

Ruth Brand¹

Networks in renewable energy policies in Germany and France

The aim of this paper is to discuss the transformation of the energy sectors of Germany and France, with a main focus on obstacles and success conditions for renewable energy sources. The networks of actors struggling for these aims in both countries and the obstacles they face are analyzed, using the examples of the introduction of political instruments to support renewable electricity and biofuels and their success so far.

Though both countries are obliged to change actual emission trends under the Kyoto Protocol the performance of the two analyzed ways to reduce CO₂ emissions varies considerably between both countries: Whereas biofuels perform very well in both countries and the goals set by the EU directive on biofuels are most likely to be reached, the success of renewable electricity policies in both countries differs extremely. Although France has also introduced a minimum payment system for renewable electricity which was one of the main success conditions in the leading wind energy countries Germany and Spain, the growth of installed capacity remains slow.

My main argument is that biofuels perform so well because a crucial driving force for their development in France comes from the pressure exerted by the agricultural lobby longing to reduce dependence on subsidies for food production. In contrast, the network opting for renewable electricity remains weak in France compared to Germany. Secondary interest groups like the approximately 120.000 German employees in the renewable energy sector do not yet exist in France. So it is basically the EU directive on the promotion of electricity produced from RES that helps the network struggling for the introduction of renewable electricity in France to defend renewable interests which so far is not sufficient to promote further growth of the sector.

¹Environmental Research Centre, Free University of Berlin, Ihnstraße 22, 14195 Berlin (Germany), E-mail: ruthbrand@gmx.de

Content

1. Introduction	3
2. Some technical facts on biofuels and their potentials	3
3. Actors and networks in the biofuel sector in Germany and France	5
3.1. <i>Government and ministries in France</i>	5
3.2. <i>Political parties in France</i>	6
3.3. <i>Interest groups in France</i>	6
3.4. <i>Government and ministries in Germany</i>	6
3.5. <i>Political parties in Germany</i>	7
3.6. <i>Interest groups in Germany</i>	7
3.7. <i>Environmental groups in both countries</i>	7
4. Political outcomes in Germany and France	8
4.1. <i>France</i>	8
4.2. <i>Germany</i>	8
5. Current situation in the renewable electricity sector in Germany and France	9
6. Actors influencing renewable energy policies in Germany and France	10
6.1. <i>France</i>	10
6.2. <i>Germany</i>	11
7. Political outcomes in both countries	11
7.1. <i>France</i>	11
7.2. <i>Germany</i>	12
8. Results	12
9. Outlook	13

1. Introduction

The European Union is on the third rank of biofuel production world wide, behind Brazil and the United States. In Europe, Germany is the largest and France the second largest producer of biofuels. This is noteworthy as in other new renewable energy domains like wind, France is much less predominant, despite favourable natural conditions.

So it is questionable why biofuels are so particularly successful in finding support not only in Germany but also in France. The hypothesis is that renewable energy support for the sake of climate change mitigation is not the main reason for the promotion of biofuels. So there must be further interests that are endorsed by lobbyists managing to exert their influence in favour of biofuels. This paper examines actors in the domain of biofuels thus trying to find out what the actual reasons for the influence of biofuel supporters in the political process are. As a consequence the question is to be asked whether biofuel supporters interests are ecologically useful and new coalitions can be established or if they are contradictory to environmental interest on the longer run.

Whether the climate change mitigation argument is really a predominant one can be examined via a look at the agenda setting: When did the topic appear at the agenda? Was this before the problem of climate change was discussed by a broader public or afterwards?

An example for the introduction of renewable energy with quite different outcomes is given by renewable electricity which is considered in this paper as a comparable case. While Germany is world champion in installed capacities, France remains far behind despite much more favourable wind conditions. As this domain is influenced by very different actors, their analysis should provide a possibility to explain why outcomes are so different in the two states for the two domains. Is it really the environmental argument that works in the case of renewable electricity or do other interests dominate the debate and help explain the dissatisfying result in France?

2. Some technical facts on biofuels and their potentials

There are several different biofuels existing. The most widespread at the moment is biodiesel. Biodiesel is made out of rape oil. It can either be used purely in diesel motors or mixed up with fossil diesel (Kaltschmitt et al. 1997: 45). Pure biodiesel use is predominant in Germany. It was only in 2004 that also the sale of a mix of biodiesel and fossil diesel started there. The production capacity per year rose from 90.000 tons to 1.060.000 tons in 2004 and the sale reached 1.000.000 tons (Fischer 2004: 3) which makes Germany the largest biodiesel producer in Europe. In 2005 capacity is supposed to increase to 1.600.000 tons (Fischer 2004: 8). In January 2004 there were 1.800 filling stations for biodiesel existing (Fischer 2004: 9). The production capacity varies greatly – between 2.000 and 150.000 tons/year (Fischer 2004: 11).

