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Policy and advice for a sustainable energy future

The Netherlands

Paper

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Colophon

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The CE in brief

The Centre for Energy Conservation and Technology (CE) is an independent research and consultants firm active in the interface of environment, economy and technology. Our goal is to develop modern, structural solutions that can be achieved within policy, that can be implemented practically and that are economically sensible. An understanding of the different social interests is essential to this.

The CE is divided into four sectors that concentrate on the following fields of work:

- environment-economy
- traffic and transport
- materials and waste
- (sustainable) energy

A publication list is available for each of these fields of work. Those who are interested can request this list from the CE. Also, twice a year a newsletter is published which contains an overview of the current projects. You can subscribe to this newsletter free of charge (tel: 015-2150150).

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1 Introduction

The VROM Council offered to host a workshop (27-28 October 2000) for a group of European environmental advisory bodies. This meeting is meant as a kick-off for a working group on energy and climate change. The workshop may help to develop standpoints of the advisory bodies on the basis of shared knowledge of problem perceptions and proposed solutions in other EU countries. This may increase the common denominator and thus promote common EU policies. The proposed title for this workshop is:

Reconciling a sustainable energy future with the liberalisation and privatisation of the European energy market

One of the participating councils from each country is expected to draft a report on the policies directed at a sustainable energy future in their respective countries. These reports should include the following elements of the national policies and relevant proposals of the councils.

- a brief description of the current energy supply and a lookout on sustainable development in the energy sector;
- a description of the liberalisation and privatisation of the energy market, including the institutional reform (government involvement), juridical changes and realisation path and, if applicable, how the share of non fossil energy generation is enlarged;
- a description of how in future a sustainable energy supply will be promoted, including (options for) policy strategies, measures and instruments;
- a description of the EU policy that is conditional for the realisation of these national policies as in the previous bullets.

The VROM Council has asked CE to produce the report for the Netherlands.

The report is organised as follows. Chapter 2 gives a brief description of the current Dutch energy and CO₂ characteristics. Chapter 3 gives an overview of Dutch energy policy and chapter 4 an overview of Dutch climate policy. The following chapters give the views of the various councils on energy and climate policy. The final chapter, chapter 8, gives some suggestions for the way ahead.

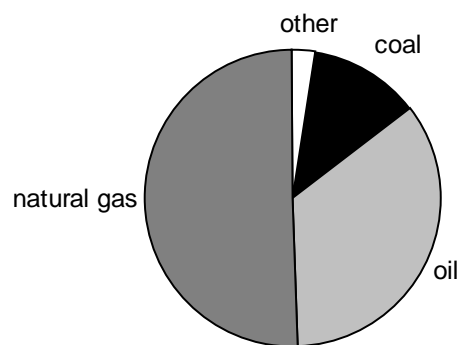


2 Dutch Energy and CO₂ characteristics

2.1 Dutch energy mix

The Dutch Energy mix is characterised by a heavy reliance on natural gas. (see Figure 1). Roughly half of the Dutch energy mix consists of gas. The share of renewable energy is currently about 1,5%. There is also a small portion of nuclear energy that will be phased out in 2003.

Figure 1 Dutch energy mix in 1998



Oil in electricity production has virtually been phased out which implies that electricity production relies mainly on natural gas and on coal. Given this energy mix it is clear that there are limited options for fossil fuel shifts in order to reduce CO₂-emissions. The only real option is to substitute coal. In fact this is one of the measures, which will be taken (see section 4.1). A further fuel-based increase in carbon efficiency requires a shift to non-traditional fuels like renewable and decarbonised fossil fuels.

The potential for renewable sources is rather limited in the Netherlands when compared to other EU countries. This is partly due to the unfavourable climatic conditions and partly due to the scarcity of space.

2.2 Dutch energy and CO₂ developments

The latest developments with respect to energy consumption and CO₂ emissions have been described in the annual *Environmental Balance* of the National Institute of Public Health and the Environment (RIVM, 2000). We cite:

"In 1999 energy consumption in the Netherlands grew by 2%, a rate less than the economic growth rate of 3.5%. The growth in energy consumption was caused primarily by the increase in consumer spending and increasing mobility. Efficiency improvements in the production sectors have kept industrial demand for energy at the same level for some years while production levels have risen. Combined with a moderate restructuring of the economy

towards the service sectors, this greater efficiency has kept the growth in demand for energy below the growth rate of the economy for many years.

Emissions of CO₂ in the Netherlands fell for the first time in 1999, despite the growing demand for energy. Emissions of CO₂ in 1999 were 2% less than in 1998 and imports of electricity accounted for a large part of this decrease. There are therefore no clear signs of a structural change (decoupling). Importation of electricity is one of the consequences of the liberalisation of the European energy market. In the absence of these developments it is estimated that CO₂ emissions in 1999 would have been 1-2% higher than they actually were at the end of 1999. Emissions of CO₂ are currently still about 7% higher than in 1990.

Assuming a "cautious" economic growth scenario to 2004, forecasted emissions of CO₂ are still 7% higher than in 1999. At the moment it is not clear how much electricity will be imported in the future. If imports fall to the 1998 level, emissions of CO₂ in 2004 will be about 9% higher than in 1999."



