

To Mr Verhagen
Minister of Economic Affairs, Agriculture and Innovation
Postbus 20101
2500 EC Den Haag
The Netherlands

Date: 6 April 2011
Advice letter on policy instruments renewable electricity

Re: 11-15 FWH

Dear Mr Verhagen,

In our letter of July 2010 to the formateur we made recommendations for a policy framework with more obligations and fewer subsidies. This included the Energy Council's advice to investigate whether the introduction of a supplier obligation could play a major role in the realisation of the CO₂ emission target of the Netherlands and increase the share of renewable energy in line with European agreements. This letter deals with one aspect of the broader considerations: the share of renewable electricity and the kind of incentive framework that is needed to achieve the target concerned.

In this letter we will examine the possibilities of the SDE+ support scheme and the supplier obligation, the effects on the market and the consequences for achieving the target. This letter closes with conclusions and recommendations.

The objective of renewable electricity in a liberalised market

The Netherlands is committed to the European target for CO₂ emission and renewable energy use. This means that our renewable energy consumption would have to increase to make up 14% of total energy consumption by 2020. This implies that by 2020, 37% of our electricity must be obtained from renewable sources¹. At present, this is 9.1% (2010)². Of the investments needed to achieve this target only a rough estimate can be given. Much will depend on the options chosen. But a first tentative estimate suggests that the total investments needed would be a minimum 40 billion euros³.

Such investments, apart from the question of whether they can be financed or not, do not seem technically feasible within a time span of less than ten years. Investments of 4.5 billion euros a

¹ National Renewable Energy Plan (NREAP) as requested by Article 4 of the Renewable Energy Directive (2009/28/EC). The target is to be achieved by the sectors for electricity production, heating and cooling and mobility. The national action plan also reflects this distribution over the sectors

² Statline, CBS, 2011

³ Energy Council estimate

year would come down to having five 600 MW coal-fired power plants built each year or simultaneously completing 20 Noord/Zuid Lijn projects like that in Amsterdam, by 2020. Investments in the Delta Works, a project that took 50 years to complete, totalled 5 billion euros. These examples illustrate the Council's opinion that investments of that order (40 billion euros up to 2020) for renewable electricity production are unrealistic.

The only way to reduce investments is to substantially increase the biomass input to coal-fired power plants. For this to be realised no major adaptations in power plants are needed. However, the renewable biomass now available is also limited. Existing waste flows (second generation biomass) are adequate for co-firing as long as they do not go to higher priority uses like the production of biodiesel⁴. Earlier the Council had questioned the usefulness and prudence of cultivating biomass for energy production⁵. The Council believes it is conceivable, though ambitious, that the share of biomass co-firing in renewable energy production will increase from 3% to almost 10%. This would reduce the investments needed to a minimum 35 billion euros up to 2020; still a level of investment that looks unrealistic.

This again raises the question of whether a separate target for renewable energy production is appropriate. Energy saving as a means of reducing CO₂ emissions is just as effective. For this reason the Council earlier argued for placing CO₂ reduction at the heart of energy policy. In this way the European target could be achieved at substantially lower cost.

At present we have to deal with the EU target for renewable energy production. From this perspective it remains an important challenge for the Netherlands in the coming years to invest as much as possible in renewable energy production capacity and other measures to transform and improve our energy system against the lowest possible costs to society. This requires incentive measures. As a country we will have to continue to carefully monitor developments and opportunities in the countries around us and on the larger international playing field. This is important for our competitive position and it will enable us to make sound investments. National borders should not cause major inequalities in energy costs between countries.

The desired investments will have to be made by existing and new market parties. They will decide to invest if the business case is sufficiently attractive. That is, if the investments' profits and risk profiles are able to compete with alternative investments available on the international market. Government can make a business case sufficiently attractive by granting subsidies. Alternatively, the market could be obliged to create production capacity, using sanctions to apply pressure. In either case, the market will make assessments on an economic basis. This is an inherent aspect of market mechanisms.