In France biodiesel production started in 1992. In 2004 the production capacity was 520.000 tons (Bockey 2004: 5) which makes France the second largest biodiesel producer in Europe. In contrast to Germany, French biodiesel is exclusively sold as a mix with either up to 5 % or up to 30 % biodiesel added to fossil diesel.

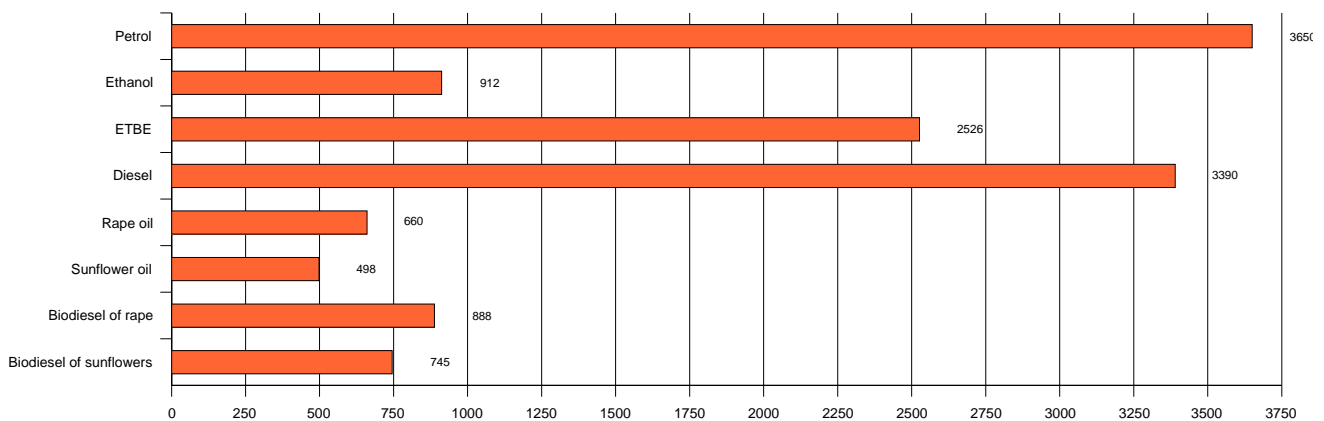
The second important biofuel is ethanol. It can be produced of sugar beet, potatoes, cereals and even organic goods like wood and straw. In Brazil it is produced mainly of sugar cane. Brazil is the world's largest producer of ethanol with 130 million hectolitres in 2003, 92 % of which have been used as fuel (Syndicat national des producteurs d'alcool agricole 2004b). In Europe, Spain is the largest producer with 225 million litres (Syndicat national des producteurs d'alcool agricole 2004a). Via a chemical process ethanol can be transformed to ethyl tertiary butyl ether (ETBE) which can be added to petrol to up to 15 %. ETBE consists of 47 % ethanol and 53 % fossil fuel. Pure ethanol can only be used in special motors.

In France ethanol transformation into ETBE started in 1993. Today the three existing facilities have a capacity of 219.000 tons/year. Around 800.000 tons of ethanol are currently produced in France, 75 % of which are made of sugar beet and 25 % of cereals. The high share of sugar beet is also due

to the fact that one hectare of sugar beet can produce 5.5 tons of ethanol whereas one hectare of wheat only brings 2.5 tons of ethanol (Syndicat national des producteurs d'alcool agricole 2004a). 85.000 to 100.000 tons of ethanol are used for ETBE production. Only 14.000 hectares of the 440.000 hectares of sugar beet produced in France every year are used for ethanol production.

Further possible future options are fuels made of solid biomass. They are named BTL (biomass to liquid) because they are produced of whole plants like the German firm Choren Industry's so called SunDiesel (Vorholz 2004, Wüst 2004). SunDiesel would have two advantages once it is produced on a large scale: First, according to a study by the Agency for Renewable Primary Products (Fachagentur Nachwachsende Rohstoffe, FNR) its production per hectare is 3325 litres, compared to only 1300 litres of biodiesel/hectare (Wüst 2004: 198). This is due to the fact that the whole plant can be used. A second advantage is their chemical composition which fits even with currently produced motors without imposing any technical changes on them. Disadvantages are the high use of energy as temperatures of around 1000°C are needed and the need for dry material which might consume further energy. Choren Industries is currently starting to produce SunDiesel. At the end of the year 2004, approximately 16.000 litres will have been produced in all (Vorholz 2004), but two new facilities for a production of 225 million litres per year are being planned for 2008 (Wüst 2004:197).