3 Dutch Energy Policy

Current Dutch energy policy focuses on liberalisation of the energy markets and on stimulating a sustainable energy system. Both policies are highlighted below. A recent overview of energy policies and developments can be found in the *Energy Report 1999* (Ministry of Economic Affairs, 1999).

3.1 Liberalisation of the energy market

Following the EU-directives on common rules for the internal market the Netherlands has by now adopted legislation to implement these directives at a national level: the Electricity Act and the Gas Act.

Electricity Act (1998)

The opening of the electricity market follows a step-by-step approach. The 1998 Electricity Act has liberalised large consumers immediately. The act states that states that two groups of customers, namely the intermediate group and the small-scale consumers, will be given the opportunity to choose their supplier in 2002 and in 2007 respectively. In the mean time it has been decided to try to speed-up the liberalisation process and to aim for a complete market opening in 2004. An interesting point is that government is aiming at complete opening the *green power market* already in 2001. In order to produce green power cost-effectively a voluntary system of tradable Green Certificates is currently designed.

For the unbundling of generation, transmission and distribution legal separation has been chosen. The conditions for grid access are based on a regulated third party access.

The Electricity Act contains a provision requiring customers to buy a minimum percentage of the electricity originating from renewable energy sources. So far no use of this provision has been made. Although parliament has several times asked for setting a specified percentage, up to now this has not been done. According to the Minister of Economic Affairs the demand for renewable energy exceeds the supply. So, according to the Minister, there is no need to enforce a specific percentage of renewable energy.

Gas act

The opening of the gas market also follows a step-by-step approach. The Gas Act (2000) states that two groups of customers, namely the intermediate group and the small-scale consumers, will be given the opportunity to choose their supplier in 2002 and in 2004 respectively.

Contrary to the unbundling in the electricity sector, the unbundling of production, storage and transport of gas requires only a management separation. Grid access is on a negotiated basis.

Like the Electricity Act the Gas Act contains a provision for requiring customers to procure a minimum percentage of gas from sustainable energy sources (e.g. biogas). This provision has not yet been brought into force.

3.2 Stimulating a sustainable energy system

In order to stimulate a sustainable energy system two targets have been set:

- **Energy efficiency:** In the year 2020 the energy efficiency should be improved by 33% with respect to 1995. This corresponds to an annual increase of 1,6%. The aim is to increase the rate of efficiency improvement to 2,0% per year.
- **Renewable energy:** 10% of the energy consumed in the Netherlands must be supplied from renewable sources in 2020. In *The Netherlands' Climate Policy Implementation Plan* a target of 5% is set for the year 2010.

In order to meet these targets a huge mix of policy instruments is applied. Although policy makers are aware of the fact that a liberalised energy market requires new types of generic instruments, the instrumental reform is still lagging behind. The current mix of instruments is mainly a traditional mix with some market-based instruments like the regulatory energy tax or tendering schemes. Distinctly different instruments are applied in the so-called exposed sectors (e.g. export-oriented industry) and the sheltered sectors.

Exposed sectors

For exposed sectors the policy aims at maximum implementation of "no regret" measures. The most important instruments for these sectors are voluntary agreements like the Multi Year Agreements (MYA's) and benchmark covenants. Also investment subsidies for research, development and demonstration (RD&D) play a major role in these sectors. Initially the agreements focussed solely on increasing energy efficiency. Recently CO₂-emission reduction measures, also with other options than increasing energy efficiency, are incorporated in these agreements as well.

Sheltered sectors

For the sheltered sector the regulatory energy tax, standards and legislation are the main instruments. The regulatory energy tax will be increased gradually. As for 1 January 2001, small-scale consumers will be paying over one-third more for their energy than would be the case without the energy tax (in 2001 the tax for electricity will be roughly € 0.117 per kWh and € 0.055 per m³ natural gas). Most of the tax revenues are recycled but part of it is used for financing stimulating instruments. In order to stimulate renewable energy, this type of energy is exempted from the regulatory tax. The effect of the regulatory energy tax is not yet clear. At the moment evaluation methods for the effect of this tax are considered. As far as standards are concerned, general energy standards for new homes play an important role. For existing houses a subsidised voluntary energy advice has recently been introduced. Subsidies are available when some of the advised measures are taken. In licensing procedures higher standards for energy efficiency will be set. Apart from these instruments investment subsidies to promote energy efficiency and renewable energy sources play also an important role.

Apart from instruments for specific sectors there also exist instruments for specific technologies. On the one hand RD&D and market introduction of new non-commercial promising technologies is supported by special programmes (e.g. fuel cells, PV-cells). On the other hand attractive commercial technologies with a high energy saving potential on the short term are promoted. An example of such a technology is combined heat and power



(CHP). Quite recently additional instruments have been announced since projected CHP growth will be adversely affected by the liberalisation of the energy market (see box: 'Liberalisation has an adverse effect on CHP-growth').