The SDE+ support scheme has been designed to stimulate investment in renewable energy production. In the coalition agreement the government announced its plans to assess the need for a supplier obligation. What follows is a consideration of the two instruments, the effects on the market, the consequences of achieving the European target and the Council's recommendations for full utilisation of the instruments.

⁴ in the mobility sector biofuels and electric cars are the only options for renewable energy use. Only by using biomass can the sector achieve its target.

⁵ Advice letter on biofuels, April 2008

SDE+ support scheme

The SDE+ support scheme allows the market to obtain cover for the unprofitable top segment of the renewable energy production costs. The subsidy is allocated in four stages per year. The annual budget is limited and the subsidy amount per kWh has a maximum basis amount which will increase with each phase. In addition there is a fixed (lower) ceiling for each technology. The subsidy is allocated in order of application. The subsidy amount depends on the actual kWh of electricity produced and is corrected in line with market prices. This will prevent subsidised projects from generating too great a profit from higher returns on the sale of electricity.

It is assumed that entrepreneurs will start competing to obtain the subsidy granted under the scheme. For each phase, techniques for renewable energy production will also become competitive, taking account of the ceilings. If the market intends to use the scheme to its advantage, applications must be made before the budget runs out. The subsidy, after all, is allocated on a first-come-first-served basis.

It is not yet clear whether or not the market is interested in the scheme. The budget ceilings for the technologies to be used have been determined by experts but in practice the amounts may not be adequate for specific projects. The ceilings may be too high or too low. If too high, a spate of applications will follow and investment returns will be sizeable. If too low, producers will decide against participation and turn away from the scheme. Therefore, the market must be monitored closely, to find out whether the budget ceilings suggested by the experts are correct.

Once it is decided a party will be granted a subsidy the party may still decline from realising the project. This is a problem. If applications are made for strategic reasons (gaming) to be assured of an option, entrepreneurs may still decide that the business case is not attractive enough. This may hamper or slow down the projected growth in production capacity. For a proper implementation of the scheme this problem should be acknowledged and addressed strategically. Granting more subsidy than the budget allows is one option, given the fact that statistically a certain percentage of the subsidy will always remain unused. In this case the number of applications must be sufficient. Granting the available budget to only one or a few interested parties, as happened recently for a wind turbine project at sea, will heighten the risk that the subsidies will not be used to the full. Therefore, the progress of subsidised projects should be monitored on the basis of project evaluation points. This will reveal whether the investments for the project are being abandoned or delayed.

Another drawback of the SDE+ scheme is that techniques that are not eligible under the scheme do not get the extra incentive. This means that a potential major contribution to achieving the target might be overlooked.

Supplier obligations systems

The supplier obligation system⁶ goes a step further than the SDE+ scheme. The system obliges suppliers to supply a fixed percentage of electricity from a renewable source. The response of the market depends on the shortage created by the size of this percentage and the sanction imposed for non-compliance. If percentages and sanctions are sufficient the need for greater production capacity will become urgent. This is a favourable context for producers willing to create new capacity. They could enter into contracts with energy suppliers and be assured of sufficient cover to enable them to finance the project in line with the market.

⁶ In this text we are concerned with a system that has a flexible design and tradeable renewable energy production certificates. A kind of certification system, in fact.

A simple supplier obligation system has no technique-related restrictions. It will accommodate any method for renewable energy production and the cheapest options will always be the most attractive for all parties concerned. The speed of realisation and price are decisive factors in a competitive environment. If there is sufficient demand for electricity from renewable sources, prices will evolve from the price for a Certificate of Origin to the price for the most expensive option necessary to achieve the required percentage of renewable energy. Suppliers will then pass on the added costs for the Certificate of Origin to the customer.

Monitoring, control and consequences of the available options

Here we arrive at a fundamental question: How are we to achieve the target for renewable electricity without compromising its affordability. How much are we prepared to pay? And how much control is the government prepared to exercise on the market?

An important point is the distinction that must be made between the total costs of the system and the redistribution among parties within it⁷. The SDE+ scheme benefits government and consumer the most, the supplier obligation system is more beneficial for the producer. This is the very reason why with the supplier obligation system chances of creating the required production capacity are much higher.