Last but not least rape oil or a mix of various oils can be used directly as a fuel for tractors. The „100-tractor-programme“ by the Agency for Renewable Primary Products started in 2002 and tested rape oil qualities in motors concerning reliability and technical applicability. The actual results show that there are still developments to be done as only 31 out of 110 tractors had no technical problems at all (FNR 2004). Further progress concerning the environmental performance is to be expected by mixes of various oil plants cultivated in one field which would at the same time prevent the disadvantages of monocultures and bring a higher yield per hectare. This oil has the same qualities as pure rape oil and can therefore also be used in motors (Website Vereinigte Werkstätten für Pflanzenöltechnologie).



graph 1: biofuel greenhouse gas indicator (in CO₂ equivalents per Kilogramm)

Source: ADEME/DIREM (2002)

The graph shows that for example ethanol emits 75 % less CO₂ equivalents than petrol. This means that one hectare of sugar beet for ethanol would save four tons of carbon. ETBE which is made of more than 50 % fossil fuel gives also comparatively positive results but to a much lesser degree: only 31 % of CO₂ equivalents would be saved.

Fuel consumption in Germany was 55 million tons in 2003 and will probably go down in the future. In 2020 it could be 44,3 million tons. At the same time there are more fields free for energy plant

production. In 2020 this surface could amount to 3.45 million hectares. If this surface was exclusively used for biofuel production, 11.3 tons corresponding to about 25 % of German fuel consumption could be covered (Website FNR).

French total fuel consumption was 42,6 million tons in 2003 (DGEMP 2003). In France there is a general trend to rising diesel and sinking petrol consumption. The reason are tax advantages for diesel cars. Therefore there is a trend to a rising petrol refinery overcapacity (Syndicat national des producteurs d'alcool agricole 2004a).

3. Actors and networks in the biofuel sector in Germany and France

3.1. Government and ministries in France

In France, three ministries are dealing with biofuels: The ecologic aspect is covered by the Ministry of the Environment (Website Ministère de l'écologie et du développement durable). Before the government in France changed from the socialists to the conservatives, the ministry was rather concerned about the negative impacts of biofuels such as the need for huge surfaces of monocultures and the need for chemical support to protect the plants which made the ecologic outcome questionable (Interview Gourdon). Since the new minister of the environment Serge Lepeletier started his work, the ministry has more positive views on the topic, calling it a core measure of the Climat Plan which will help to save 7 million tons of CO₂ emissions (Lepeletier 2004). In the Climate Plan that was sorted out in July 2004 (MIES 2004), biofuels which had not even been mentioned in the National Plan for the Mitigation of Climate Change of 2002 (MIES 2002), became a core measure (Plan Climat 2004).

The Ministry of Agriculture has always been in favour of biofuels as it sees a new field for its farmers once the Common Agricultural Policy (CAP) of the EU will no longer finance the subsidies which consume currently about half of the EU's budget (Interview Gourdon). In addition, a special regulation permitted the production of biofuels on fallow ground in a programme started by the EU in 1992. This programme permitted the use of fallow ground for non-food production and at the same time the benefit of the programme which compensated farmers who let their fields rest (Assemblée Nationale 2004: 27). Nevertheless it is clear to authorities in France and Germany that after the enlargement of the EU subsidy flows will stop quite soon.

The position of the Ministry of Economy, Industry and Finance is quite clear: It wants to prevent tax losses for the state and therefore struggles for low quotas of tax reduction for both ethanol and diesel.

The Ministry of the Environment is not even taking part in the negotiations about the most important measure for biofuel support which is the tax reduction. These negotiations are only going on between the Ministry of Economy, Industry and Finance and the Ministry of Agriculture who discuss the basic conflict going on between the state's need for tax revenue and the farmer's wish for the highest possible rate of tax reduction to support their new field of income. The chances for biodiesel support in France are also better than those for ethanol support because there is already now an overcapacity in the shrinking petrol market whereas diesel has to be imported (Interview d'Anselme). Since 1998, 317.000 tons of biodiesel and 103.000 tons of ethanol enjoyed tax reductions (ANVAR 2004).