Liberalisation has an adverse effect on CHP-growth

In the early 1990s the installed CHP-capacity was 8,000 MW. Some years ago it was expected that the capacity would grow up to 15,000 MW in 2010. The liberalisation of the energy markets, however, made investments into CHP less attractive. Recent projections showed that in 2010 the CHP capacity might even decline in future. Especially low electricity prices as a result of overcapacity and import make CHP less competitive. Additionally for some types of CHP installations new tariff structures for electricity as well as for gas have a negative impact (i.e. installations which satisfy seasonal demand patterns, or installations which need incidentally a high gas capacity are affected). Currently electricity tariffs do not incorporate advantages of decentralised production (e.g. less transmission losses and less transmission costs).

Since CHP is one of the vital tools of the Netherlands to achieve the target, government has recently announced a series of measures that make investments into CHP more attractive. The most important measures are:

- increased investment subsidies for new CHP installations which amounts to a net subsidy of 14%;
- an exemption from regulatory energy tax for the electricity used for internal purposes;
- a tax discount of about € 0.0023 per kWh of delivered electricity.

Additionally the regulator (DTe, Office for Implementation and Supervision of the Electricity Act) will propose some tariff changes that reflect the true cost advantages of CHP. Furthermore the possibilities of stimulating CHP on the basis of its real contribution to CO₂-emission reduction will be investigated.

Source: Ministry of Economic Affairs (2000).

Also private investments in renewable energy sources are affected by the liberalisation of the energy market. There are several factors, which make investments less attractive. First of all in the liberalised market energy companies are taking less risks. In former times the possibility of internal cross-subsidies was some kind of risk insurance in practice. But also uncertainties like the demand for renewables and the stability of government policies (e.g. tax advantages for renewable energy) are an important factor. This is the reason that energy companies prefer investment subsidies above uncertain tax advantages. Also, like in the case of CHP, tariff structures do not fully reward the cost advantages of decentralised energy production (e.g. lower transmission costs and less transmission losses).

In the *Energy Report 1999* (Ministry of Economic Affairs, 1999) a third element, besides energy efficiency and renewable energy, has been added to its policy directed towards a sustainable energy system: the so-called **clean fossil** fuel option. The idea is that emissions of greenhouse gases can be limited by removing CO₂ from process and flue gases utilising it if possible and perhaps storing it (see box 'Clean Fossil Energy').

Clean Fossil Energy

'Clean fossil energy' is here taken to mean fossil energy accompanied by effectively zero CO₂ emissions to the atmosphere. If the CO₂ is stripped from flue gases, or conventional fuels first chemically converted to hydrogen fuel and CO₂, and the carbon dioxide injected into underground reservoirs, fossil fuels can in fact be deployed on a 'low-carbon' basis.

The potential for generating clean energy from fossil resources is determined by resource availability on the one hand and potential carbon storage capacity on the other. For the medium term at any rate, both appear to be ample. Contrary to what until recently was conventional wisdom, it will be some time before fossil fuels are scarce. New reserves are constantly being discovered and technological progress means that known reserves can be exploited ever more. According to recent estimates by Nakićenović (1998), economically recoverable resources are more than adequate for meeting energy requirements for the rest of the century, even if demand were to surge.

Current assessments of the potential for underground CO₂ sequestration are still fairly crude. Hendriks (1994) estimates the global capacity of depleted oil and gas fields at about 500 GtC CO₂. Additional capacity could be provided by aquifers: deep underground, water-carrying rock formations. Depending on the structural geological criteria set, the total potential for sequestering carbon in aquifers is estimated at between 50 and 14,000 GtC (Hendriks, 1994). By way of comparison, the worst-case IIASA/WEC scenario assumes cumulative CO₂ emissions of 1,490 GtC between 1990 and 2100 (Nakićenović, 1998). Underground CO₂ sequestration may thus have a substantial part to play in tackling climate change.

Citation from Energy Policy Platform (2000).

Clean fossil fuel options are currently being studied in various research projects (e.g. removal and utilisation of CO₂, CO₂-buffering and a feasibility study for CO₂-storage with methane recovery).

3.3 The next steps

The Ministry of Economic Affairs is currently reshaping its policy with an eye on the energy supply on the long term. A public debate has just started on 'Energy and Society in 2050'. Key issues are:

- the growing influence of EU policy making;
- the future reliance of gas imports;
- the transition to a sustainable energy future;
- infrastructural decisions for the long term;
- the changing role of all government actors in a globalising, privatising and liberalising world.

4 Dutch Climate Policy

Within the context of international climate policy, the Netherlands has taken on a commitment to reduce greenhouse gas emissions by 6% relative to 1990 levels in the period 2008-2012. A 6% reduction implies an emission reduction of 50 Mton CO₂-equivalent a year with respect to the business-as-usual scenario. The current coalition agreement requires that at least 50% of the required emission reductions have to be achieved with domestic measures. For the remaining 50% the government intends to use the three Kyoto mechanisms provided that they turn out to be cheaper than domestic measures.

In order to achieve the required reductions *The Netherlands' Climate Policy Implementation Plan* has been drawn up. The first part of the plan presented packages and measures aimed at domestic actions and the second part of the plan explains policies that will be implemented by means of Emissions Trading, Joint Implementation and the Clean Development Mechanism.

