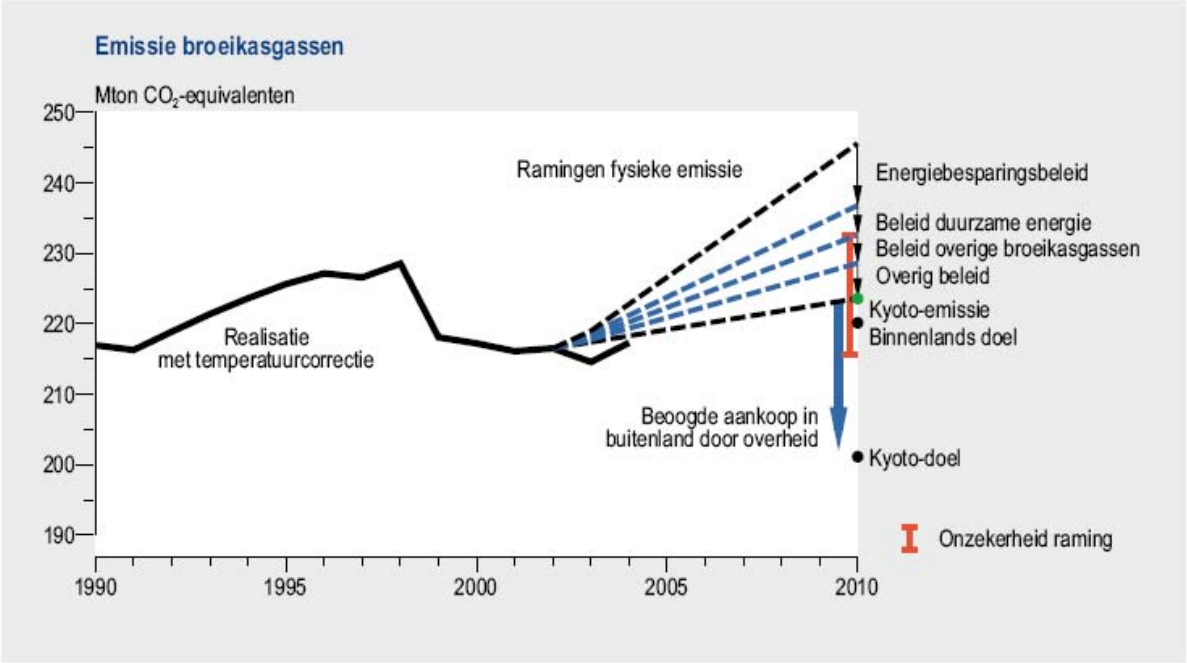
National Assessment and Best Climate Change Policy Practices of the Netherlands

1. Emissions

According to the Kyoto Protocol the Netherlands emission capacity for greenhouse gases, expressed in CO_2 equivalents, averages 201.7 megatons a year in the period from 2008 to 2012. This corresponds to an average reduction of 6% compared to the reference level as it is included in the Kyoto Protocol (214.6 megatons). Due to certain circumstances it is a highly severe target. At the time the EU burden sharing system was agreed upon (1998) almost half of the Dutch fuel mix with respect to electricity generation consisted of gas. Moreover, the Dutch industry was already relatively energy efficient and CHP plants provided for roughly 35% of the demand for electricity. In spite of this, a reduction target of 6% had still been imposed on the Netherlands. According to a study carried out by the Directorate-General for the Environment of the European Commission, the marginal reduction costs for greenhouse gases in the Netherlands are therefore more than 100 EUR per ton of CO_2. This is more than twice the average marginal costs elsewhere in the EU.

The Netherlands is fulfilling its Kyoto Protocol commitments in two ways. On the one hand there is a comprehensive package of national measures and on the other hand use is being made of the flexible mechanisms under the Kyoto Protocol, i.e. Joint Implementation (JI) and the Clean Development Mechanism (CDM). For this purpose, Dutch emission capacity has been divided into a domestic target for greenhouse gas emissions (aiming at an average maximum emission of 221.7 megatons per year in the Kyoto budget period) and a target for the use of the JI and CDM mechanisms (through the purchase of 100 Mtons of allowances for the Kyoto budget period).
Figure 1 shows the division between the domestic measures and the CDM and JI measures.



Figuur 2.3.2 Emissie van broeikasgassen in Nederland, 1990-2010.

Figure 1: Emission of ghg in NL 1990-2010 and Domestic and CDM and JI measures
(Source: Environmental Balance 2006, Netherlands Environmental Assessment Agency)

[Translation of the Dutch wording:
1990-2002: realised CO_2 emissions; 2002-2010: estimated CO_2 emissions
Right hand side of the figure: from top to bottom: energy saving policy, sustainable energy policy, other ghg policy, other policy. The green dot represents the domestic Kyoto target; the blue arrow represents CDM and JI. The red line represents the band width of the estimates. **]**

In order to achieve the domestic target, sectoral target values have been set in early 2004, taking into account the technical potential. These target values concern the year 2010, the year exactly halfway through the 2008-2012 period covered by the plan and therefore a good indicator for determining the position in relation to the Kyoto commitments. Table 1 shows the target values. They have been updated in the Evaluation Memorandum on Climate Policy 2005 and in Government's Climate Letter.