3.2. Political parties in France

In France like in Germany there is quite a consensus concerning biofuel support. The topic is not discussed within political parties but rather among certain deputies, mostly coming from rural regions and therefore supporting farmer interests (Interview Gourdon 2004).

3.3. Interest groups in France

In France, the National Union of Agricultural Alcohol Producers (Syndicat national des producteurs d'alcool agricole, SNPAA) has the aim of raising the share of ethanol in the biofuels enjoying a tax

reduction (Interview d'Anselme). Further goals are the maintenance of the trade barriers protecting European ethanol production from comparatively cheap ethanol imports from Brazil. Biodiesel is mainly supported by the Association for the Development of Agricultural Biofuels (Association pour le développement des carburants agricoles, ADECA) which supports both biodiesel and ethanol. This is not a problem as the two kind of biofuels are complementary and therefore not concurrents. ADECA played a crucial role for the evolution of the tax reduction which then also allowed a mix of ethanol and petrol. Further producer associations are PROLEA and the French Federation of Oil Producers (Fédération française des producteurs d'Oléagineux et de Protéagineux, FOP). The most remarkable interest group in France in the biofuel domain is probably TOTAL. The company owns all the three ethanol factories in France but has in the same time an interest in struggling against the introduction of ethanol in the French fuel market which would menace the share of TOTAL's fossil petrol in the already shrinking French market (Interview d'Anselme).

3.4. Government and ministries in Germany

In Germany, the Ministry for Traffic, Construction and Housing is currently mainly responsible for biofuels. Further responsible institutions at state level are the Ministry for Consumer Protection, Nutrition and Agriculture, the Ministry of Environment, Nature Protection and Reactor Security, the Ministry of Economy and Labour and the Ministry of Finance (Müller 2004: 17).

The Ministry of Agriculture is basically interested in biofuels as a new field of perspectives for farmers. Projects by the ministry are executed by the Agency for Renewable Primary Products (FNR). This agency has been founded in 1993 and should coordinate projects in research, development and demonstration in the field of renewable primary products (Website FNR). A currently ongoing programme is the programme on the introduction of renewable fuels and lubricants.

To bring together the activities of the various ministries, an interdisciplinary working group on the topic was founded. It brings together the ministries with the German Energy Agency who has primarily a scientific advisory task and further relevant actors from industry and science. The aim of this group is to develop a national fuel strategy which fits with European and international aims. To find a strategy helping to find the best alternative fuel strategy with the best relation between financial investment and CO₂ reduction, a second working group called Fuel Matrix was founded. The matrix shall help draw energy balances to find the best relation between the three categories of sustainability and competitiveness. On the medium-term a mix of conventional fossil fuels, natural gas and synthetic fuels made of biomass, natural gas and hydrogen will probably be aimed at (Müller 2004: 19).

3.5. Political parties in Germany

Apart from there liberal party there is a consensus among political parties in Germany concerning biofuels: They should be supported because of their advantages concerning CO₂ emissions reduction, the reduction of fossil fuel import dependency and perspectives for agriculture. This consensus showed when the complete tax exemption for biofuels in both pure biofuels and mixtures with fossil fuels was decided by the German parliament with the votes not only of the Greens and the Social Democrats, but also with the Christian Democrats' support in June 2002 (Deutscher Bundestag 2002). This rare consensus is due to the fact that farmers are usually conservative voters, so their party supports biofuels as future perspective for this group. And it is particular the Christian Democrats who opt for the protection of European biofuel raw material from exports from outside Europe (Müller 2004: 22). Indeed, farmers say themselves that there is a contradiction between different aims of environmental politics: „If we want 25 % of biofuel share in the whole fuel consumption we cannot be world champion in the protection of species at the same time“ (Born 2004).

3.6. Interest groups in Germany

An interest groups for the support of biofuels in Germany from the farmer's side is the German