The SDE+ scheme has much built-in controls. In the first phase subsidies are made available for the cheapest options; later scope is provided for the more expensive ones. The maximum basis amount per phase is actually a means of controlling the technology : the cheapest techniques are given first chance⁸. The SDE+ scheme is a feed-in scheme, financed through a levy on the energy bill of both households and industry. This implies that the government has control over the levy paid by the customer while maintaining responsibility for achieving the target. The allocated subsidies may remain unused and cause a short-fall on the total budget.

With the supplier obligation system the choice of the technique used to produce renewable energy is left to the market, as are the higher prices passed on to the consumer. The amount of the fine suppliers must pay for not meeting the required percentage and the percentage level itself must be such that they create a higher demand for renewable energy but also prevent extreme situations in which the excessive amounts are passed on to the customer.

The most important difference with the subsidy scheme is that with subsidies the government has full control over the added costs and bears the full risks for meeting the EU target, whereas with the supplier obligation system the government has only indirect control over the added costs and the obligation is shifted to the market, that is the supplier. The latter point is an attractive bonus given the fact that the Netherlands intends to meet the EU target!

With the supplier obligation system the government can to some extent manage the undesired effect of too large producer surpluses. It can prevent the most expensive options from deciding the energy price by setting the required percentage suppliers must meet at such levels that suppliers need not yet turn to the very expensive options to meet their target.

In this case the development of new and as yet too costly technology should be stimulated in a different way. A strong incentive policy for the development of new technology (as in the SDE+ scheme) will allow new technologies to develop further until price levels become acceptable. A

⁷ See for instance, *Market performance and distributional effects on renewable energy markets*, CPB, publication number 190

⁸ The system is flexible enough to keep out the cheapest and most expensive options

gradual increase in the percentage of the obligation over the years will enable the market to increasingly make use of these new technologies. This will keep producer surpluses within reasonable band-widths whereas production opportunities will increase and suppliers' percentages may rise towards target level.

Encouraging the development of new technologies should be geared to technologies that are also promising for the global renewable energy market and provide the Netherlands with a competitive edge which may create new jobs at home⁹. We must also use the available techniques on the global market to our advantage to help us meet our own energy targets.

Market forces will create greater producer surpluses in the supplier obligation system than in the SDE+ scheme. Many consider this a disadvantage. But this surplus will also stimulate entrepreneurship and will attract investment.

Experiences abroad reveal that a sound supplier obligation system is at least as complicated as a sound subsidy scheme. Important aspects include the disrupting and delaying effects of non-financial obstacles (like spatial incorporation), the supply curve, acceptance of producer surpluses and the effect of price uncertainty. In designing the system, percentage levels, the pace at which percentages are raised over the years, type and amount of the fine or compensation, the possible provision of banking opportunities, possible minimum certificate prices or headroom mechanisms¹⁰. The supplier obligation system probably requires as much detailed knowledge of market mechanisms, production techniques and investment opportunities as a sound subsidy system does.

Recommendations

Considering all this the Council believes that the incentive scheme for electricity production from renewable sources might develop as follows.

Full utilisation of the SDE+ scheme

The introduction of the SDE+ scheme is a major step forward in creating more competition between renewable energy production projects in promoting the production of electricity from renewable sources.

Allocation of support over a number of stages also increases competition. It is very important for investors to be able to plan their activities on the basis of consistency of policy and instruments. The SDE+ scheme should therefore be maintained and its effects on production capacity monitored. The response of the market should also closely monitored to allow an early response to undesirable effects like 'gaming',

More room for competitiveness in production technique and price (an SDE++ system)

The Council believes an SDE++ system could be a next step toward more competition on the market. This would imply that gradually more room is created for greater competition between renewable energy production projects by abolishing the different ceilings for different techniques. The effect would be that cheaper techniques could become more profitable and more producers would take advantage of it to realise their projects. The Council also suggests abandoning the first-come-first-served approach. An alternative approach would be to introduce a fixed

⁹ *Energietechnologie voor de toekomst*, General Energy Council, March 2007

¹⁰ Ensuring that the obligation percentage always exceeds the available number of certificates prevents strong fluctuations in certificate prices.

application period after which a subsidy may be granted to the project that needs the least subsidy per kWh.

