



Workpackage 3

Country report

The Netherlands

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I Introduction

This report describes the results of the Dutch hearing, which covered the following activities:

1. An online survey in 2005 repeated in 2006 with a restricted number of questions aiming at getting a representative overview of the positions of Dutch stakeholders on RES-E support in the Netherlands and the willingness to change the support system in the context of a harmonized European system. The survey was repeated in 2006 to assess the impact of the November 2005 communication of the EU Commission of the support of RES-E.
2. In-depth interviews with representatives of actors in the Dutch market.
3. Analysis of documents and documentation on stakeholders' position and opinions on RES-E support.
4. Additional research on and analysis of documents on RES-E support systems in the Netherlands and Europe with the aim of learning more about the problems involved.
5. Additional analysis of documents of organizations expressing their view and position on certain topics relevant for Realise-Forum. Many groups and organizations published position papers on RES-E support on the occasion of the EU Commissions' report on the state of the art of RES-E support in the EU.

The Dutch report follows the general outline and structure of the country reports in Realise-Forum. The next sections cover the outlined topics for the Netherlands.

II State of the art of Dutch electricity system and renewables

The Dutch electricity system is fossil based thermal system. Electricity production always benefited the presence of domestic natural resources; initially Dutch coal and since the early 1960s natural gas. After the gas discovery the Dutch coal mines were closed. Currently, (imported) coal, natural gas and oil are still the major fuel resources in Dutch electricity production. Natural gas has been used rather unrestrictedly for electricity production since the 1960s. Dutch gas fields are expected to be exhausted somewhere around 2025. Dutch gas consumption than relies on gas imports and if available synthetic gases.

Nuclear did not develop as serious option and was politically banded after the Chernobyl accident in 1986. Currently only one nuclear plant is operative in the Netherlands (413 MW). Nuclear has not yet returned as serious resource option, but the debate has been reopened in the context of the climate change policy. The proponents consider nuclear in combination with CO₂ storage as a realistic option to meet climate change targets. However, the public opinion is still strongly against nuclear. In 2005 the share of renewables in electricity production was 6.4 %. The ambition for 2010 is 9% renewable based electricity production. The major renewable options are offshore wind and biomass. Due to the flatness of the country, hydro is no serious option. See figure 3 below.

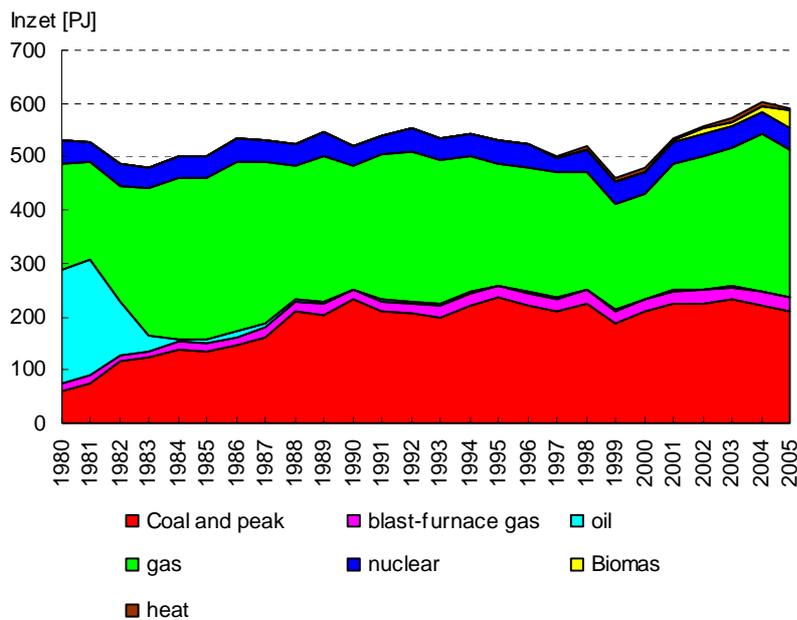


Figure 1 Resource base Dutch power stations (ECN, Energy data)

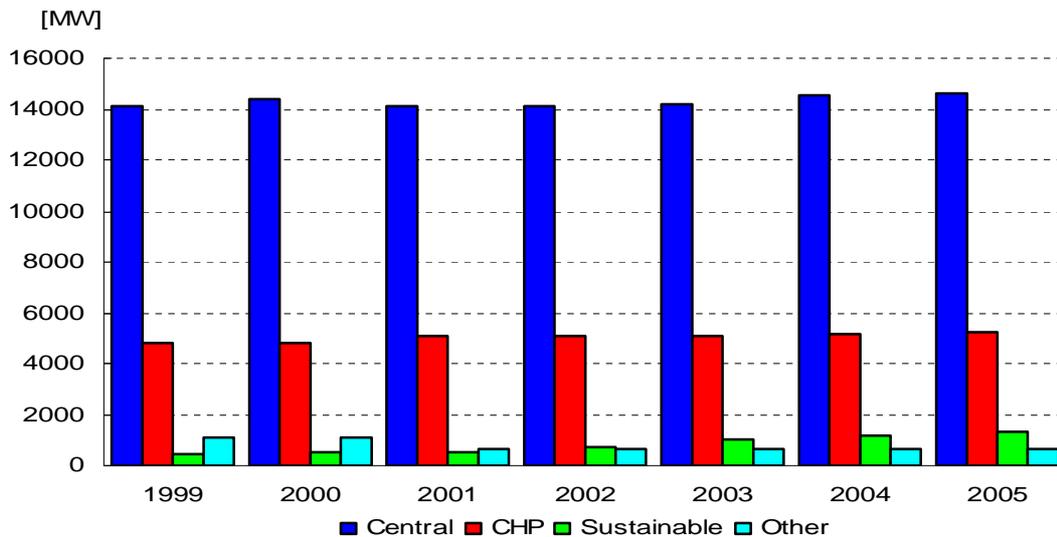


Figure 2 Installed capacity

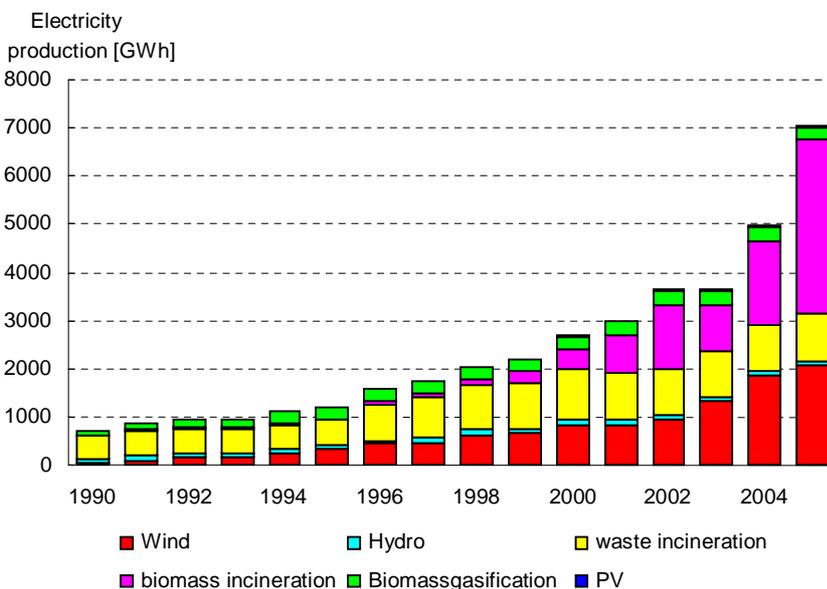


Figure 3 Electricity production from renewable resources

In the European perspective the size of the Dutch electricity market is rather small (see figure 5). The Dutch market is attractive though, because of its high density and high connectivity. The national grid system is well developed and among the most reliable in Europe. Due to good cross boarder connections to Germany, Belgium and Norway, the national high voltage grid is well integrated in the European transmission network. These connections are used for backup and for import and export. The Netherlands is a net importer of electricity, both gray and green. In the era of liberalization the international trade function of the grid has become more important (see figure 4).