4.1 The Netherlands' Climate Policy Implementation Plan - Part I: Measures in the Netherlands

This part of the policy implementation plan pursues a twofold goal. On the one hand the plan indicates which measures will be taken to achieve the Kyoto target in the period 2008-2012 and on the other hand the plan aims at laying the foundations for the technological and instrumental innovation that is needed if the Netherlands is to continue to contribute to international climate policy after 2012.

In order to meet these goals three packages have been put together. A *basic package* in combination with a *reserve package* to meet the Kyoto target and an *innovative package* in order to make a start with technological and instrumental innovations necessary for tackling the problem of climate change in the long term.

The *basic package* contains measures in order to meet the domestic reduction goal for 2008-2012. To put together this package government has asked two government related research organisations, ECN and RIVM, to identify options for greenhouse gas emissions reduction and their potentials. In selecting options for implementation attention was devoted primarily to cost effectiveness. A second criterion was the distribution of the effort across the various greenhouse gases. CO₂ emissions are the core of the problem. Therefore a balance was sought between measures that contribute to deflecting the trend in the growth of CO₂ emissions and measures that reduce large amounts of emissions of the non-CO₂ greenhouse gases relatively inexpensively. In order to generate commitment for the measures within society, as balanced as possible a distribution across target groups was also sought. The package resulting from this selection process includes measures aimed at reducing CO₂ through energy conservation in all major sectors, the use of renewable energy, and measures in coal-fired power plants and at reducing emissions on non-CO₂-greenhouse gases.

The policy instruments for implementing these measures are mainly instruments which are currently used: e.g. covenants for the exposed sectors, licensing, (energy/carbon) taxes for small-scale energy users, advice, label-

ling, norm and enforcement of speed limits. Thus the basic package can best be described as an intensification of current efforts. Below an overview of the measures for the non-industrial sectors is given:

- EU agreement on fuel efficient cars;
- encouraging fuel efficient cars through CO₂ differentiation in taxing new vehicles and labelling;
- stepped up enforcement of existing speed limits;
- encouraging in-car instruments through covenant with car branch and fiscal program;
- road pricing (bill);
- tax measures to limit passenger traffic;
- increased tire pressure;
- reductions from traffic and transport projects in stepped up climate policy;
- ensuring sufficient use of residual heat from new co-generation and electric power plants;
- energy savings in industry through benchmarking covenant, Long Term Agreements on energy conservation, new themes, use of residual heat and tightening investment criterion;
- energy savings in greenhouse horticulture through execution of already signed covenant;
- energy savings in existing housing based on voluntary Energy Advice, supported by Energy Premium, possibly mandatory inspections or mandatory performance standards from 2002;
- energy savings in non-residential buildings through voluntary Energy Advice coupled to general administrative order Environmental Management Act;
- promoting energy efficient appliances;
- measures at coal-fired plants based on voluntary agreement to reduce CO₂ emissions to level of gas use;
- interim target for renewable energy of 5% in 2010;
- accelerating afforestation in the Netherlands.

A rather unique feature in this implementation plan is the *reserve package*, which contains measures that will be prepared and that can be taken if things go awry during the run-up to the 2008-2012 period. This package is a result of the lessons learned when previous greenhouse gas emission targets, like the stabilisation target in 2000 at the 1990 level, were not met. Whether deployment of the reserve measures is necessary will be assessed at the evaluation moments in 2002 and 2005. The measures are being prepared to make them ready for implementation. The reserve package consists of a further raise in the regulatory energy tax, a raise in the excise duty on motor fuels, and underground storage of CO₂ from large industrial sources. In addition, the reserve package contains a measure - reduction of N₂O in the chemicals industry -, which is still uncertain, because it requires development of a new technology.

Following the recommendations of the *VROM Council* (see chapter 6) an *innovation package* is also part of the implementation plan. This package is aimed chiefly at developing new technology and new policy instruments that the government can use to achieve the required emission reductions in the long run.

Technological innovation involves the development of new, climate neutral energy carriers, i.e. energy carriers which emit little or no greenhouse gases during their entire life cycle. An example is hydrogen produced from decarbonised fossil fuels in combination with CO₂-sequestration in depleted oil- or



gas fields. A stimulation program will be introduced in order to induce the development of new processes in the marketplace, leading to the creation of climate neutral energy carriers.

The purpose of instrumental innovation is to develop possibilities for trade in emissions permits and in reduction certificates in order to improve the cost effectiveness with which emissions can be reduced. The underlying notion here is that target groups themselves are in the best position to identify which measures can be taken at lowest cost. Government should limit itself to the extent possible to formulating goals and conditions. Once these instruments would be in place a large number of instruments currently in use could be phased out.

A commission with wide representation will be appointed to study the feasibility of variants for CO₂ emission ceilings for the sheltered sectors (i.e. sectors that are rather insensitive to the energy price). Setting emission ceilings can be combined with creating possibilities for trade in emission permit and reduction certificates (see box below). An experiment will be carried out in order to acquire experience with trade in reduction certificates on a small scale.