Farmer's Association, representing 360.000 members (Website Deutscher Bauernverband). Like in France, a main interest is to find new domains in times where the Common Agricultural Policy of the EU is more and more under pressure. The Union for the Support of Oil and Protein plants (UFOP) tries to strengthen public support for biodiesel (Website UFOP). UFOP expects biodiesel to be only an interim solution as on the longer run, synthetic fuels like SunDiesel will perform more economically. Since 1984 already, the Agricultural Working Group on Biofuels (Landwirtschaftliche Arbeitsgruppe Biokraftstoffe) tries to reach an introduction of biofuels and in particular ethanol into the market on both the national and the EU level (Müller 2004: 35). In contrast to France, the first ethanol facility in Germany is only under construction (Schmitz 2003). Until recently biodiesel in Germany was only used as a pure product. But the petrol producers are currently undergoing a change of their philosophy starting to add biodiesel to fossil diesel. This should help to sell the growing amounts of biodiesel produced. A critical point is the fact that the fuel market in Germany is expected to shrink in the next 20 years due to more efficient motors. Diesel consumption in Germany is expected to remain at the actual level of about 20 million tons and petrol consumption is expected to go down from currently 30 million tons to 25 million tons. Nevertheless does the the Association of the Mineral Oil Economy (Mineralölwirtschaftsverband) give a positive outlook on future perspectives of biofuels mixed into fossil fuels, expecting that firms denying biofuels will suffer from a loss of public acceptance. It is noteworthy that the Association documented a certain preference for the green party as a partner for discussion though opinions are often not the same. But the greens are considered to reflect on new arguments whereas in the bigger parties positions are often already fixed and do not undergo further change (Müller 2004: 36).

3.7. Environmental groups in both countries

Environmental groups in Germany and France are rather sceptic about biofuels: The Réseau Action Climat France, most outstanding network of climate activists in France, criticized the important part of biofuels in the latest Climate Plan, first because it is only a measure imposed by the EU directive on biofuels anyway, and second because it is an ecologically questionable measure regarding the negative impacts of intense agriculture on water and soils (Réseau Action Climat France 2004: 3). Germany's Association for the Protection of Nature (Naturschutzbund, NABU) welcomes biofuels, especially BTL, but insists on the organic production of biomass. Further, it favours fewer transport as a way to a sustainable traffic system (NABU 2004). The Association for the Protection of Environment and Nature also underlines that organic production should be a basic condition for renewable raw material production (Timm 2004). A clear difference between German and French networking on environmental topics at the moment is the degree to which doors are open to green topics. Whereas the Green Party is part of the government in Germany at the moment and thus opens environmental interest groups ways to influence the ongoing governmental work, French environmental groups have only access to the Ministry of Ecology and Sustainable Development where the crucial decisions are usually not taken (Interview Gauthier).

4. Political outcomes in Germany and France

4.1. France

In France, biofuels do not enjoy an unlimited tax exemption. Instead, in negotiations between the Ministry of Economy, Industry and Finance on the one hand and the Ministry of Agriculture on the other hand, the amount of the different kinds of fuels that have the right to get a tax exemption is discussed. This advantageous taxation was already decided in 1991 and has to be renegotiated yearly (Interview Gourdon). At the beginning of 2004 the tax reduction has been reduced from 35 to 33 € per hectolitre (Assemblée Nationale 2004: 75). Not surprisingly does a parliamentary commission examining agricultural interests demand a full tax abatement and a rise of the quotas arguing that otherwise Germany and Spain might leave France behind (Assemblée Nationale 2003:

18).

In France, Prime minister Raffarin presented an ambitious so-called Biofuel Plan in October 2004 which is to prevent 3 million tons of CO₂ emissions and should create 6.000 jobs. Four biofuel factories will be created, producing 800.000 tons of biofuel per year on a then threefold surface of 1 million hectares. The minister of agriculture distributed the rising share of biofuels among ethanol and diesel (Energie Plus 2004). The new quotas are now 387.000 tons of biodiesel, 199.000 tons of ETBE and 12.000 tons for ethanol (European Commission 2004: 2).

4.2. Germany

The most efficient outcome for biofuel support policies is probably the complete tax abatement for biofuels which has been existing in Germany since the beginning of the 1990s. With this regulation, Germany was a forerunner in biofuel support. After the end of the tax abatement decided until 2009, there is a more varied scheme of taxation to be expected. As the European Union took its first decision on biofuels only in 2003 the tax abatement was a certain grey zone. It was only in 2003 that the EU took a decision of its own, allowing officially a complete tax abatement. The directive of may 2003 demands a share of 2 % of biofuels in the complete fuel consumption of its member states until 2005 and 5,75 % until 2010 (EU 2003). For Germany this would mean the need for 30 million hectolitres of rape diesel and 30 million hectolitres of ethanol, corresponding to a surface of 2 million hectares of rape fields and one million hectares of cereal fields for ethanol in 2010 (Arnold 2004: 3). Obligations of the countries for annual reports to the European Commission could exert enough pressure to make countries accept the quotas.