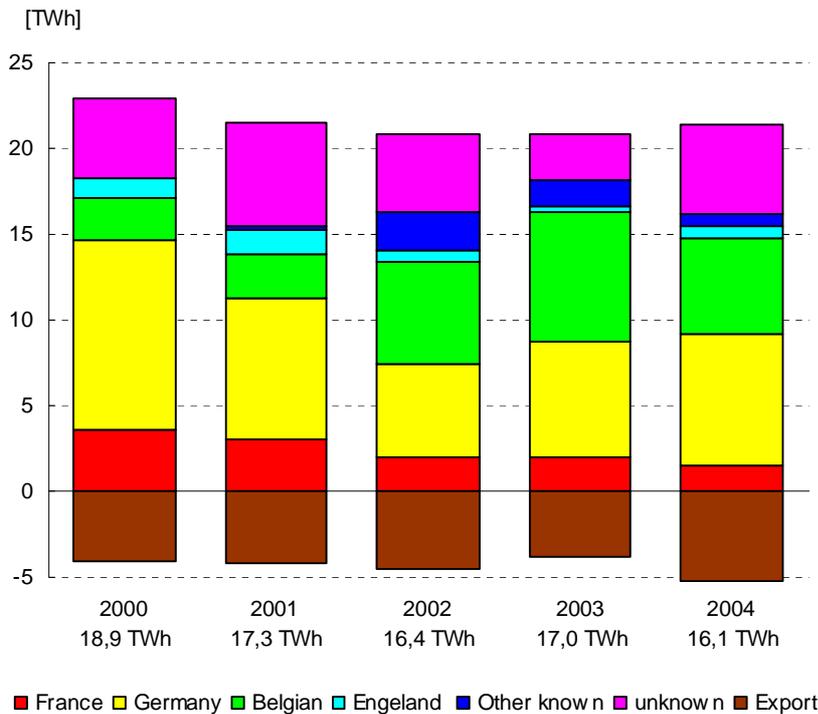


Figure 4 Origin of imported electricity

Installed capacity	21.719 MW
Maximum load high voltage grid	15.224 MW
Length of the grid	267.271 KM
Number of customers	7.524.000
Consumption (mil. KWh)	
Small consumers	37.661
Large consumers	72.525
Average household tariff electricity	21 Eurocent/KWh

Figure 5 Dutch electricity system key data 2005 (source: Energy in the Netherlands, 2006)

III Actors in the national (green) electricity market

It should be noted upfront that the Netherlands has a corporatist tradition in interest representation and this still is reflected in the way interests are represented/mediated in the public domain. Interests may be represented by several organizations, associations, confederations, cooperations and cooperative societies. Renewable based electricity is no exemption in this respect; all aspects of renewables have one or more voices in the Netherlands. To be able to handle the large number of actors involved in Dutch renewable electricity in the context of this document, we will present and discuss them according to three different settings: the (green) electricity market, (green) project development and interest mediation in (green) electricity policy making.

Major actors in the Dutch electricity market

portfolio. Two of them use renewable electricity in the branding of their company. One company, Nuon, is leading in wind energy and the other, Essent, is leading in biomass.

Major actors in green project development

Figure 7 gives an overview of the major public and private actors involved in developing new renewable based capacity for electricity production, green product development.

At the central level two ministries, economic and environmental affairs, determinate national energy and environmental policy. Environmental policy is relevant for project development because of the environmental impact assessment required for each new green project and in case of biomass and waste, because of waste regulation. Waste regulation is very complicated in the Netherlands and strongly debated every time a new biomass or waste incineration project is considered. Provincial authorities are important for the regional planning and licensing of new green production sites. The same holds for municipalities. They have a strong voice in the final decision were to erect a new site because this is always within the borders of a Dutch municipality when the site is onshore. NovemSenter is the national energy agency in charge with the implementation of all kinds of technology subsidies. When the financial support is a tax measure for the investor, than tax authorities are involved. Administrative court is activated in the context of the licensing procedure. Many projects have been decided by the highest administrative court decision possible in the Netherlands, due to massive conflicts of interest.

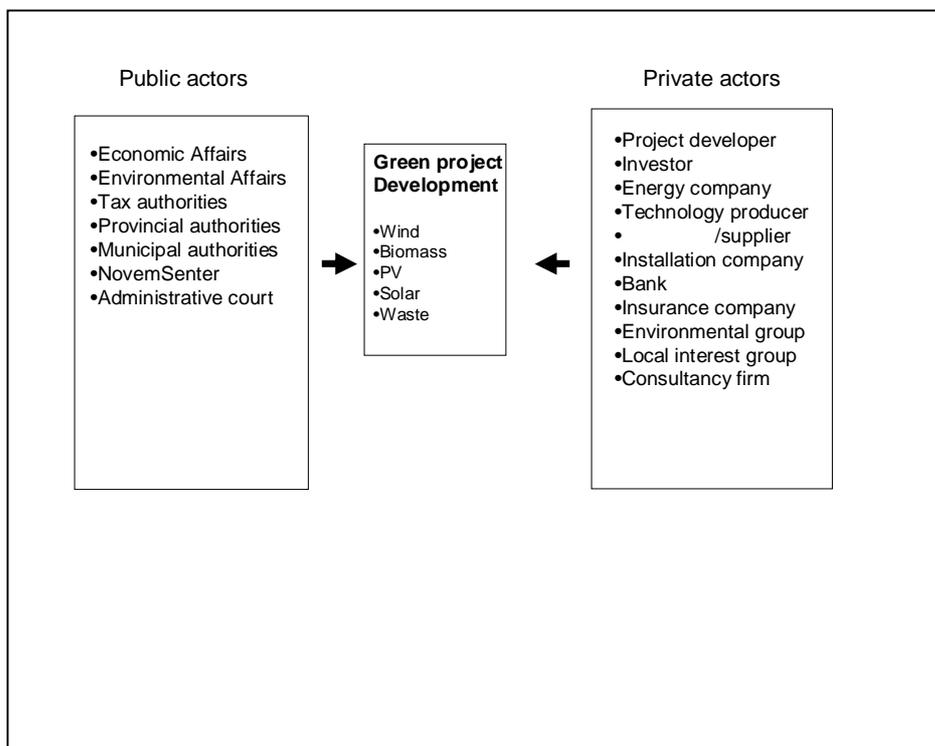


Figure 7 Major public and private actors in green project development

Next to the public actors, many private actors are involved in green project development. The project developer is the one in charge with the overall management and coordination of the project. The project developer can initiate the project itself or on behalf of third parties (investor, energy

company, consortium). Investors provide money for the project and the same holds for the bank, which provides for the (risk) capital needed to finance the project. Insurance companies cover the risks involved during the initiation and implementation phase of the project. They also may cover the risk during the operation of the project. Technology producers and installation companies provide for the technology required for the project. This might range from a huge wind turbine or biomass installation to a small PV panel on top of a private family house. The consultancy firm might be involved for design or engineering. In the phase of development, environmental and local groups are important actors too. Quite often these groups manage local resistance against green projects, which might take court decisions at the highest level and might result in extreme long lead times of projects.

Major actors in interest mediation and policy formation

Figure 8 gives an overview of the major actors involved in interest mediation and policy formation. The actors are grouped in the major actor categories involved in interest mediation and policy formation on green energy in the Netherlands. Starting on top of the figure, EU and Kyoto are two very important international drivers of national green energy policy. Going clockwise, the green (technology) industry is a well organized sector in the Netherlands. The providers of technology have organized themselves in the organization “De Koepel”, which has strong ties with the European organization of technology providers. “ODE” is a similar organization, but covers more than just the technology providers in the green energy sector. Dutch and foreign energy companies are organized in EnergieNed, the former organization of the Dutch energy distribution companies. Next to the government, the major public actors involved in policy making are the ministry for economic affairs and the interest organizations of Dutch provinces and municipalities. Civic society is represented in policy formation by the environmental groups, which are well institutionalized in Dutch policy making and consumer organizations. Next to the “consumentenbond” who guards the interests of private consumers, agriculture and industry have own interest organizations. Politics is represented by the many political parties of the country, ranging from left wing to right wing parties, all with a position in the renewables’ debate.

