities in their monitoring plans.

³⁹ As revealed in an internal report of the Ministry of VROM.

⁴⁰ Some of the reports also contained data on NO_x emissions as part of the Dutch NO_x emissions trade.



The companies should have notified the NEa about these new activities but they did not always have written confirmation of the notification from the NEa or its approval, where required, of any changes made.

72

If a monitoring plan was of poor quality, the verifiers had to carry out additional work to verify the reliability of the emission data. It should be borne in mind that only limited assurance was required on the reports for 2005. If reasonable assurance had been required, verification would have required even more work.

Content of the verification statements

Verification statements were issued on all the 2005 emissions reports. All the statements provided limited assurance on the reliability of the CO₂ emission data and included an opinion that no misstatements had been found in the CO₂ emission data disclosed in the emissions reports.

The statements issued by VBE and the commercial verifiers on the emissions reports are based on the model presented in the verification protocol. The information value of the statements is often limited. Most of them consider only the accuracy of the emission data. Many of PwC's statements include findings on, for example, a company's compliance with its monitoring plan but VBE, which verified the majority of the emissions reports for 2005, usually confined itself to a statement on the accuracy of the emission data.

5.2.3 Provision of verification services

The number of verifiers in the Netherlands has so far remained limited. This is principally because VBE's verification services for the first trading period received financial support from the Ministry of EZ. VBE was thus able to verify the emissions reports for the first trading year "free of charge". Companies that engaged VBE did not have to pay it to verify their reports. Although EZ is gradually withdrawing its financial support of VBE, commercial verifiers are having to compete against an organisation receiving financial aid from the government. The lion's share of the companies opted for VBE as their verifier for the 2005 trading year. With one exception, commercial parties have gained little if any experience in verifying emissions reports.

A second reason for the limited number of verifiers in the Netherlands is that the accreditation process is still not yet fully harmonised. The European rules on CO₂ emissions trading provide few specific requirements on the quality of verifiers or their accreditation. The



member states themselves are responsible for accreditation. There can therefore be considerable accreditation differences among the member states. Verifiers from other member states must accordingly satisfy certain conditions before they can verify the emissions reports of Dutch companies. Conversely, Dutch verifiers accredited by the Accreditation Council cannot automatically verify the emissions reports of companies in other member states.

73

5.3 Validation of monitoring plans

Every company participating in the CO₂ emissions trading scheme must apply for an emission permit from the NEa. The application must be accompanied by a monitoring plan that explains how the company will obtain, process, record and report all data on CO₂ emissions that are relevant to emissions trading and related procedural assurances. The monitoring plan must satisfy the requirements laid down in European and national legislation. The NEa checks the applications by validating all the monitoring plans. If the NEa decides that a company's monitoring plan satisfies the requirements, it issues an emission permit.

5.3.1 Organisation of the validation process

We found no serious shortcomings in the organisation of the validation process but we did detect several points for improvement in the project organisation. The documentation process, for example, was not considered in the strategy plans. The NEa has not separated the substantive coordination of the validation process from the process-based coordination. As a result, not enough attention is paid to facilitating the validation process, e.g. in the form of progress reports and the communication of verification results to companies.

Uniformity in the assessment of monitoring plans

Since the NEa engaged advisers from four external consultancies to validate the monitoring plans, it introduced a substantial number of measures to ensure that the monitoring plans were assessed uniformly. It drew up a validation protocol, for instance, that describes and details the steps in the process. The protocol creates a framework and increases the uniformity of the validations. The NEa has also taken measures to ensure uniformity by supervising the external advisers. The supervision consisted of sampling the advisers' work.



5.3.2 Implementation of the validation

74

The State Secretary for VROM obliged the NEa to issue emission permits as of 1 January 2005 to all companies that had submitted a satisfactory protocol before 1 October 2004 with. This obligation placed substantial pressure on the NEa. With the NOx emissions trading scheme starting in June 2005, the NEa also had to validate monitoring plans for the emission of NOx in the second half of 2004. Our audit did not consider the NOx monitoring plans. The simultaneous validation of the NOx monitoring plans increased the time burden on the NEa. This had consequences for the quality of the validation process.