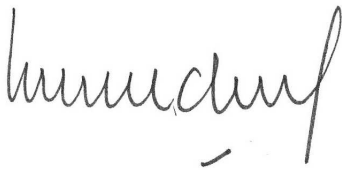
The transition towards a supplier obligation system

The Council recommends, with time, to move towards a supplier obligation system as this would make energy suppliers responsible for meeting the EU target. This would create a 'must do' instead of just a 'can do' attitude. For investors it is important that this move results in Certificate of Origin prices that are comparable to those in the SDE+ system used previously (by choosing the appropriate fine, percentage levels and preconditions). In this way the continuity in profitability for newly planned projects is guaranteed in the transition phase. By gradually increasing required percentages, achieving the target can be left to the market. The design of a supplier obligation system should be started soon in cooperation with the market. It is also important to explore the possibility of potential side-effects and the undesired effects of gaming and find ways to prevent them.

Sufficient energy production options are essential for the system to work properly. This can be promoted by expanding the areas where the percentage for renewable energy must be met by deciding on a joint system with one or several EU countries. In choosing a system weight should be given to the possibilities for European harmonisation and collaboration. With time, the supply or cost curves for renewable energy are expected to level out with the arrival of cheaper production techniques and larger potentials. The disadvantages of the obligation system will then be reduced.

In conclusion, the Council sees the need to give the market a greater role in the options on offer. Not only to help it realise its renewable energy targets but also to meet the climate change objectives. Schemes could be expanded to incorporate CO2 emission reduction options.

Yours sincerely,



W.K. Wiechers
(deputy Council President)

F.W. de Haan
(Council Secretary)

Appendix (1): Lessons learnt from abroad

Appendix: Lessons learnt from abroad

Studies have revealed that supplier obligation systems are by no means simple. The following points need to be considered.

- Obstacles to meeting renewable energy targets are often non-financial, like planning, spatial planning, permit procedures and linking up to the power grid. These obstacles play a role in any scheme but may give major undesirable effects in supplier obligation systems.
- A distinction should be made between the total costs of a system and the redistribution among parties within it. A certain degree of profit is essential in a liberalised European market to kick off investments. With large windfall profits however the costs to society of an incentive framework will become too high. In the end the renewable energy investments will have to be paid for either through electricity bills (with certificate systems) or through taxation (with subsidy schemes).
- The operation of incentive schemes will to a large extent be determined by the supply and cost curves. If the ratio between cheap and costly power production techniques is unfavourable, chances are that there will be political pressure for more control. Additional controls may make supplier obligation systems more complicated, which has its disadvantages.
- The UK has gained much experience with supplier obligation systems. But soon after the introduction of the system government intervention became necessary to keep producer surpluses manageable. These interventions do however lead to strategic behaviour like gaming, a market party response of operating strategically to maximise profits. Gaming produces all kinds of undesirable side-effects and makes demand unpredictable. This makes people wary of investment.
- In supplier obligation systems producers are uncertain about the price they can ask over the life of a project. Certificate prices will fluctuate with supply and demand. This risk is taken on board in financing a project. It leads to a higher funding burden.
- If the government wishes to prevent producer surpluses from becoming too large, it will benefit from reasonably flat production technology cost curves. This is not the case in the Netherlands and the UK as wind turbines at sea and solar energy seem to be necessary to achieve the renewable energy target whereas there is also potential for the relatively cheap option of adding biomass to coal-fired power plants. But setting percentages so low that there is as yet no need for wind turbines at sea or solar energy which would keep these options out of the certificate system, the market will turn to the cheaper options and the more costly options will then play no role in determining certificate prices. Wind parks at sea then require a different approach. The UK has resolved the issue by granting more certificates per quantity of energy produced by wind parks at sea than it would for the cheaper options. Sweden so far has had a reasonably level curve. This has enabled the obligation system in Sweden to remain relatively simple and has been successful. Moreover, their system allows for support for the more expensive options (tidal energy, solar energy and turbines at sea) on a project basis outside the certification system.