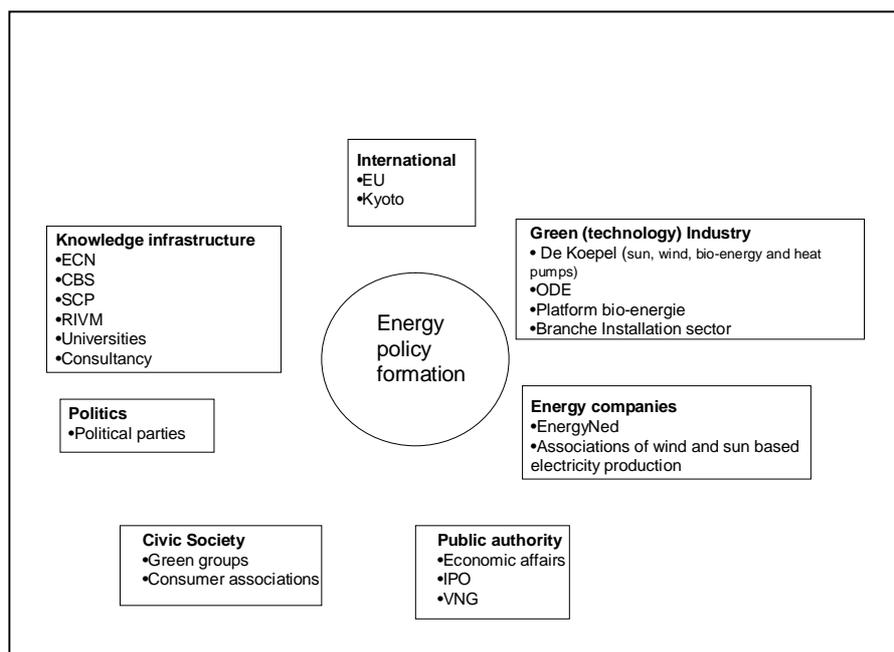


Figure 8 Major actors in interest mediation and policy formation

Finally, knowledge infrastructure is involved in green energy policy making. Apart from universities and consultancy, all organizations listed are strongly affiliated with the Dutch central governmental organization. Some of these organizations can and sometimes do act as strong opinion leader in the national debate on green electricity. Universities and consultancy firms sometimes bring knowledge on green energy issues to the debate.

IV Support instruments for RES-E

The Dutch policy menu for support of renewables has been and still is rather complex. Figure 9, gives an overview of the history of policy support for renewables and shows the complexity of the support. Schemes have been production and consumption oriented and voluntary, fiscal and mandatory in reach. Between 1999 and 2004 policy support concentrated on energy tax exemption for consumers and producers of renewable electricity. The idea behind the tax exemption was favoring pricing of renewable electricity to tempt electricity consumers to renewable electricity and producers to invest in renewable-based generation facilities. The idea was that Dutch production capacity would not be enough to satisfy consumer demand for green electricity and therefore imported green electricity was also eligible under the energy tax exemption. The tax exemption indeed tempted many consumers to change from gray to green electricity, but did not really increase the installed capacity in the Netherlands. Contrary to the expectation, Dutch energy companies did not invest in domestic green production facilities, but instead, imported green electricity. The imported green electricity predominantly came from existing plants and therefore, the Dutch tax exemption and corresponding certificate trading system did not initiate investments in new production capacity. Initiation of new green production capacity in the Netherlands or elsewhere in Europe was the idea behind the tax exemption, but this idea failed in the rationality of the market.

	Voluntary model	Financial/fiscal model	Mandatory model
Production -driven	<ul style="list-style-type: none"> • The CO₂-convenant and the MAP plan of energy distributors (expire 2000) - MAP investment and production subsidies - Green Label trading system replacing MAP subsidies after 1998 (voluntary quota for distributors) (between 1991 – 2000) 	<ul style="list-style-type: none"> • Cost recovery schemes: R&D-funding, investment subsidies and production subsidies (during the 1990s; also in the future, but less) • REB-tax exemption and source of production subsidy (1996 - future) • Fiscal measures to stimulate green investments (Vamil, EIA) (from mid 1990s on) • Green Funds (from mid 1990s on) 	<ul style="list-style-type: none"> • Guaranteed purchase of renewable electricity in unlimited amounts, by distributors, with: • Remuneration obligation on distribution (both in 1989 Act and 1998 Act – but different target groups) • Quota obligation on consumers (in the 1998 Act; not considered yet) • Grid levies for green investments by generators or retailers (in the 1998 Act; not discussed)

Consumption -driven	<ul style="list-style-type: none"> • Green Electricity Products offered by energy companies for above-tariff prices (1995 - in the future) • Voluntary Green Certificate trade systems (after 1 Jan and 1 July 2001) 	<ul style="list-style-type: none"> • REB-tax exemption for Green Electricity Products (1 Jan. 1998 - in the future) 	
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Figure 9 Policy models for renewable energy support (source: Arentsen-Dinica 2001).

Therefore, the green certificate trading system in combination with the energy tax exemption was replaced by the MEP law in 2003. The MEP provides a production subsidy to Dutch based green production capacity established after 1996. The idea of the MEP is financial compensation of the non-competitive costs of green electricity production differentiated according to resource and technology and guaranteed for ten years. The MEP support is linked to the guarantee of origin (GO) in accordance with the green electricity directive.

Public support of green electricity production is very important for investors, because without support investments are not profitable and would stop in the Netherlands. Investors and producers consider the financial compensation of the non competitive part of the costs of renewable electricity a necessity to invest in production capacity. They consider the investment environment in the Netherlands already rather risky because of the many changes in the policy support schemes during the last couple of years. Recently, the MEP was changed again. Early 2005 the minister interrupted the budget for financial reasons and changed the MEP to give him the authority to adjust the financial compensation on an annual base. These kinds of policy changes make investors very uncertain and suspicious about the Dutch investment climate.

Mid 2006 investors got another blow due to the instant stop of subsidization of new RES-E production investments on August 18 2006. The re-established Balkenende coalition motivated the decision on the instant stop in reference to the expectation that the Netherlands would attain the 2010 indicative goal by the approved and ongoing RES-E projects. This was the reason for the coalition to instantly stopping the subsidization of new RES-E projects under the MEP-rules. It was said that a decision about future RES-E support was left to the new government. The new government should also decide about new RES-E ambitions (goals) for the years after 2010. Production support of combined heat and power production did not stop and would continue until 2008. The government reserved 150 million euros extra from the gas revenues for general R&D on renewable energy. Renewable energy production would benefit from this extra R&D investment despite the interruption of direct production support. Dutch Parliament heavily criticized the decision to stop direct support of RES-E production and forced the government to compensate in particular smaller investors who heavily suffered from the instant stop of production support.

The current support scheme is not linked to the system of emission trading and as far as I know, both systems aren't linked at the company level either.

V The Dutch position in the EU debate on the directive 2001/77/EC

In the EU debate on the directive the Dutch interest position was rather straightforward. They wished to safeguard a national share in the common EU goal for the long-term increase of renewables equal to Dutch political ambitions. The Dutch could firmly hold this position; the final directive did not affect national targets for renewable electricity. On market share increase, the requirements of the directive converged with Dutch goals. This was important because Dutch renewable policies were already ambitious given the physical and technical constraints in the Netherlands for renewable electricity production. The small reach of the country did not allow for large-scale onshore wind parks. Its geography was incompatible with large-scale solar energy; biomass (the serious option for the Netherlands) was technically still in the phase of R&D and hydropower wasn't feasible given the flatness of the country. Dutch access to renewable resources and the production potential of renewable electricity is limited compared to most other European countries. For these reasons a modest share in the common EU-ambition equal to the Dutch national target was given top priority in negotiations.

The strenuous negotiations were extensive and focused on several controversial issues. Countries could not agree on the definition of renewable resources. There were lengthy and tense discussions whether or not to include electricity produced by waste incineration and large-scale hydropower as renewable electricity. Positions of member states in this specific debate reflected the differences in their access to these resources. The Dutch favored a wide definition of waste and waste incineration, but objected to the inclusion of large-scale hydro as renewable. The second debate focused on a timeframe for goal attainment and the third on harmonizing policy schemes for the support of renewables. In the end countries could only agree on a minimal set of corresponding rules for market share increase and timing with no agreement on a common support policy. Countries were obliged to certify renewable electricity and compelled to accept another country's certification in the case of imports.

After the acceptance of the directive, countries continued support of renewables in their own way. In the Netherlands, a tax regime to support renewable electricity was introduced. In conclusion, the Dutch managed to keep their initial interest position in the negotiations on the renewables directive. The Dutch had a clear ambition: a Dutch share in the common EU political ambition equal to the one already agreed on domestically. However, for the domestic support of renewable electricity the Dutch introduced a tax regime that supported the consumption instead of the domestic production of renewable electricity (Arentsen and De Bruijn, 2004).