Many files on the validation process were not entirely in order. The NEa did not have clear documentation on how many companies had followed up all the points raised during the validation of their monitoring plans. The NEa's decisions on many companies' permit applications therefore cannot be reconstructed in full. We also found that the NEa did not carry out all the measures it had proposed to ensure the uniformity of the assessments. It paid too little attention, for example, to coaching external advisers and carried out only limited checks of their work. Other instruments, such as the validation protocol, did have a positive impact on the uniformity of the validation process and the quality of the monitoring plans.

5.3.3 Quality and comparability of the monitoring plans

To gain an impression of the comparability of the monitoring plans of companies in the same sector, we compared the monitoring methods of a number of companies in three different industries.⁴¹ In all three, we found differences in the quality and depth of the monitoring plans in several areas. There were differences, for example, in the frequency at which companies recalibrated their fuel meters. Accurate fuel measurements are necessary to calculate CO₂ emissions because the emissions are directly related to the volume of fuel used by the company. No standards are laid down in law, however, regarding the frequency at which meters must be recalibrated. Some companies recalibrate their meters every year, others just once every eight years. Some companies did not even refer to recalibration frequency in their monitoring plans.

We also found differences in the frequency at which companies in the extractive industry determined the quality of natural gas. There is a direct relationship between the quality of natural gas and the volume of CO₂

⁴¹ Namely: paper and board, electricity production, and the extractive industry.



emissions: the higher the quality, the higher the CO₂ emissions. Some companies determine the quality once a year, others once a month.

75

Such differences in the monitoring plans can lead to differences in the administrative burdens on the companies concerned. There is also a risk of differences in the reliability of the emission data.

5.4 Supervision by the Dutch Emissions Authority

The NEa supervises and enforces compliance with the legislation on CO₂ emissions trading, chiefly with a view to preventing or minimising differences between actual CO₂ emissions and reported emissions.

5.4.1 Organisation of the supervision

By way of preparation for its supervisory activities, the NEa developed a supervision strategy. We found that the NEa's organisation of its supervision had departed from this strategy on several points.

To begin with, the planning of the number of in-depth investigations in 2005 and 2006 did not agree with the supervision strategy. Under the supervision strategy, the NEa must carry out inspections (audits) to determine whether a monitoring plan agrees with the actual situation at the company and whether the company complies with the plan. In-depth investigations are then required to detect more fundamental shortcomings in the monitoring system and/or to uncover fraud. Audits and in-depth investigations are the mainstay of the NEa's supervision. Since their frequency influences the companies' perception of their likelihood of being caught committing an offence, targets have been set in the supervision strategy. In the first trading period (2005-2007), for example, all companies had to be visited at least once and in-depth investigations had to be carried out at 3%-5% of the companies each year (i.e. about ten to 15 companies each year). In-depth investigations had to be carried out at 10% of the complex companies every year.

Our audit found that the NEa had planned fewer in-depth investigations for 2005 and 2006 than recommended in the supervision strategy. We also found that the size and capacity of the NEa's Supervision and Enforcement Department were below the levels recommended in the supervision strategy. Finally, the plans for 2006 made little allowance for staff absenteeism (through sickness, leave and the like).



5.4.2 Supervision

76

In 2005, the NEa supervised 288 companies. In both 2005 and 2006, it carried out fewer audits and in-depth investigations than originally planned. The audits in 2005, moreover, began relatively late. In the first three months, the NEa visited 14 companies. In total, it had planned 129 audits for the year as a whole.

Supervision activities in 2005 and 2006

Supervision activity	Planned 2005	Actual 2005	Planned 2006	Actual 2006
Audits	129*	98	110	88
In-depth investigations	4	3	4	2

* In its plans for 2005, the NEa had assumed it would have to audit 344 companies. It was later established that there would be 288 companies: 56 companies later did not participate in the emissions trading scheme. The NEa should have carried out 107 audits in 2005 (instead of the planned 129).

Planning and selection of the companies visited

In 2005, the NEa selected the companies it would visit at random. It did not use, for instance, risk analysis. The NEa's validation process provides useful information for risk analysis and it could have been used to target the visits more selectively, as proposed in the supervision strategy.