In 1994, a norm for the quality of biodiesel was made to guarantee a steady quality of the fuel. As a consequence, various producers of vehicles in Germany, in particular Volkswagen, Daimler-Chrysler and BMW, allowed the use of biodiesel for a whole range of new models from 1995 on. At the moment, there are more than 3.1 million diesel cars in Germany with a permission for diesel use (Bockey 2004: 11).

In addition, a new regulation of diesel for farmers made the use of biodiesel attractive for farms: Fossil diesel underwent a rise in taxation from 10.7 €ct./l to currently 25.56 €ct./l (Website agranet). From 2005 on, farmers have to pay 40 €ct./l which will make biodiesel comparatively cheap, at least from a consumption of 10.000 litres a year on (Bundesforschungsanstalt für Landwirtschaft 2004). The Fuel Strategy of the German federal government is part of the sustainability strategy and favours biodiesel und ethanol on the short run and from 2010 on BTL which might then have become economic (Bundesregierung 2004). Like in France, biofuels did not yet have a place in older climate strategies: Even the federal government climate protection programme which is still in force did not mention biofuels as part of the climate strategy in the traffic sector. Only more recently has it been mentioned in both countries that their current share of biofuels saves one million tons of CO₂ a year, thus contributing to the mitigation of climate change (Bundesregierung 2004, Assemblée Nationale 2003a, 2003b).

5. Current situation in the renewable electricity sector in Germany and France

Table 1 gives an overview of feed-in tariffs in France and Germany. The numbers show that differences in feed-in tariffs do not explain alone why especially wind energy, but also other renewables perform so well in Germany and so weakly in France.

Table 1: feed-in tariffs for renewable electricity in France and Germany

	<i>France</i>	<i>Germany</i>

	<i>France</i>	<i>Germany</i>
Wind	8,38 €/kWh for 5 years under 12 MW decrease of 3,3 %/year 10 %/year from 1500 MW on	8,7 €/kWh, decrease of 2% off shore: 9,1 €/kWh
Photovoltaic	Metropolitan: 15,25 €/kWh DOM, Corsica: 30,5 €/kWh decrease of 5 %/year, + investment support	Facades: 59-62,4 €/kWh Roofs: 54-57,4 €/kWh
Biogas	57,29 €/MWh < 2MW 45 €/MWh > 2MW + efficiency reward 3 €/MWh 45 €/MWh for agricultural gas + efficiency reward 12 €/MWh	76,70 €/MWh <500 KW 66,50 €/MWh 0,5-5 MW

Table 2: Installed capacity of renewable electricity in France and Germany

<i>Installed Wind Capacity</i>	<i>2002</i>	<i>2003</i>
France	153 MW	253 MW
Germany	11.994 MW	14.609 MW
<i>Installed photovoltaic capacity</i>		
France	17,05 MW _p	21,71 MW _p
Germany	277,6 MW _p	397,6 MW _p
<i>Biogas production</i>		
France	302.000 toe	322.000 toe
Germany	659.000 toe	685.000 toe
<i>Installed geothermal capacity</i>		
France	4,3 MW	4,3 MW
Germany	210 KW	210 KW
<i>Installed small hydropower</i>	<i>2001</i>	<i>2002</i>
France	2.020 MW	2.020 MW
Germany	1.515 MW	1.515 MW

MW = Megawatt, MW_p = Megawatt peak, toe = tons of oil equivalents

An EC directive on the share of renewable electricity demands a rise of the French renewable electricity share from the currently 15 % to 21 % in 2010 (EC 2001). As by far most of the 15 % renewables are hydropower with no further capacity for growth, the remaining 6 % have to be reached mainly by wind energy. An investment plan for electricity in the next five years and its amendment by the ministry of the economy indicated the intention to reach 2.000 to 6.000 MW of installed wind capacity in 2007 (Ministère de l'économie 2002, 2003). But with 337 MW of

installed capacity at the end of November 2004 (Website www.suivi-eolien.com) growth is still too slow to reach the ambitious goals.

Germany's pole position in installed wind and photovoltaic capacity has been maintained in 2004 like in the years before. Although there is still some way left to go to reach the EC directive's aim of 12,5 % of renewable electricity, Germany is on a good way with 7,9 % in 2003 (Ziesing/Wittke 2004: 83). To manage to continue the actual trend in newly installed wind capacity, a shift to repowering and offshore wind parks is expected (Lehmann 2003).