VI State of liberalization Dutch electricity market

The Dutch have liberalized the national market along the path described by the liberalization directives. Actually, the implementation of the required changes in the organization of electricity supply went quite fast. Energy companies were unbundled and the market was opened stepwise. The market for green electricity was opened before the full opening of the grey market. By the end of 2006 the Dutch debated the ownership unbundling of energy companies. The Balkenende coalition considered ownership unbundling the adequate means for developing a really competitive market and to prevent for any abuse of market power by energy companies. The idea was to integrate the regional distribution network companies into the national grid company TenneT and leaving the commercial part of the energy companies to the market. The general expectation was that the commercial part of the companies soon would be taken over by foreign companies. Dutch energy companies were passionately against the ownership unbundling fearing to stay behind as an

empty trade company and therefore becoming a cheap takeover target for the big European energy companies. In Spring 2006 the Second Chamber of the Dutch Parliament accepted ownership unbundling of energy companies. Then the Balkenende coalition felt apart and was soon re-established as a minority coalition with a new minister for economic affairs. In November the unbundling law was accepted with certain restrictions by the First Chamber of Dutch Parliament. Ownership unbundling became conditional to the international expansion of Dutch energy companies which replaced the initial unconditional ownership unbundling of all Dutch electricity companies.

In the fourth benchmark report of the EU the evaluation of the Dutch progress in liberalization showed that concentration of the market, like in many other Member States is still substantial in the Netherlands. Furthermore, Dutch electricity consumers are not eager to switch supplier. In the large user segment, for instance, not more than 35% of the consumers have switched.

Apart from these problems, the Dutch have taken a rather advanced position in the liberalization of the electricity market. As indicated above, all green electricity consumers have free choice of supplier. Despite administrative problems, it turns out that not that many consumers are interested in switching. Transaction costs hardly outweigh benefits of switching. Moreover, energy taxation increase takes away the already quite low price differences between suppliers, making switching less attractive too.

VII Role of green power in national energy policy

The political ambition to increase the share of renewables in Dutch electricity production and consumption is part of the national sustainable development strategy and has been formulated in the context of the national climate change challenge (see figure 10).

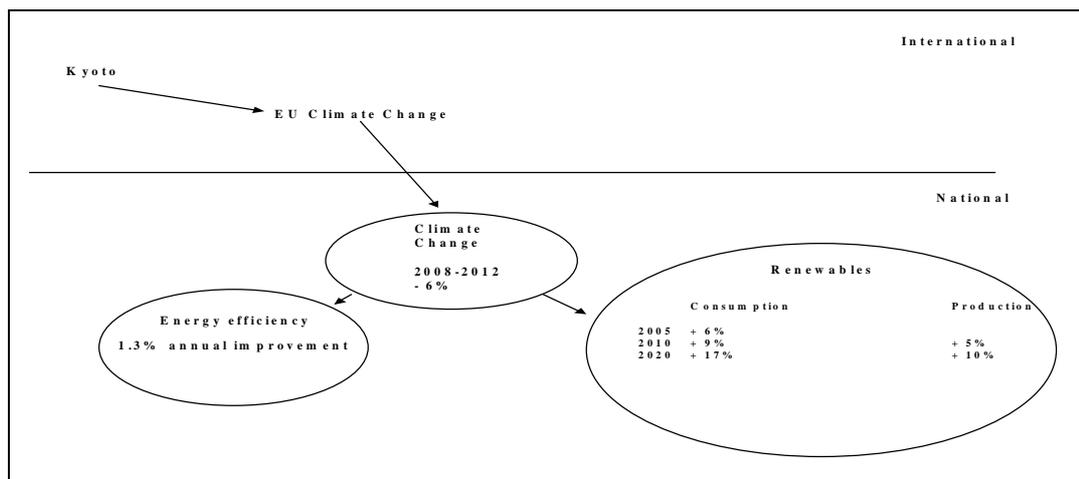


Figure 10 Dutch goals renewables

The 6% reduction of climate change gases in 2012 has been formulated in reference to the year 1990. The figure shows the two major tracks to achieve the climate change ambition, energy

efficiency improvement and renewables. The efficiency track comprises of a substantive policy program covering all sectors of society. The renewables track focuses on the energy industry (electricity and gas) and electricity consumers.

After the recalibration of policy and the introduction the MEP-based support for domestic RES-E production, the country is becoming more optimistic about attainment of the 9% share of renewables in 2010. In the last two years, Dutch production capacity has increased significantly (see above) and this added to the optimism. In the latest budget round, the current government recalibrated the budget for RES-E support to make goal attainment in 2010 most likely. Until 2006 the annual budget was fixed on €700 million.

In the Energy Report 2005, the Dutch government confirmed the ambition of 9% renewables in domestic electricity production in 2010, but does not mention any new target or ambition for the years after. The government only repeated commitment to the goal of 10% renewables in Dutch energy consumption, but added that it was unsure about goal attainment for the moment (Ministry of economic affairs, 2005, p. 29). In the report it was said that “Seeking the best balance between renewable energy, energy efficiency and clean fossil fuels is currently more desirable than setting a binding target for the use of renewables.” (Ibid. p. 29). So efforts on renewable electricity production are continued in order to attain the goal of 9% in 2010. At the same time the government reconsiders clean fossil as a necessary option again to meet the climate change challenge and announced intensification of research efforts in coal gasification and CO₂ storage. For the same reason, but also for reasons of security of supply, the Dutch government stressed the need of continued research on nuclear technology. So next to renewables there are other options considered again for the future resource portfolio for reasons of climate change and for reasons of security of supply. The government expects that renewables alone are not enough to meet the future energy challenge. In the mid term clean fossil and intensified energy efficiency is also needed. Nuclear is not pushed by anyone in the Netherlands, but has been brought back to the agenda. The nuclear option is still controversial in the Netherlands.

The governmental position of a diversified future energy resource portfolio is supported by parts of the Dutch stakeholders and opposed by others. The division line is quite obvious. The incumbent Dutch electricity industry in a way welcomes the “economic realism” in the future energy portfolio. Already from the very beginning in the 1970s, Dutch electricity industry was hesitant regarding renewables and pleaded for economic realism to go for cost effective – large scale- options. For that reason they always favored wide definitions of renewable energy resources to stay close to incumbent technology and to apply renewables as cost effective as possible. This position is politically supported by center right parties in the Netherlands. The recent announcement of new investments in production capacity by several Dutch electricity companies is illustrative in this respect. All announced new power plants with advanced but fossil based technology. Nuon for instance erects a new production plant on the basis of hybrid technology. The new plant should be able to use gas, oil, coal and biomass. Another big Dutch energy company, Essent, opts for co-firing of biomass as favorable renewables option.

The group of Dutch actors favoring economic realism in renewables politics is opposed by a group wanting to go ahead with new ambitions in developing renewables in the Dutch energy system and in Dutch electricity production. This group has a background or is involved in renewable energy. Part of them, united in “De Koepel”, recently pleaded for a share of 15% renewable in Dutch electricity production, heat supply in the residential area and in transport in 2015 (De Koepel,

Statement of Maastricht 2005). Application of renewable based technology in combination with energy saving and energy efficiency improvement are the major strategies for achieving this target.

So in the Dutch context there is a kind of division between economic realism and ambition when it comes to renewables. Anyway, renewables are less obvious now than they were several years ago. In the public debate on the future energy system renewables are discussed now in combination with clean fossil, energy saving and energy efficiency improvement. The argument for this energy portfolio in the public debate also widened to security of supply next to climate change and sustainable development.

VIII Stakeholder perceptions of support schemes

This section is based on the results of the online survey of Dutch stakeholders and interviews with representatives of the major stakeholders in the Netherlands. The interviews predominantly served to deepen the understanding of the information of the online survey. This section only describes the core results of the survey, further details on the survey results can be found in appendix I.

The core idea of the survey was to get an overview of the perceptions and opinions of actors operating on the Dutch green electricity market. Figure 11 gives an overview of the response of the online survey. It shows that all major actor groups are represented.