Inspection protocol

The NEa has drawn up an inspection protocol to ensure that its audits are effective and uniform. We found, however, that it made increasingly less use of this protocol as the audits progressed. This represents a risk to the uniformity and effectiveness of the work. The NEa has recognised that the current protocol inadequately reflects the diversity of the companies and it will introduce a new inspection protocol in the course of 2007.

Follow-up action

During visits for both audits and in-depth investigations, the NEa regularly found that a company had not complied in full with its monitoring plan or that the monitoring plan contained errors. In such cases, the NEa made agreements with the company to rectify the situation. All agreements made with the companies must be recorded as *follow-up actions* in Arend, the NEa's information system, so that it can subsequently check that the company has actually rectified the situation. The NEa has not documented a business routine for the follow-up actions.

In 2005 and 2006, the NEa initiated relatively few follow-up actions. In 2005 there had been a total of four, whereas it had carried out a total of



131 visits during that year. On average, three-quarters of the visits had led to agreements being made with the companies.

77

Arend does not yet generate warnings when the deadline for an agreed follow-up action has passed. The NEa's inspectors themselves must remember what follow-up actions are still open.

Enforcement

We also investigated the NEa's enforcement measures for 2005. The first trading year was a "learning year". The NEa's enforcement policy for 2005 was directed at having companies comply in broad lines with the legislation and to allow them the time they needed to do so. Most companies complied well with the formal obligations, such as the timely submission of monitoring plans or emissions reports with accompanying verification statements. The scope of the NEa's enforcement activities was therefore limited in 2005.



Appendix 1 Abbreviations

78

CBS	Statistics Netherlands
CDM	Clean Development Mechanism
CO ₂	Carbon dioxide
CPB	Netherlands Bureau for Economic Policy Analysis
CW 2001	Government Accounts Act 2001
ECN	Energy Research Centre of the Netherlands
EE	Energy efficiency
EIA	Energy Investment Deduction Scheme
EU	European Union
EZ	Ministry of Economic Affairs
GE	Global Economy scenario
JI	Joint Implementation
LNV	Ministry of Agriculture, Nature and Food Quality
MEP	Grant Scheme for the Environmental Quality of Electricity Production
MNP	Netherlands Environmental Assessment Agency
Mtonne	Mega tonne
NAP	National Allocation Plan
NEa	Dutch Emissions Authority
NO _x	Nitrogen oxide
PwC	PricewaterhouseCoopers
RIVM	National Institute for Public Health and the Environment
RPB	Netherlands Institute for Spatial Research
SER	Social and Economic Council
VBE	Energy Efficiency Benchmarking Verification Agency
V&W	Ministry of Transport, Public Works and Water Management
VROM	Ministry of Housing, Spatial Planning and the Environment



Appendix 2 Benchmarking methods

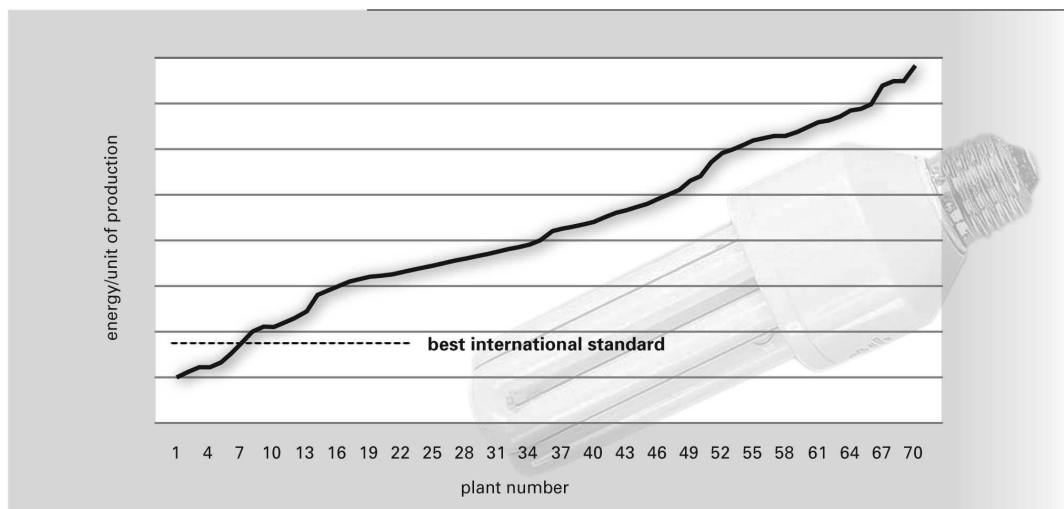
Determination of the best international standard