Sector	Target value 2010 in megatons of CO_2 equivalent
CO_2 industry/energy	109.2
CO_2 traffic and transport	38.7
CO_2 built environment	28.3
CO_2 agriculture	7.6 (8.2[1])
Other greenhouse gases	35.4
Forest emissions	0.1[2]
Total	219.3 (219.9[1])

Table 1: Current targets by sector
(Source: NL Ministry of Environment)

Figure 2 shows the development of emissions for each target value sector since 1990.

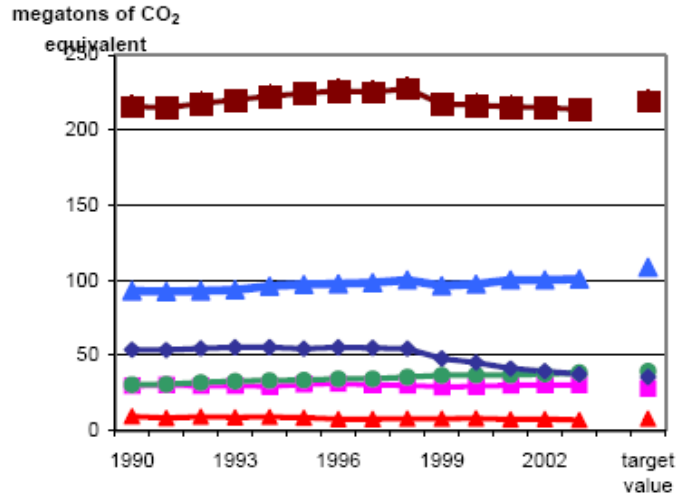


Figure 2: Development of sectoral emissions since 1990
(from top to bottom: total NL, industry & energy, other ghg, traffic & transport, built environment, agriculture)
(Source: NL Min. of Environment)

Although the level of CO_2 emissions show a continuous increase, the growth is slower than before. The other greenhouse gases (CH_4, N_2O and the F gases) show a continuous decrease in emission levels. In the sectors industrial & energy, agriculture and traffic & transport, emissions are below the target values for 2010. Built environment and other greenhouses gases are still above target. At present policy is being prepared which will bring and keep these sectors within the target value as well.

2. Policy Measures

With regard to policy measures the best practice top 5 in the Netherlands is:

2.1 Coal Covenant

On a voluntary basis the power generators committed themselves to reduce 3 Mton CO_2 by replacing 20% of the coal input of existing coal fired power plants by biomass. This created a win-win situation as it served both environmental and continuity aims. The government committed itself to create the right investment climate by subsidising the extra costs caused by use of biomass fuel (see 2.5) and by providing quick permit procedures.

2.2 Benchmark Covenant

On a voluntary basis Dutch industry committed itself to keep their installations and power plants within a distance of 10% of the Best available technique (BAT) in energy efficiency. This resulted in Energy Efficiency Plans per installation, which gives possible efficiency measures in three categories: economic feasible, near break even and not feasible measures. For the last category ETS-rights can be bought in stead of implementation if this is more efficient. The great advantage of the benchmark covenant is that it allows industry to grow because it is based on a Performance Standard Ratio (PSR) in stead of an absolute emission cap.

2.3 Emission Trading Scheme

The European Emission Trading Scheme (ETS) of greenhouse gases is a key instrument to address CO_2 emission reduction from industry and power generation. The relevant EU directive requires that all installations which fall under the system must surrender allowances for all their annual emissions of CO_2. Non-compliance will result in a penalty of 100 EUR per ton in the period 2008-2012. Through an initial allocation at the start of each trading period installations receive a certain amount of allowances from government based on a set of rules which have to be approved by the European Commission. The amount to be allocated in the Dutch national allocation plan for the Kyoto period is approximately 90 Mton. In this way more than 70% of industrial emissions and 100% of the emission of the power sector are placed under a cap, which effectively limits the emission of these sector and gives an incentive for reduction.

The need for reductions is further enhanced by the allocation process applied in the Dutch national allocation plan. Industrial installations receive an allocation for free which is based on their historic emissions between 2000 and 2005, a growth factor to allow some economic growth and an efficiency factor which compensates for early action and rewards better energy efficiency performance. The power sector, on the other hand, is confronted with two reduction factors in its allocation. These reductions relate to the introduction of biomass which government has required from the power sector and it comes from the ability to partially pass on costs of emission trading in power prices. A part of the allowances which are not allocated to the power sector are recycled to the industrial participants in ETS and the remainder will be auctioned or sold. By and large, the Dutch national allocation plan allows some emission growth for industry and a reduction with 15-20% for the power sector compared with historic emissions.

2.4 Taxation

The Netherlands have a tax regime where consumers pay nowadays approximately 40% of their energy bill on VAT and Energy Tax. In the early days the Energy Tax was much lower and was given back to the consumers by lowering the income tax and subsidising energy saving measures. Over the years the Energy Tax was increasing rapidly and after 2001 the net income for the government on the Energy Tax was higher than the pay back to consumers. In 2006 there is general subsidy on energy saving measures.