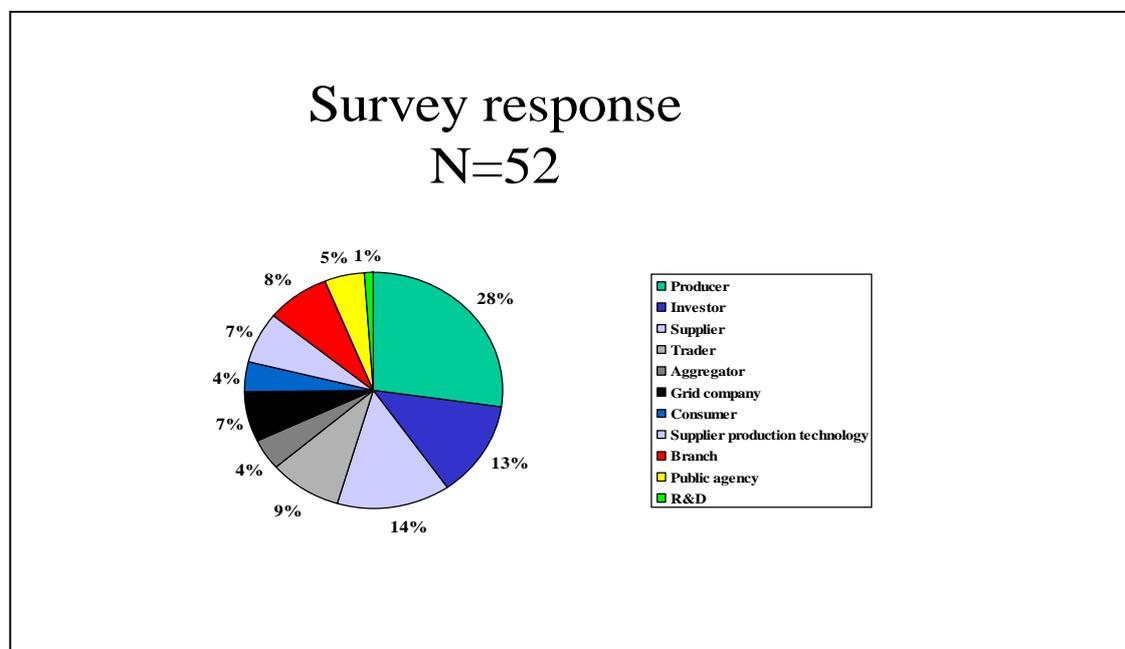


Figure 11 Response on online survey

The figure shows that producers, supplier, investors and traders take the largest share in the response. Furthermore, wind and biomass are the most prominent resources used by the producers in the survey. The dominance of both resources reflects the national position in this respect. Wind

and biomass are currently the most commonly used resources in the Netherlands, so the response is rather representative in this respect. A bit more than half of the respondents entered the Dutch green market before 2000, the rest entered the market after 2000. So the majority of the respondents is in the Dutch green electricity market already for several years and thus might have experience with support policies in the Netherlands. About three quarter of the respondents operates on foreign (green) electricity markets next to the Dutch market. The rest operates on the Dutch market only.

The survey included questions about the attractiveness of the Dutch (green) electricity market, the quality of the national investment climate, the support of renewable electricity and the willingness to change the support system. The survey results on each of these topics will be presented separately.

Attractiveness of the Dutch (green) electricity market

We asked to valuate three key features of the Dutch (green) electricity market on a scale ranging from 1(=very bad) to 10 (=very good). Figure 12 shows the results.

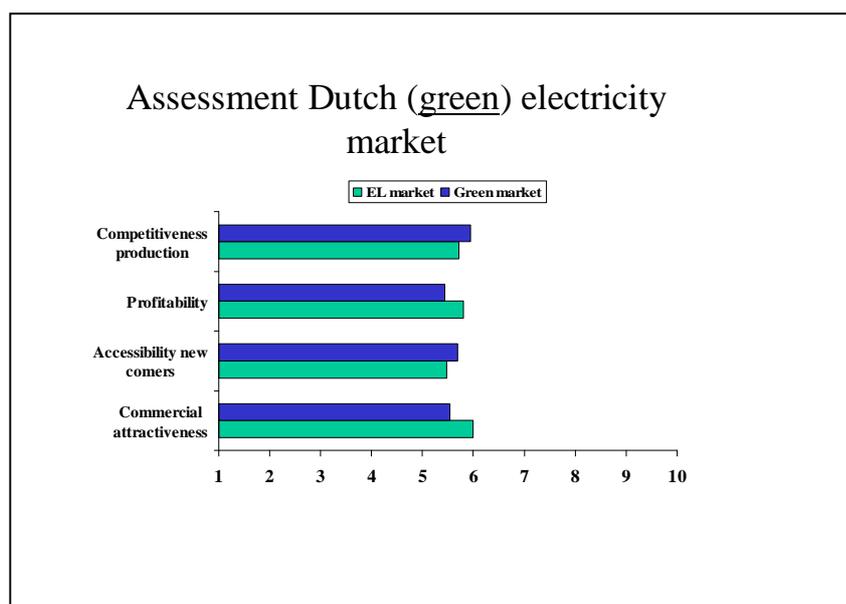


Figure 12 Valuation key aspects Dutch (green) electricity market

The figure shows pessimism of respondents regarding the current state of the Dutch grey and green electricity market. The valuation of all four aspects of the Dutch market does not exceed the grade of 6. This counts both for the grey and the green market. In appendix 1 the response is specified for specific groups of actors. The specified response shows that grid companies and suppliers are more positive about competition in production and public agencies more positive on the profitability of the Dutch electricity market compared to the other groups. The valuation of the Dutch green market is less differentiated among the groups. Overall, the valuation of the Dutch grey and green market is rather modest tough.

Assessment current support scheme

In a similar way we asked to value the Dutch support of renewable based electricity. At the time of the survey, support of renewables was organized according to the MEP, meaning that the amount of support was technology dependent and the duration of support 10 years at the longest. Figure 13 below indicates a modest enthusiasm among stakeholders for the current Dutch support for renewables. The average score for the amount of support is 6,3 and the average for the duration of the support only 5,4. Actor groups are not that happy with the current support in the Netherlands. Support is rather unpredictable and changes too often. This makes the Dutch investment environment highly uncertain, whereas investors want a clear and consistent investment environment. Furthermore, respondents are not that happy with the duration of support, which is guaranteed for ten years whereas the technical and economic lifecycle of many renewable based production sites is much longer. The problem for investors is that they now are uncertain about the profitability of the renewable production site after ten years.

Other mentioned problems of the MEP are its unpredictability and inflexibility. Although the MEP is a guaranteed support contract for ten years the minister for economic affairs has the authority to change the amount of support every year in congruence with changes in prices of reference fuels like coal, gas, and oil. Since the MEP only compensates the non competitive additional costs of renewables production vis-à-vis the production based on fossils, these adjustments are considered necessary. The annual MEP adjustments in particular affect the biomass (co)firing. For the owners of biomass plants, it is rather difficult to process the financial changes in the operation of their assets.

MEP is inflexible because it does not allow companies to take any technological risks when they want to green production assets. Again biomass provides an example. When biomass in a certain substance is used for the first time on full scale, the risks are not always completely known. Sometimes biomass based processes only show problems after one or two years of operation. Under the current conditions of the MEP, companies run the risks that they have to pay back the MEP support when a certain technology shows problems and can no longer be applied.

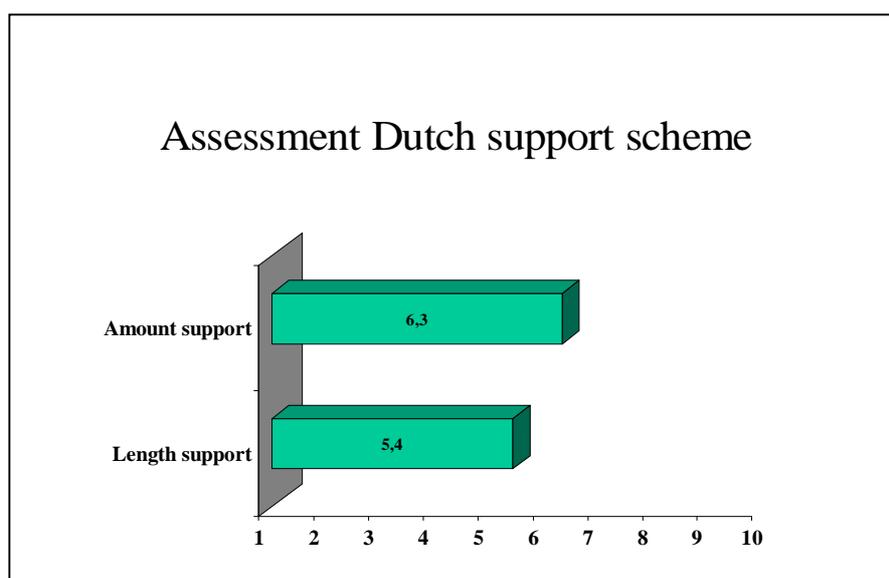


Figure 13 Valuation Dutch support scheme

This kind of uncertainty leads to higher security and higher profitability demands to be sure to earn the money back within the ten years of guaranteed support. The higher the uncertainty, the higher the societal costs of support of renewables because of the high degree of financial certainty requested by investors.

Another problem is the annual determination of the precise amount of price support. This too makes the Dutch investment environment rather uncertain and unpredictable. Due to the annual confirmation of support, the amount is depending on all kinds of wider budget considerations of the government. This makes the financial support of renewables too much dependent on all kind of ad hoc political dynamics. This too leads to uncertain circumstances for investors in RES-E technology.