The Benchmarking Covenant explains how the best international standard of energy efficiency is determined. As the Covenant's name indicates, it is determined by means of benchmarking. Once every four years, the participating companies must have an expert third party (a consultant) compare the energy efficiency of their processing plants with that of comparable plants outside the Netherlands. Such a benchmarking study results in a ranking of plants from the most energy efficient to the least energy efficient. Depending on their ranking, the participating companies must then take action to move closer to the best international standard.

The Benchmarking Covenant recognises two main forms of benchmarking:

1. The regional method. This method compares the energy efficiency of a plant with the *average* energy efficiency of the best region in the world that is comparable with the Netherlands. It is therefore very likely that there are even more efficient plants in the best region.
2. The decile method. This method compares the energy efficiency of a plant with the least efficient of the best 10% (the first decile) of all comparable processing plants in the world. By way of illustration, in a hypothetical benchmarking exercise with 70 processing plants, the best international standard is defined as the energy efficiency of the plant ranking *seventh*, as shown in the figure below. The benchmark is therefore not the actual best international standard, the number one.

Benchmarking by means of the decile method (hypothetical case)



Source: Energy Efficiency Benchmarking Manual, adapted by the Court of Audit



Efficiency of coal-fired power stations

80

The efficiency rating set for coal-fired power stations in NAP2 was unchanged from NAP1. This is because the best international standard is defined as the decile point on the benchmark curve, not the absolute best. As long as the number of power stations with the highest efficiency rating does not move above the decile point there is no change in the best international standard. This has happened at gas-fired power stations, which is why the efficiency rating set for these electricity producers was increased from 50% in NAP1 to 52% in NAP2.

In addition to the two main benchmarking methods, the Covenant permits other methods when the main methods cannot be used. The first is the "best practice" method, which compares a plant with the best plant in the world. The target is then to achieve an energy efficiency rating that is 10% lower (i.e. 10% more flexible) than that of the best plant in the world. If the best practice method cannot be used, the plant must be inspected to determine where its energy efficiency can be improved. These four methods were used in the second round of benchmarking studies as follows:

Methods used in the second round of the Benchmarking Covenant

	Number of companies in the second benchmarking round	Proportion of energy consumed by Covenant participants
Direct method	25	56%
Regional method	9	13%
Best practice	74	17%
Inspection	155	10%
Other	27	4%
Total	290	100%

Source: VBE, 2006b



Appendix 3 Powers of the Court of Audit

81

Establishment and financing of VBE

The Energy Efficiency Benchmarking Verification Agency (VBE) was set up on 9 April 2001. The deed of establishment states that it was set up in accordance with the Covenant and its first and principal object (pursuant to article 2 of the deed) is to "carry on the tasks of the 'Independent Body' referred to in the Covenant".

Pursuant to article 15 (1) of the Covenant, the "Independent Body" is designated by the Ministers of EZ and VROM. The Minister of EZ wrote in a letter of 11 July 2001, "On behalf of the Minister of VROM and myself, I hereby designate the Energy Efficiency Benchmarking Verification Agency, established on 9 April 2001, as the Independent Body as referred to in article 15 (1c) of the Energy Efficiency Benchmarking Covenant".

Pursuant to article 16 (2) of the Covenant, the Ministers of EZ and VROM bear all the costs of setting up and implementing the Covenant, "including the cost of the Independent Body". VBE, as the designated body, is therefore financed by central government from public funds, in any event for as long as the Covenant is in force (until 31 December 2012). In practice, the Ministry of EZ bears all the cost of VBE; VROM does not contribute to it.