Tradable Reduction Certificates

The concept of tradable reduction certificates has been developed within the Ministry of Housing, Spatial Planning and the Environment. This is a kind of Clean Development Mechanism within the Netherlands: a market is created for proven abatement measures, which the exposed sectors are not obliged to take themselves (cf. non-Annex-I countries) under existing requirements. Upon taking such measures tradable reduction certificates are issued once the baseline has been assessed. These certificates can be acquired by sheltered sectors which have an emission ceiling (cf. Annex-I countries) and which have only relatively expensive measures at hand.

4.2 The Netherlands' Climate Policy Implementation Plan - Part II: Co-operation with foreign countries

The co-operation with foreign countries focuses on the one hand on flexible Kyoto mechanisms and on the other hand on supporting non-Annex-I countries with a structural climate programme.

Flexible Kyoto mechanisms

Emissions Trading

The Netherlands considers emissions trading between governments as well as trading between companies. Since a lot of issues on emission trading still have to be clarified at COP-6 plans for trading are currently not in an advanced stage.

Joint Implementation

As far as Joint Implementation is concerned both a bilateral and a multilateral approach will be followed. Bilateral co-operation with Central and Eastern European countries is currently being shaped by the development of a European tendering procedure for the purchase of CO₂ credits, or emission reduction certificates, through projects realised in these countries. Multilat-

eral co-operation will be through mechanisms like the Prototype Carbon Fund, which has been launched by the World Bank for multilateral JI and CDM projects.

Clean Development Mechanism

The Netherlands intends to utilise both the bilateral and the multilateral channels. Multilateral channels involve the participation in specific climate funds (e.g. Prototype Carbon Fund). Due to the uncertainties about the CDM there exist no advanced plans so far.

Structural bilateral climate programme's with non Annex-I countries

In view of the need for a structural approach to the climate issue, Development Corporation intends to set up a structural climate programme which will provide support for:

- building the capacity and developing the institutions required for the formulation and execution of climate policy, and for participation in CDM;
- an eventual contribution towards the limitations of global greenhouse gas emissions;
- accommodating the effects of climate change.

4.3 The next steps

The Ministry of Housing, Spatial Planning and the Environment is currently preparing its *Fourth National Environmental Policy Plan (NEPP)*. It is expected that in this plan a new orientation with respect to environmental policy making will be chosen. Addressing persistent problems like climate change, demand a new role of government and a new type of policymaking. The new role will be that of a transition manager.



5 Advice of the General Energy Council¹

5.1 Advice: Advice on Renewable Energy

In 1997 the Minister of Economic Affairs published the action programme *The Advance of Renewable Energy*. His successor asked the Council for advice with respect to policy instruments for stimulating the use of renewable energy. The advice of the Council has been laid down in the publication *Advice on Renewable Energy* (AER, April 1999a).

The Council stresses that renewable energy options should not be viewed in isolation. Together with energy efficiency and the use of 'clean' fossil fuels² these sources form the basic ingredients for a sustainable energy system: a system which is ecologically sustainable, economically attractive and socially acceptable. Stimulating renewable energy should thus be seen in a broad perspective of bringing about a sustainable energy system. The share of these three options cannot be set beforehand. Therefore generic instruments which stimulate all three options should be applied, i.e. general financial incentives (e.g. (partial) exemption from regulatory energy/carbon tax) or standards for energy carriers (e.g. a maximum on CO₂-emissions per unit energy carrier).

However specific instruments for renewable energy remain necessary since renewables face some bottlenecks which hamper their large-scale introduction. The Council identified three major bottlenecks:

- The return on investment ratio is unfavourable for renewable sources. In order to overcome this bottleneck the Council pleads for creating a higher demand for renewables in general. A compulsory minimum share of renewables could be a suitable instrument for increasing the demand.
- The current Dutch definition of renewable energy sources is not clear-cut. Certain energy efficiency measures and energy from waste incinerators³ are taken for "renewable" energy sources in the Dutch accounting system. This blurs the goal of 10% renewable energy sources in 2020 and makes steering less straightforward. Therefore the Council pleads for a clear definition of "renewable energy sources".
- Implementing renewable energy encounters often administrative problems (e.g. wind power and biomass installations). The Council suggests that government review other policy areas (e.g. spatial planning) with an eye on facilitating the transition to a sustainable energy system. Where necessary rules and priorities should be revised.

Fundamental and applied research, development and demonstration in the field of renewable energy sources still remain important. Here government involvement is absolutely necessary. Government needs to make the choices and has to set the priorities. The Council suggests that some of the

¹ The official council of the Minister of Economic Affairs on energy related issues. Members of the council are energy experts.

² I.e. fossil fuels with low-carbon emissions like natural gas but also decarbonisation of fossil fuels in combination with CO₂-sequestration in the underground.

³ In Dutch policy documents energy from heat pumps and from waste incinerators is counted as a renewable energy.

revenues from Dutch natural gas sales and some of the revenues from the regulatory taxes on fossil fuels could be used for this purpose.

According to the Council, additional efforts in promoting renewable energy sources are justified by the fact that society has in general a positive attitude towards these energy sources.

5.2 Advice: Government Policy for the Long Term Energy Supply

In 1998 the Minister of Economic Affairs asked the Council for advice on long term energy supply in the context of a globalising, liberalising and privatising energy market. Also the role of government should be considered in this context. The advice of the Council has been laid down in the publication *Government Policy for the Long Term Energy Supply* (AER, July 1999b).