Actors also pointed to the actual amount of support in the Netherlands. The idea of the MEP-based support is the financial compensation of the non-competitive costs of renewable based production vis-à-vis grey production. Problem is the calculation of these non-competitive costs, in particular whether or not to account for some kind of market value of the greenness of the renewable based electricity which is approved by the Guarantee of Origin in the Netherlands. Parties differ in the perception of this market value and therefore also in the valuation of the amount of financial support for renewable based production. Here the opinions deviate between public and private actors. A related problem is the fluctuation in prices of fossils which need the corrections of the level of subsidies. This in particular is a problem for biomass in the Netherlands.

According to parts of the market the decision of the Dutch government to concentrate support on wind and biomass on account of PV is a problem. Financial support of PV applications has been reduced significantly and this has affected domestic investments in PV technology significantly. Actually, the Dutch PV market almost completely vanished after the decision to reduce support was taken. The support restriction for PV follows the idea that this is a future technology and only regarded a competitive alternative for fossils in the longer run. Although the PV proponents do not deny differences between PV and the other renewable options, they disagree on the time perspective PV could become competitive. Assessments on this point are far more optimistic than the ones of the Dutch government (see Holland Solar, Transition path PV, 2005).

A final problem is that current support in the Netherlands does not provide for any incentive to consumers to change to renewable based electricity. Since 2005 the MEP completely took over the support of renewables and terminated all consumer oriented incentives. Renewable based electricity consumption had a strong push from the energy tax exemption making green electricity cheaper than grey. This consumer oriented support terminated and the government did not introduce any consumer oriented alternative. An alternative could be to oblige energy companies to supply green electricity to a certain part of their consumers, which they could cover by own production or by purchase of green electricity produced by others.

The quality of the national investment environment, in particular low regulatory risks, is a most important consideration in decision making about investments in renewable based technology (see also Dinica, 2002). If the risks are high, the banks want guarantees to get the money back if at all they provide money under such circumstances. Some banks have suggested using the current financial support for renewable based electricity production for the erection of a sustainable electricity fund, which could be used as security deposit for private investments in renewable based

technology. Such a fund makes the current support much more effective since it could attract substantive amounts of private money for investments in renewable based technology. An additional advantage is that such a sustainability fund as it is called, makes the support of renewables less dependent of political considerations in the annual budget rounds of the government. This too might add to a more stable investment climate in the Netherlands. The idea of the sustainability fund has also been suggested by the national advisory board for energy (AER).

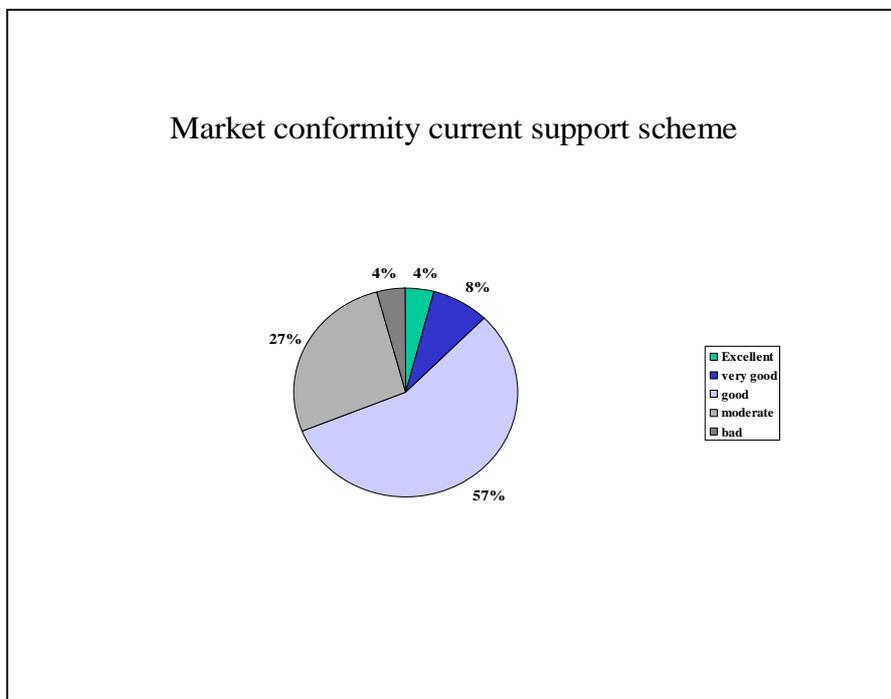


Figure 14 Market conformity current support scheme

Figure 14 shows the agreement among respondents on the market conformity of the current Dutch support scheme. The larger part of the respondents is quite convinced of this feature of the Dutch support scheme. Some 30% of the respondents are disagreeing in this respect. Further analysis showed that the fraction dissatisfied respondents is relatively high in the group of producers, suppliers and branch organizations. So those directly financially depended on the support are relatively more dissatisfied than the other groups. This group of dissatisfied can be expected to be well informed about the in and outs of the Dutch support of renewables, because they work with the scheme every day. So we can assume that they know where they are talking about. However, according to a clear majority of the respondents, the current support scheme is market conform.

The scheme is compatible with the liberalized open electricity market, but it should be noted that the market part is not well functioning yet. The market part of the Dutch scheme is the tradability of the greenness guarantee of the produced electricity. This part hardly gained real value yet in the Netherlands and therefore the current system reflects more the feed-in type of support for renewables.

Assessment of the Dutch investment climate

Figure 15 shows the overall perception of the investment climate in the Netherlands. Respondents were asked to give their opinion about five statements referring to specific aspects of the Dutch investment climate. The statements are listed in the appendix.

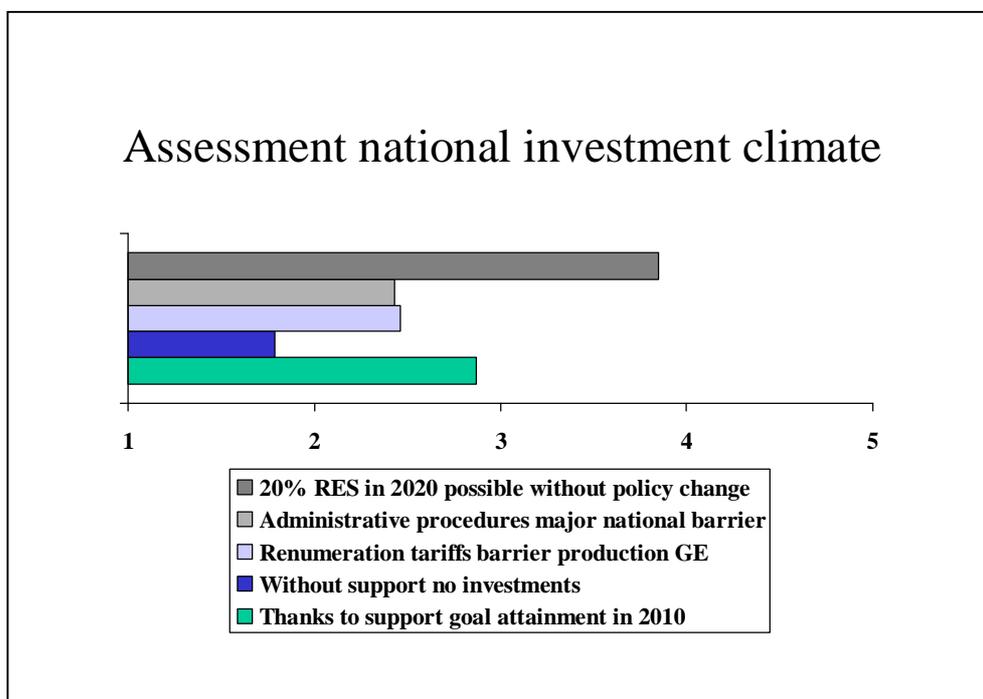


Figure 15 Overall assessment national investment climate in the Netherlands

The colored bars in figure 15 give the average score on each of the five statements. Respondents could express their assessment on a scale with five positions (1= fully agree and 5= fully disagree).

Figure 15 shows that according to the respondents a change of policy is needed for increasing the share of renewables in electricity production beyond 2010. It should be noted that the current Dutch government did not yet formulated any ambition or goal for this period. 2020 is considered as the new time horizon beyond the current goal of 9% share of renewables in 2010. The latest energy report does not give a clue on this topic, but if the target for 2020 would be set on 20% renewables than substantive financial support would be needed according to the respondents of the survey.