Integral facilitation by SenterNovem

SenterNovem, an agency of the Ministry of EZ (part of the State), is responsible for the "integral facilitation" of VBE. This means that VBE is accommodated by SenterNovem and its staff are employed by SenterNovem or are engaged by SenterNovem on a contract basis. There is no flow of funds between SenterNovem and VBE. There is, for instance, no financial settlement between SenterNovem and VBE nor does SenterNovem award contracts to VBE.

SenterNovem periodically submits an integral facilitation proposal to the Ministry of EZ. The proposal is based on the framework agreements between the agency and the ministry, which include a system of proposals and contracts for all instruments and other activities carried out by the agency on behalf of the ministry. On 21 December 2004, EZ ordered SenterNovem to facilitate VBE in 2005 and 2006.

Viewpoints of the Court of Audit and EZ

Pursuant to section 91 (1c) of the Government Accounts Act 2001 (CW 2001), the Court of Audit has the power to institute its own audits of legal



persons to which the State has given, directly or indirectly, a grant, loan or guarantee.

82

When preparing the proposal for this audit, we assumed that the Ministry of EZ's financing of VBE was in all material respects a grant. On the grounds of the aforementioned section of the CW 2001, we accordingly assumed that we had the power to audit VBE at our own discretion. The Ministry of EZ does not share our point of view. According to the Ministry, the relationship between the State and VBE is one of principal/client, as evidenced by the proposal SenterNovem submits to the Ministry of EZ and the engagement letter from the Ministry of EZ to the managing director of SenterNovem. According to the Ministry of EZ, the relationship is not based on a grant and section 91 (1c) of the CW 2001 does not apply.

Legal advice: transfers in kind

We sought legal advice to clarify this situation. It emerged that the relationship between the State and VBE is based on neither a grant nor a principal/client relationship. It is based on transfers *in kind*. The CW 2001 does not recognise such a relationship. According to the letter of the law, the Court of Audit therefore does not have any power to audit VBE.



Appendix 4 Methodology

The audit concentrated on two subjects, namely the allocation process and the monitoring, supervision and verification system. The audit was carried out between February and December 2006. It then took until 1 May 2007 to process the data. During all phases of the project, the audit team was assisted by an external expert, who provided both advice and feedback. We discussed our findings on several occasions with the staff concerned at EZ and VROM (including staff at the Dutch Emissions Authority).

Allocation process

Our audit first looked at the way in which VROM and EZ determined the total amount of allowances and the emission allowances allocated to the companies in the second national allocation plan (NAP2), for the period 2008-2012. The audit consisted chiefly of an analysis of NAP2 in the version of September 2006. In addition, we inspected files at EZ and VROM (internal memoranda, minutes of meetings) and consulted databases. We also consulted various public documents (European legislation, parliamentary papers, policy documents, evaluations, decisions, opinions, literature). We interviewed staff at the Ministry of EZ, including members of the project organisation responsible for preparing NAP2, staff at the Ministry of VROM (particularly in the Climate Change and Industry Department and the International Affairs Department) and staff at the European Commission's Directorate-General for the Environment, the Energy Research Centre of the Netherlands, SenterNovem and VBE. Finally, we spoke to various experts at knowledge centres, consultancies and the like.

Monitoring, supervision and verification

Our audit of the adequacy and effectiveness of the monitoring, supervision and verification system concentrated on the Dutch Emissions Authority (NEa). We inspected the files the NEa had compiled on several companies for the first round of validations, supplemented with policy papers, protocols, minutes of meetings, management reports, etc. In addition, we inspected internal supervision and enforcement documents and databases at the NEa. We also studied external documents (legislation, decisions, opinions, evaluations) and interviewed staff at the NEa's Validation and Permits Department and its Supervision and Enforcement Department, as well as at the Accreditation Council, verifiers (including PwC and VBE) and a number of participating companies. We also held talks with the Environmental Protection Agency in Ireland, which



is responsible for the validation of monitoring plans and the supervision of compliance with the legislation on CO₂ emissions trading in Ireland. **84**