6. Actors influencing renewable energy policies in Germany and France

6.1. France

French parties do basically all declare that they are in favour of renewable energy. Only some groups like the liberal wing of the conservative government group UMP (Union pour un Mouvement Populaire) declare that they are against wind mills and for photovoltaic electricity, mainly for aesthetic but also for economic reasons (Interview Gatignol). In the same time all parties apart from the greens agree on the ongoing predominance of nuclear electricity which is not only considered to be a guaranty for security of supply but also an instrument of climate change mitigation. Apart from the Greens, all parties favour the nuclear option as an instrument to prevent climate change. So the currently still state owned EDF has all political actors behind it when it comes to preventing the development of a serious decentralised concurrence in the electricity sector. This is probably the main reason why it is so hard to establish wind energy as an environmentally friendly alternative.

French renewable energy supporters are organised in various associations and networks. The Committee for the Linkage of Renewable Energies (Comité de liaison des énergies renouvelables, CLER) is unifying smaller renewable supporters while the Renewable Energy Union (Syndicat des Energies Renouvelables, SER) has also members being in the same time active in the fossil fuel and nuclear electricity domain like EDF Energie Nouvelle, Total, Shell and BP. The Union's President André Antolini is also director of EDF Energie Nouvelle (Website Réseau Sortir du Nucléaire).

A further brake for the already hesitant dynamic of renewables in France is established by the fact that the supporters of renewable electricity are not very often received by the governmental institutions like ministries, in particular the influential ministries like the ministry of Economy, Industry and Finance (Interview Gauthier). Most renewable promoters do not consider electricity from renewable sources as a replacement for nuclear electricity but rather as a further electricity source, probably knowing that the chances for a nuclear phase-out are negligible, anyway. The necessity for a more diversified electricity supply was also the outcome of the National Energy Debate in 2003 (Website Débat Energie).

The opponents of wind energy are unified under the head of Vent de colère, a network of local associations struggling against wind energy (Website Vent de Colère). A central argument against wind energy is its intermittence which needs to be compensated by flexible generation systems like gas stations, thus producing more greenhouse gases than nuclear electricity generation (Vent de Colère 2004: 1).

6.2. Germany

In Germany the Ministry of Economy and Labour was responsible for energy politics in general until 2002. This brought up several conflicts with the Ministry of Environment which was responsible for climate change politics and thus more in favour of renewable energy than the Ministry of Economy and Labour, the latter being also closely linked to the interests of coal mining (Corbach et al. 2004). The success of the Green party helped the minister of the environment to acquire the responsibility for renewable energy (Reiche 2004: 85).

Political parties did not all agree on the renewable energy act introducing a feed-in tariff for various forms of renewables, but they did so when electricity from renewables was first supported via the

electricity feed-in law in 1991 without any deputies voting against it (Reiche 2004: 145). This was due to the close linkage of both green and conservative politicians in particular to the generation of small hydropower. Today the main critical voice about current renewable support is the liberal party, criticising the costs of the feed-in tariff as costly subsidy (Website FDP). All other parties in parliament are closely linked to renewable supporters. Several deputies are members of Eurosolar and the president of the association is even Social Democrat deputy himself (Website Eurosolar). Concerning the strength of the supporters' network on the economic side, there is a big difference between Germany and France. The producers of renewable electricity generation facilities in Germany are well organized and German firms managed to make good use of their first-mover-advantage on the international market. With a turnover of 1.2 billion € and a market share of 14.6 %, Enercon is the third largest wind mill producer world wide (Website Enercon). Although there is a quite active anti-wind movement in Germany (Website Windkraftgegner) it is quite probable that the acceptance of wind energy by a large majority of the population can be maintained as further generation capacity is mainly going to be installed by repowering and off-shore wind parks which do not disturb people's aesthetic feelings.

7. Political outcomes in both countries

7.1. France

At the moment, 27 public agencies have to be consulted for a wind mill construction permit (The Boston Consulting Group 2004: 22). As a consequence of this complicated procedure, up to 15 % of the costs for a wind park are caused by studies needed to get the construction permit (The Boston Consulting Group 2004: 23). But despite the multiple declarations of wind energy support by government and ministries, the procedure has not been facilitated at all. Instead, another obstacle has been established with the Energy Orientation Law (loi d'orientation sur l'énergie) which passed over the responsibility for the delivery of construction permits for wind mills from the prefect who is a civil servant to the mayor together with the commission on sites, perspectives and landscapes. These changes make construction permits still more improbable than before (Website France Energie Eolienne). So a letter by the minister of the economy to the prefects asking them to help facilitate the permission of wind mill construction to reach the EC directive's goal is not necessarily helpful (Ministre de l'écologie et al. 2003). Even to reach the minimum goal given by the electricity investment plan, several administrative obstacles would need to be omitted (Systèmes Solaires 2004).