Government's new role in a liberalised market is to define and enforce the rules according to which the markets operate. Government has an essential part to play as the regulator and the guardian of constraints and objectives, especially (long-term) environmental and market objectives.

Given the increasingly felt need to shift on the long term (ca. 2050) towards a sustainable energy supply, the Council has identified the following short and medium term issues on which government should focus:

- **Stimulation of the deployment of renewable energy sources:** To this end the Council advises to introduce a growing compulsory share of renewable energy. Simultaneously public acceptance of renewable energy sources and a strong local implementation policy should be pursued.
- **Increase energy efficiency:** To these end efficiency standards for products, processes and housing should be defined. Also the green tax reform could be extended to stimulate energy efficiency.
- **The use of clean fossil fuels:** The Netherlands should apply its natural gas in an efficient way. In dense housing areas the deployment of a gas infrastructure should not be automatically the default option. Other alternatives like district heating should be considered if they turn out to be the more efficient option.
In the light of security of supply the Netherlands should also limit the pace at which its natural gas is extracted. The gas exports should be limited and the imports should be increased.
The Council recommends a large-scale experiment with CO₂-capture from fossil fuel processes in combination with subsequent underground storage. Such an experiment has a two-fold goal. The first goal is to assess the environmental impacts and the second goal is to assess the public acceptance of this option.
- **Market operation policy:** Proper market operation requires a proper competition policy where the international dimension becomes more and more important. Also the liability issues have to be dealt with properly.
The government is also responsible to stimulate decentral energy supply systems by setting attractive grid access tariffs. In this way multiformity, dynamics of the market and social acceptance is stimulated.
Until the liberalising of the energy market has been completed, government is responsible for the protection of the captive customers.
- **R&D:** Government should increase its fundamental R&D efforts. Solar energy should be first priority. Also R&D into energy storage and decentralised small-scale energy systems will be necessary. R&D into nuclear energy should be left to other countries. R&D-policy should be evaluated on a two-year basis.



A multiform policy as described above makes a review of current policies necessary. The Council therefore recommends a study, which assesses the advantages and disadvantages of integrating energy policy and environmental policy in one department⁴. Also the current instruments should be reviewed. The Council has a preference for generic and market-based instruments like tradable emission permits on a European scale.

⁴ Currently the Ministry of Economic Affairs deals with energy policy and the Ministry of Spatial Planning, Housing and the Environment deals with environmental policy including climate policy.



6 Advice of the VROM Council⁵

6.1 Advice: Transition to a low-carbon energy economy

As a part of the drafting procedure of *The Netherlands' Climate Policy Implementation Plan* the VROM Council has been consulted by the Minister of Housing, Spatial Planning and the Environment. In particular the VROM Council was asked to give advice on appropriate policy instruments including flexible instruments. The Council was also asked advice on the list of measures identified in the so-called *Options Document* and on the desirability of 'climate-only' measures such as CO₂-storage. The advice has been laid down in the publication *Transition to a low-carbon energy economy* (VROM Raad, December 1998).

The central message of the VROM Council is that the current policies and measures are inappropriate to deal with the problem of climate change in the short and in the long term when a 80% emission reduction has to be achieved. So far efforts have been mainly directed towards enhancing energy efficiency, promoting the introduction of renewable energy sources, reducing the demand for energy from households and increasing the absorption of CO₂ in new forests. However, these efforts were by far insufficient to meet the objectives for 2000. Meeting the Kyoto-targets will thus require a major achievement that will depend on the implementation of the complete range of old and new measures:

- increasing efficiency in energy use and raw materials;
- accelerating the rate of introduction of renewable energy sources;
- affecting consumption patterns by internalising the cost of emissions in the price of products which will have a beneficial structural effect;
- further switching to lower-carbon fuels;
- reducing emissions from fossil fuels by decarbonisation of processes in combination with underground CO₂-storage.

The last option may look like an end-of-pipe technique but it fits very well with the transition to a hydrogen-based energy system and the widespread use of clean, energy-efficient fuel cells. Given the present state of the art the Council does not regard nuclear energy as an attractive solution, because of the associated safety, waste and proliferation problems.

According to the Council the climate policy should be viewed from an integrated, sustainable and long-term perspective. The following three orientations are crucial to a policy strategy for the climate:

- The approach should fully acknowledge the global and long-term nature of the climate change problem and its interrelatedness with the use of fossil fuels as the motor of the international economy. The main focus must be on CO₂-emissions as the largest and most obstinate component of the problem. This requires a transformation of the energy system.
- It must reconcile cost-effectiveness of measures with an equitable distribution of costs over countries and sectors.
- The institutional structure and instruments must exploit to the maximum the self-directing capacity of society and must be such as to command maximum possible support (new instruments).

⁵ The official council for the Minister of Housing, Spatial Planning and the Environment (VROM). Members of the council are experts.

Thus a two-fold transformation is required: a transformation of the energy system and a transformation in the area of energy and climate policy. It is the Council's opinion that in meeting the reduction objectives for 2010, major progress must be made towards the technological, infrastructural and institutional renewal, which is also necessary in the longer term to move towards low CO₂ energy system.