Respondents had the same expectation with regard to financial support for investments in renewable based electricity production. Some kind of support is considered absolutely necessary for investments, without support no investment. On this point the interviews made clear that not only production support, but also the current investment support is absolutely necessary to make investments in new production capacity attractive and profitable.

Figure 15 also confirms the already long existing administrative and remuneration problems investors in renewable based technology are facing in the Netherlands. It should be noted however, that the opinions on these topics are not that clear (respondents position themselves between agree and neutral). For the many new RES-E producers in the Dutch market, the remuneration problems relieved after the opening of the green electricity market. They became more independent of the local electricity company. Now producers only have to deal with the local grid company and grid

connections are well regulated and monitored in the Netherlands by the energy market regulator Dte.

Finally figure 15 shows a neutral position on the statement that goal attainment in 2010 is thanks to the support. Of course support is not the only cause of goal attainment, and this might explain the neutral position of the respondents on this topic. Important is however, that none of the respondents disagrees on this statement. Support is a necessary condition for increasing renewable based electricity production in the Netherlands.

Assessment of EU harmonization

Figure 16 shows the positions on the perceived need and necessity of EU harmonization of renewables support.

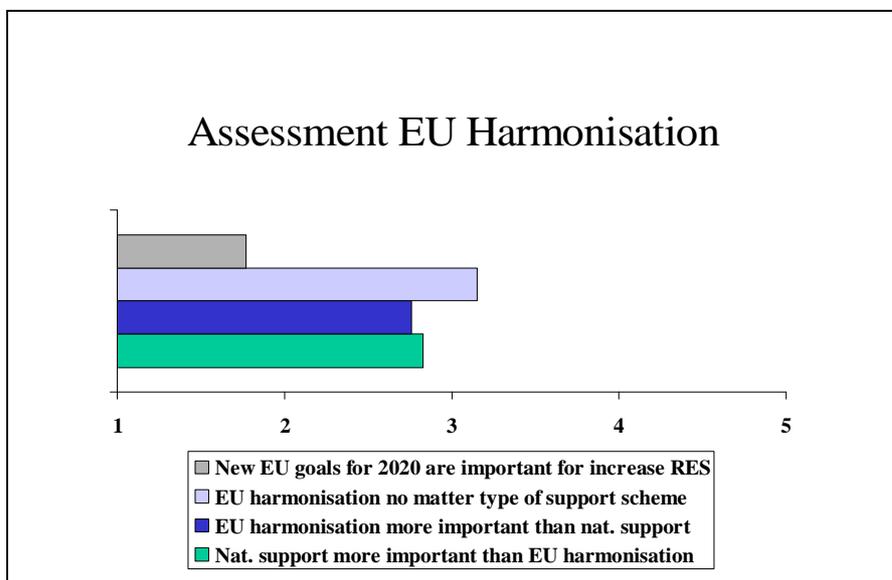


Figure 16 National assessment of EU harmonization

The figure only shows a clear position on the statement that new EU goals are necessary for the further increase of renewables beyond 2020. Here all actors are quite clear in their “yes”. This means that all actor groups in the Netherlands continue to expect a clear political pull of renewables in the coming decades. Confident in the market push in this respect is not that big. This also indicates a continued necessity of support of renewables and continued debate on support schemes in the coming decades.

On the other three statements positions are less clear, indicating a still rather indifferent position on the harmonization topic. The survey had different statements on this topic but all point in the same direction: actors do not prefer harmonization on account of national support or the other way around. The interviews learned that quality of support in particular reliability and consistency of the support, is by far most wanted by stakeholders over all other features of support. The idea here is even that harmonization would harm reliability and consistency of support and therefore should not be headed for, at least not in the short term. Furthermore, an EU harmonized support system should

be reliable and transparent for the customers. Since systems differ so strongly in member states harmonization in the short term is rather an illusion. Finally, respondents still have a national focus when it comes to investments. Dutch companies do invest abroad, but with the intention to bring the renewable electricity to the Dutch market. So, none of the Dutch actors is eagerly looking forward towards support harmonization in the short term. The hesitation is clearly fed by the recent evaluation of support schemes in the EU by the EU-Commission. The report reflects a nuanced position on type of support and in a way fades away the rather easy perception of pros and cons of different types of support systems currently in use in the EU. Recent research shows how important empirical research is for a clear picture of RES-E support (Ecofys, 2005). Our findings on the importance of reliability and consistency of the investment environment confirm similar findings by Ecofys on investment environment and support.

Willingness to change support system

First, it should be stressed that Dutch actors in general have no passionate preferences regarding a change of current RES-E support. They think the current MEP feed-in based system is workable as was the previous system based on certificate trading. All understand the change of the previous system because of the financial leakage. There is some kind of consensus regarding the stability and quality of the current support, apart from all kinds of specific wishes for improvement. In general actors are quite satisfied with the robust way the Dutch have organized and regulated the Guarantee of Origin. Respondents all agree on the necessity of such a robust and reliable system for the further penetration of renewables in national and European electricity production. They do consider the strict way the Dutch have organized the GO as the reference model for the EU in this respect. The big advantage of the Dutch GO system is that it prevents for double counting and therefore is very reliable. This gives confidence to the Dutch consumers. While buying green electricity they know that they are not cheated. In other countries double counting still cannot be excluded due to a less matured system of GO compared to the Netherlands.

Respondents expressed concerns and wishes regarding the calculation of the non-compatible costs for the different technologies. The problem here is that public and private actors disagree on the economic value of the GO in the Netherlands and therefore on the amount of additional support needed for each technology. Next to these wishes, there is also some dissatisfaction among technology suppliers on the restrictions on the support of PV in the Netherlands. The point of criticism on this point is the amount of financial support for PV which by far does not compensate anymore for the non-competitive costs. This budget cut for PV is a policy decision to prioritize wind (offshore and onshore) and biomass in the Netherlands. The ambition for onshore wind is 1500 MW and for offshore 6000 MW in 2010. All policy efforts and budgets are now focused to attain this goal.

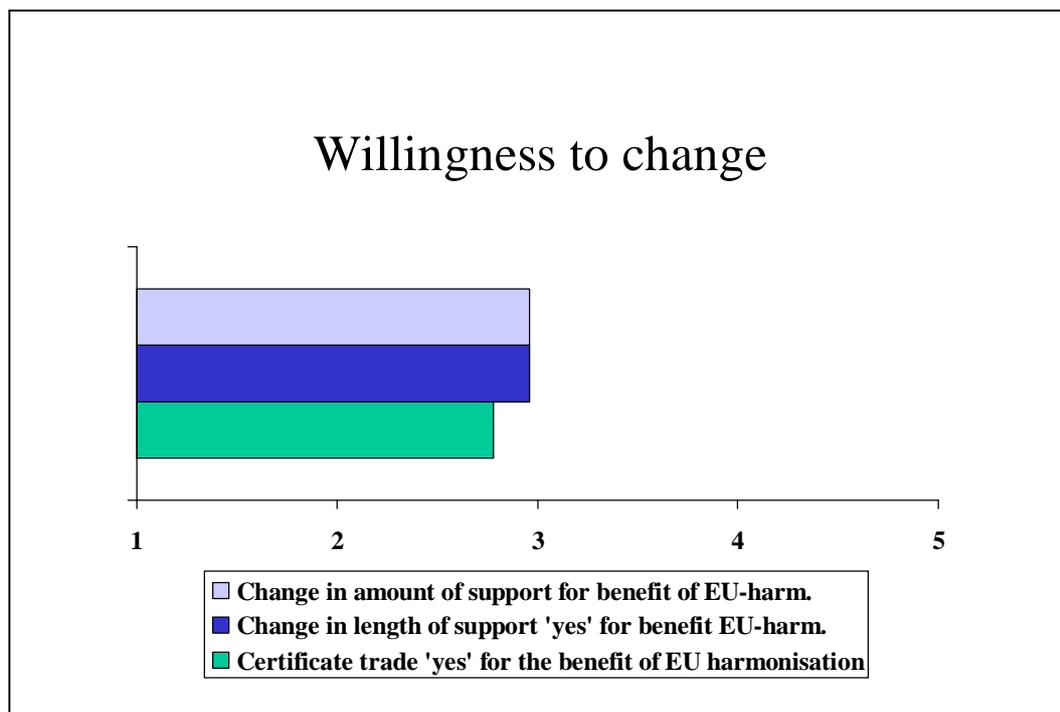


Figure 17 Willingness to change Dutch support system for the benefit of EU harmonization

A final aspect of the change of support system, the willingness to change for the benefit of EU harmonization, was asked in the online survey. Figure 17 shows the results. All respondents are neutral on this point. Here too we used different statements, but on all statements respondents are neutral. They say neither yes or no to a change of the length and amount of support for the benefit of harmonization and the same holds for a change to an EU wide certificate system. So, on this point the findings are in line with earlier findings that quality of support system is considered more important than harmonization of support scheme.