To get an impression of the total cost of energy for households in the Netherlands table 2 shows the prices for gas and electricity for an average household as of 1 July 2006 (gas: 2100 m^3/year, electricity: 3000 kWh/year).

	Net tariff fixed (€/yr)	Net tariff variable (€ct)	Supply fixed (€/yr)	Supply variable (€ct)	Energy Tax (€ct)	VAT	Total cost (€/yr)
Gas	114.33	1.19/m^3	17.40	33.03/m^3	15.07/m^3	19%	1389
Electricity	63.18	3.65/kWh	18.38	7.53/kWh	7.05/kWh	19%	748

Table 2: Yearly cost of energy for an average household in NL as of 1 July 2006
(Source: EnergieNed, Federation of Energy Companies in the Netherlands)

So an average household pays for gas 0.66 €/m^3 and for electricity 0.25 €/kWh.
It appears that the effect of the Energy Tax on the energy demand is very small, although it is difficult to estimate what would be the effect without an Energy Tax. Supposedly the price for energy has to rise (more than) significantly to bring about a substantial effect on energy demand.

2.5 *MEP Subsidy Scheme (MEP = Improving environmental quality of power production)*
After a long period of stability, now the part of renewable electricity has gone up from 3,3% in 2003 (beginning of MEP) to more than 6% by the end 2005. It is to be expected that the target of 9% of renewable electricity in the year 2010 will become reality.
The production of renewable electricity in 2010 has been estimated to 11.718 GWh. About 10.518 GWh of that figure will be stimulated through the MEP. Approximately 1.200 GWh of renewable electricity will be produced, which will not or will no longer be supported by the MEP (for example an incineration plant for waste and plants that have reached the maximum of ten years of subsidising or which were already in operation before 1996).

For the years 2006 – 2010 the indicative estimate of the cost is shown in table 3:

Spending MEP in million euros per year	2006	2007	2008	2009	2010	Cumulative 2003-2016
MEP cost 18-8-2006	685	538	628	670	640	6966

Table 3: Cost of MEP Subsidy Scheme (The breakdown of the budget spent to techniques is not available)
(Source: Ministry of Economic Affairs)

Although very effective the MEP was more expensive than the government estimated. As a result of that:
- in June 2005 the MEP for new “large biomass projects” and “Wind on sea” was cancelled (subsidies which were already granted are guaranteed for 10 years);
- the other categories of the MEP have been cancelled in September 2006.

The MEP was financed by a fixed component of Euro 53.00 per year per connection/household. The regional grid operator charged this component. The continuous growth of this component and the economic effect on the incomes of consumers was the main reason for the government to cancel the scheme for new projects.

3. Assessment of Measures and Conclusions

Policy Measure	Acceptability	Availability	Accessibility	Effect
Coal Covenant (2.1)	5	4	4	5
Benchmark Covenant (2.2)	4	3	3	3
Emission Trading Scheme (2.3)	4	4	2	4
Taxation (2.4)	2	2	1	2
MEP Subsidy Scheme (2.5)	4	5	1	5

Assessment of the various instruments with respect to the 3 A's of WEC (the delivered environmental effects not included), results in the following ranking:
1. Coal Covenant;
2. Benchmark Covenant;
3. Emission Trading Scheme;
4. MEP Subsidy Scheme;
5. Taxation;

If the delivered environmental effects are taken into account, the ranking changes significantly:
1. Coal Covenant;
2. MEP Subsidy Scheme;
3. Emission Trading Scheme;
4. Benchmark Covenant;
5. Taxation.

The conclusion of this outcome is that the use of biomass as a substitute for coal is proven to be a very efficient and short term feasible measure to reduce the CO_2 emission of existing coal fired power plants.
The effect is based largely on the MEP Subsidy Scheme. Subsidies help industry to take the necessary investments or to cover the extra fuel costs of biomass. The positive results of the MEP Scheme are a proof of the effectiveness, although this effect has its price. Political will and consistency are crucial factors.
The same effect might be reached by emission trading but global acceptance and implementation of this system is an prerequisite. Otherwise the distortion of competition will be too big and the industry will move to parts of the world without CO_2 regulation.
The effect of the voluntary benchmark covenant on energy efficiency also is influenced significantly by the investment climate in a country in comparison of the country's global competitiveness. Only if a country is competitive enough to attract new investments, the industry can keep up with the voluntary moving target of being within the 10% BAT in energy efficiency. For Europe the implementation of the Lisbon Agenda is a crucial factor. The PSR method, allowing growth to companies that meet the standard, can be a post-Kyoto alternative for Europe if a global emission cap & trade system turns out to be not feasible.
Finally, energy taxation in the Netherlands has near zero influence on the demand of electricity. The only argument for the benefit of tax effect is the refund in subsidy schemes to improve renewable power generation. This is no longer valid, as the government has decided to cancel the MEP subsidy scheme.

(October 2006)