For government to try to implement all the far-reaching measures would be a foolhardy venture. In order to achieve a fair distribution of the costs, to implement the most cost-effective options and to exploit to the maximum the self-directing capacity and creativity of society, the Council is strongly in favour of market-based instruments like regulatory taxes or tradable emissions permits. Both instruments are efficient and, if the amount of tax is at the right level, effective. Although the effects of both instruments are largely the same the Council suspects that that society is in favour of tradable emissions permits. Compared to regulatory taxes tradable emissions permits demand less government involvement since no recycling of tax revenues is required. The Council considers it essential that one of these instruments, or a combination of both, should be introduced for climate policy. The Council realises that market-based instruments may pose problems for the sectors exposed to foreign competition. For these sectors market-based instruments are only sensible if they can be applied internationally on a sufficiently large scale. Therefore the Council urges that the Netherlands vigorously promote the establishment of an international tradable emissions permit system for companies, in which the Netherlands should participate at the earliest moment possible.

In order to gain experience with emissions trading systems the Council proposes the following three-pronged approach:

- 1 Institute a system of tradable emissions permits for some of the sheltered sectors. The exposed sectors will continue to be dealt with by regulation and covenants. Additionally, a procedure must be introduced for the sheltered sectors which enables them to contribute cost-effectively to the reductions needed for the 2010 target, either through subsidies or through a system of Tradable Reduction Certificates (see also box: 'Tradable Reduction Certificates').
- 2 Until an adequate system of international emissions trading is possible, covenants will continue to be the indicated policy instrument for the exposed sectors. All measures that increase carbon efficiency and show a reasonable return must be taken, as well as the measures needed to ensure that they remain amongst the world leaders in carbon efficiency (benchmarking).
- 3 Since Kyoto allows emissions trading between countries, emission permits can be bought on the international market and be sold to the sectors for which a ceiling has been established. If sufficient emissions permits can be acquired in this way, the exposed sectors can also be brought under this national ceiling or under an internationally agreed ceiling for specific sectors. Special attention should be given to the possibility of emissions trading within the EU.

The Council doubts however, that governments should operate in markets for emissions permits. Companies are much better equipped than governments to identify and exploit cost differences for trade and investment. A system of emissions trading requires a clear demarcation between the roles of government and industry, with the former confining itself to running the system, distribution of ceilings and enforcement.



7 Advice of the Social Economic Council⁶

7.1 Advice: Emissions Trading as an Instrument for Climate Policy

In its recent advice *Emissions Trading as an Instrument for Climate Policy* (SER, May 2000) the Social Economic Council (SER) comments on the plans on investigating into emissions trading systems as announced in the *The Netherlands' Climate Policy Implementation Plan – Part I*. Below a summary of the Council's view is given.

Generally speaking the Council is in favour of market-based instruments like emissions trading or taxing. This allows tackling the problem of climate change in a cost-effective way. The Council does not reveal its preference but reacts on the government plans with respect to emissions trading.

The Council's opinion is that the implementation of a national emissions trading system does only make sense when a principal choice for emissions trading has been made at a European level. If emissions trading are not expanded to the international level it will be difficult to involve the exposed sector (i.e. energy intensive industry) at all in emissions trading. Given such a principal choice, the lessons learnt from experiments on a national level can contribute to shaping a European emission trading system.

The Council is strongly in favour of a system of Tradable Emission Permits given an emission ceiling. In *The Netherlands' Climate Policy Implementation Plan* an experiment with Tradable Reduction Certificates (see box: Tradable Reduction Certificates) has been announced. The Council, however, has objections to such an experiment. In the first place it is doubtful whether the exposed sectors will be interested in such an instrument which is additional to their current obligations (i.e. benchmarking and covenants). In the second place, the issuing of Tradable Reduction Certificates requires an objective baseline study and a certification system. In the third place the proposed division between sheltered and exposed sectors is based on the sensitivity to energy prices. It is doubtful whether there will be enough incentives for the sheltered sector to buy Tradable Reduction Certificates since this sector is by definition not very sensitive to the energy prices. In the fourth place, the Council stresses that Tradable Emission Permits are very different from Tradable Reduction Certificates although they may be treated in a similar way. The two are entangled since the price for Tradable Reduction Certificates is equal to the price on market for Tradable Emission Permits. In the fifth place, the Council does not see any possibility for a system of Tradable Reduction Certificates at a European level. Thus experiments with such a system on a national scale will not contribute to shaping a European system.

⁶ The SER is the main advisory body of the Dutch government on national and international socio-economic policy. There are three groups of members represented in the SER. This is referred to as a tripartite composition and it reflects the social and economic relations in the Netherlands. The first two groups are formed by representatives of unions' and employers' organisations and the third group is formed by independent (crown) members, appointed by the government.

Introduction of emissions trading on a national scale requires careful preparation since it is very important that the various actors will accept such a system. The Council therefore agrees with the establishment of a commission to study the various aspects of implementing an emission trading system. Special attention should be given to initial attribution of emissions permits, trading aspects, institutional aspects and legal aspects.