In conclusion, there is consensus among Dutch stakeholders that quality of support system is far more important than harmonization of support. Moreover, none of the respondents has a clear position when it comes to change of support for the benefit of EU harmonization. The type, amount and duration of support still differs too much between member states which makes harmonization in the short term rather unrealistic according to the Dutch respondents.

The 2006 survey results

The online survey of 2005 was repeated in 2006 to assess any impact of the EU Commission's November communication on the support of renewables in the EU.¹ The communication of the Commission was a first community wide assessment of the state of the art in RES-E support in the EU after the inauguration of the renewables directive. In the document the Commission affirmed a change of course in the RES-E dossier. The idea of harmonisation of RES-E support by the

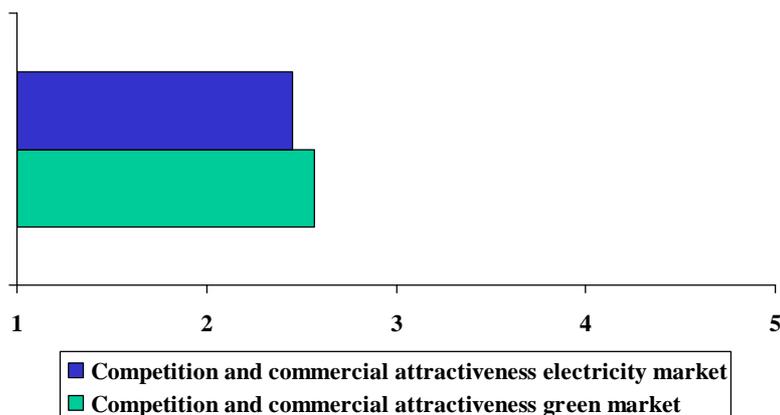
¹ Communication of the EU Commission COM (2005) 627.

quota/certificate system was left and changed for a coordinated approach between countries and the two dominant support schemes: the feed in system and the quota/certificate system. The 2006 survey was initiated with the idea to assess any impact of this policy change of the Commission. The overview with the full results of the 2006 survey is in the appendix. This section only highlights the similarities and differences between both surveys.

The response of the 2006 survey was slightly higher than in 2005 (60 versus 52), but the composition of the response was pretty similar. In 2006 too producers, supplier, investors and traders took the largest share in the response and had wind and biomass the largest share in the respondent's resource portfolio. 62% of the respondents in the 2006 survey were already on the green market before 2000, so the number of experienced respondents is slightly higher than in the 2005 survey. Most of them still only operate on the Dutch market, like in 2005.

The perception of the attractiveness of the Dutch (green) electricity market did not change in 2006. The scores of the respondents are about the same. The average 2006 scores were a bit more negative compared to 2005. On all aspects (competitiveness of production, profitability, accessibility and commercial attractiveness) the 2006 scores did not exceed the rate of 6, like in the 2005 survey. However, in the 2006 survey respondents were asked to comparatively assess competition and commercial attractiveness of the (green) electricity market in 2006 compared to 2005. See figure 18.

Assessment 2005/06 (green) electricity market



1=Improved 2=no change, 3=worse

Figure 18 Perceived changes in competition and commercial attractiveness of (green) electricity market in 2006 compared to 2005

According to the respondents of the 2006 survey, both competition and the commercial attractiveness of the (green) electricity market haven't improved. Their average position keeps the middle between no change and worsening of the situation. So respondents didn't perceive progress in the establishment of a competitive and attractive grey and green electricity market in the Netherlands in 2006.

The assessment of the amount and duration of support was in 2006 almost similar to the results in 2005. On average, the respondents were slightly more negative than in 2005. The respondents were

questioned before it became clear that the financial support of RES-E production was to stop. So in the prospect of prolonged support respondents continued to be rather modest in their perception of the quality of financial support in the Netherlands. Compared to 2005 they also were less positive about the market conformity of the MEP based type of support. In 2005 57% of the respondents conceived the MEP support compatible with the liberalised electricity market. In 2006 the number of respondents holding this opinion reduced to 49%.

Like in 2005 the 2006 survey also asked for an assessment of the Dutch investment climate with the help of five statements. The results of the two surveys are almost similar. The same holds for the assessment of the perceived need and necessity of EU harmonisation of renewables support. On this topic too, respondents did not move position between both years. This means that all actor groups in 2006 continued to expect a clear political pull of renewables in the coming decades and none of them was looking forward in 2006 towards harmonization of RES-E support. Compared to 2005 respondents did not change their willingness to change the current support system for the benefit of EU harmonisation. On all statements on this topic the average position of respondents clustered around the middle, indicating a neutral opinion about the need and necessity to change support for the benefit of EU harmonisation.

In conclusion, in 2006 the consensus among Dutch stakeholders that quality of support system is far more important than harmonization of support prolonged. Moreover, none of the respondents has a clear position when it comes to change of support for the benefit of EU harmonization.

Appendix 1 Questionnaire

1. What is the major activity of your organization?

(More than one answer possible)

- Producer of (green) electricity
- Investor in (green) electricity production capacity
- Supplier of (green) electricity
- Trader/broker in (green) electricity
- Aggregator
- Distributor of (green) electricity (grid company)
- Consumer of (green) electricity
- Producer/supplier of green electricity production technology
- Branche/interst organisation in the field of (green) electricity
- Governmental agency
- R&D institute

2. If you are an investor or producer of green electricity, could you indicate the type of technology you are using? (*more than one answer possible*)

- Wind turbine(s)
- Sun cells
- Biomass installation
- Waste incineration installation
- Hydro installation
- Other,.....

3. Is your organization operating on the Dutch green electricity market?

- Yes, since 19...
- Yes, since 20...
- No

4. Is your organization operating on foreign green electricity markets?

- Yes
- No

5. Could you evaluate the following aspects of the Dutch electricity market with a mark ranging from (1=extremely bad, 10= extremely good)?

Mark

- The commercial attractiveness
(growth and profit expectation)
- The accessibility for new entrances

- q The profitability
- q Degree of competition in supply of electricity

6. Could you evaluate the following aspects of the Dutch green electricity market with a mark ranging from (1=extremely bad, 10= extremely good)?

Mark

- q The commercial attractiveness (growth and profit expectation)
- q The accessibility for new entrances
- q The profitability
- q Degree of competition in supply of electricity

The following questions address the current support system for sustainable electricity production

7. How would you evaluate the fit between the current support system for green electricity and the liberalised electricity market?

- q Excellent
- q Very good
- q Good
- q Poor
- q Bad
- q Very bad

8. Could you evaluate the amount and length of the current price support of green electricity with a mark ranging from (1=extremely bad, 10= extremely good)?

Mark

- q Length of support
- q Amount of support

9. Could you evaluate the amount of the current support for each technology separately with a mark ranging from (1=extremely bad, 10= extremely good)?

- q Wind turbine(s)
- q Sun cells
- q Biomass installation
- q Waste incineration

Mark

10. What is your opinion on the following statements?

- q Fully agree
- q Agree
- q Neutral
- q Disagree

q Fully disagree

- q Thanks to the current price support of renewables the Netherlands will achieve the goal of 5% sustainable electricity production in 2010.
- q Without the current price support nobody would invest in sustainable electricity production capacity in the Netherlands.
- q The conditions for sustainable electricity production facilities to connect to the grid are no barrier for sustainable electricity production in the Netherlands.
- q Administrative barriers are a dominant constraint for increase of sustainable electricity production in the Netherlands.
- q In the EU harmonization process the Dutch should take the position to stick to the current national system of support of sustainable electricity production.
- q In the EU harmonization process the Dutch should give priority to harmonization even if this will change the current Dutch support system.
- q My organization will accept quota and certificate trading for the benefit of EU harmonization of support of renewables.
- q My organisation will accept change of the current duration and amount of support of renewables for the benefit of EU harmonization.
- q What counts is a harmonised support system in the EU, no matter the type of support system.
- q For the further increase of renewables it is important to set new goals for the share of renewables in EU electricity production for the year 2020.
- q Without chance of policy the share of renewable based electricity production in the Netherlands can be 20% in 2020.

11. Would you appreciate an invitation for a meeting to discuss the results of the survey?

- q Yes
- q No

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