The Council is in favour of carrying out a well-designed national experiment with emissions trading. The basic aim of such an experiment should be to get insights for a system on a European level. This implies that an experiment should reflect the most important elements of an emission trading system. When carrying out such an experiment one should take due account of the possible interference with existing instruments like covenants and benchmarking.

Apart from experimenting on a national level the Council stresses that the Netherlands should simultaneously strongly advocate emissions trading on a European level.



8 How to continue?

The combination of a liberalised energy market and the wish to address the problem of climate change poses a huge challenge to policy makers. Current policies are clearly unfit to address this challenge. Policy makers are fully aware of this fact. Some citations from the *Energy Report 1999* published by the Ministry of Economic Affairs:

- "That is what is changing: the public sector is becoming less and less a player but more of a director."
- "The playing field is also becoming more international and more complex, and it is becoming more difficult for the government to control through specific measures. Policy will therefore take a more generic form."

The need for a policy reform is felt. But the actual reform lags far behind current practice. Below some suggestions for speeding up the reform are given:

Reconsider European Ecotax as an intermediate option

The liberalisation of the energy market is in full swing and will where possible even be accelerated. Although policy makers feel the need for the introduction of generic instruments the pace at which these instruments are investigated and developed seems much too slow. In the mean time the first unwanted side effects of the liberalisation become clear and ad hoc management is applied to fix these effects. The newly adapted instruments for CHP in the Netherlands and the European draft directive for CHP are examples of ad hoc management where again the traditional instruments are applied. In the absence of well thought over generic instruments this symptom fighting is probably the best short-term solution but a quick start should be made with the development of new generic instruments. There seems to be a large consensus on the fact market-based instruments like tradable emissions permits or regulatory taxes should play an important role. A system of tradable emissions permits is generally favoured. At the same time the implementation of such a system is not straightforward, and various actors stress the fact that an introduction on a large-scale (e.g. EU) is desired. This implies that the design and implementation of such a system will take at least several years. Designing such a system should get highest priority. In order to reduce the risk of introducing such a system at a very late stage, the EU should consider starting the design of such a system even prior to final decision making on the introduction of such a system. Given the time pressure the European Ecotax should also be reconsidered very seriously. The implementation and enforcement is much simpler and the discussion on EU-level is much more advanced. One should seriously consider the option to introduce the Ecotax on the short term and to supersede this instrument with a tradable emissions system in the medium term if there is more public support for such a system.

Demand a pro-active role from the EU

Current problems and trends like liberalisation and globalisation demand a pro-active international approach. National initiatives and policy making are often frustrated by the absence of a common European approach. Just to

name some fields where concerted actions on a European level are extremely desirable:

- a uniform definition of "green" energy;
- a common system to verify energy claims which is required for certification (e.g. green certificates);
- a common system for market-based instruments like tradable green certificates, tradable emissions permits and/or regulatory taxes;
- a uniform and verifiable system of energy labelling for energy carriers in order to increase market transparency;
- comparable stimulation schemes for sustainable energy production;
- ambitious, regularly reviewed, standards for appliances and installations.

Current practice gives the impression that the ideas and discussions on a national scale are much more advanced than the ones on a European scale. For a swift progress in these fields the EU should ideally be much more proactive and take the lead. If progress in the EU is too slow, countries will look for alternatives, which may lead to undesirable distortions in the EU. A good example is the currently discussed option to treat the sheltered sector differently from the exposed sector in the Netherlands. If other countries choose other policies like a regulatory tax for their exposed sectors this may lead to a non-level-playing field for the exposed sectors, which is absolutely undesirable.

Dare to use the market to achieve a sustainable energy future

In this phase of liberalisation the expectations of what an open market can achieve are high pitched and there is quite some reluctance to interfere. In the Netherlands we see for example a reluctance to implement a compulsory share of renewables, to introduce a compulsory system of green certificates, to introduce a uniform compulsory system of energy labelling or to introduce limits for the CO₂-content of energy carriers. Organising this kind of initiatives is left to the market. First of all is doubtful whether the market will pick up these kind of initiatives and secondly if (part of) the market does, there is the risk of chaos and non-transparency (compare to the telecom market). As a regulator, government should make sure that the market is as transparent as possible, which is one of the basic requirements for proper market operation. Also the market does not take into account long-term considerations like the necessity for a sustainable energy future. Here government has to set the targets. The interesting thing is that market players are absolutely not against targets, at least if they are consistent and announced in an early stage. Investment in CHP and renewables are currently being hampered by the policy uncertainties and not by the lack of interest among market players.

Pursue synergy between energy and climate policy

The goals for energy policy and climate policy are largely congruent but there is also some tension between these policy areas. An option like decarbonisation of fossil fuels is primarily of interest from the climate perspective. However, if well designed this option may also have synergistic effects in the energy field. The way to a hydrogen economy may be paved along this road. On the other hand if this technology is widely applied the need or demand for renewables may decline. Stimulation of renewables is socially desired and remains ultimately necessary for the transition to a sustainable energy future. This tension can be felt in Dutch policy making. It is important to set clear, and maybe separate, goals for combating climate change and for the transition to a sustainable energy future. Simultaneously maximum synergy should be pursued.



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