It is also noteworthy that in France apart from a few examples individual persons cannot yet invest in renewable funds in their particular region as this is done in Germany and still more in Northern Europe (Piro 2003a). Usually contracts reward farmers if wind mills are built on fields and in some cases also neighbours (Piro 2003b). This is one reason why initiatives against wind energy are quite successful in France despite the small amount of windmills currently existing.

7.2. Germany

The strong network for the support of renewable electricity results in a strong growth of the installed capacity of all kinds of renewables, in particular wind and photovoltaic. With neither political parties nor a majority of citizens being against renewable electricity, the current dynamic could be maintained in the future. Also a majority of environmental groups has a favourable attitude to renewable electricity despite certain conflicts concerning offshore wind parks which are sometimes considered to be dangerous in protected areas.

An interesting part of the renewables network are farmers who invest in biogas facilities and thus find a new income. As only few new onshore wind parks are being built, opponents will probably not get more influence. A certain danger lies in the trend of rising electricity prices which the electricity companies justified with the costs of the renewable energy act. In fact, only 0.42 €ct. of the current electricity price of about 18€ct. in 2003 derive from the feed-in tariff (Website

Stromtipp). Nevertheless might electricity companies manage to establish a negative attitude of consumers towards renewables.

8. Results

It can be said clearly that the first reason for biofuel support in France is not environmental concern – although the prime minister said so in a recent speech (Raffarin 2004). Rather did biofuels already get political support in France before climate change came on the agenda. The weak environmental network in France showed even negative attitudes towards biofuels, criticising the negative impacts of conventional agriculture on water and soils. Only when the government changed, biofuels were accepted as an environmentally performing way of saving CO₂ emissions. This change of attitude happened when the government became conservative – just as the majority of the voters in rural and therefore agricultural regions. Not surprisingly is the ministry of the environment not involved in decision making about future biofuel support. Further support for biofuels comes from the high crude oil price which had reached a level of over 52 US\$ in October 2004.

At this early stage of biofuel introduction in both the French and the German fuel supply it is not yet quite clear but already probable that environmental interests and economic interests of agriculture will go together instead of being contradictory. Evidence for this expectation is given by the ecologic balancing undertaken for the various biofuels.

In contrast, renewable electricity, despite the unanimous acceptance of its environmental performance, has quite some difficulties in France. This is mainly due to the fact that the network supporting the transformation of the highly centralised French electricity system has difficulties in exerting its influence in the policy network: EDFs electricity mainly being of nuclear origin, the climate argument is less predominant in the discussion on the electricity mix than in Germany. In addition, only few jobs do exist in the renewable electricity sector. On the contrary, the 167.000 employees of EDF (Website Electricité de France) are rather interested in a maintenance of the monopoly of the currently state-owned firm which seems more promising for guaranteeing their jobs.

It is also noteworthy that, in contrast to other renewable energies, biogas is quite successful with a production of 322.000 tons of oil equivalent in 2003 in France (EurOberserv'ER 2004a: 70). But although Germany has only approximately twice as much biogas production as France with 685.000 tons of oil equivalent in 2003, the electricity generation in Germany is more than sevenfold compared to France (Germany: 258.000, France 36.000 tons of oil equivalent final energy in 2003) (EurOberserv'ER 2004a: 71). These numbers show that even strong support for agriculture does not so much lead to significant outcomes for renewable electricity generation in France but rather in heat generation.

Germany gives a very different image of the network supporting renewables: With an overwhelming majority of the parties in parliament being in favour of renewable electricity support, the the already strong supporters' network is not opposed to political decision makers like in France but working together with most of them. Additional support comes from the considerable number of firms offering approximately 120.000 jobs (Reiche 2004: 210) which are most welcome in the currently desperate labour market situation in Germany.

9. Outlook

For biofuels the outlook can be optimistic in both countries. Current action to support biofuels via a further rise of the quotas in France and a maintenance of the complete tax abatement in Germany will guarantee a continuing boom of biofuel production in both countries. A new challenge for the ethanol production in the EU might come up in the current negotiations with Mercosur and the

WTO about a market opening for one million litres of ethanol from Brazil. The lower production costs would form a concurrence for European producers who are currently extending their production capacities (Arnold 2004:5).

For renewable electricity the outlook is more ambiguous when looking at the current situation in France: Although declarations from all government levels give an image of ambitious renewables support, the government is not making a real effort to abolish the numerous obstacles preventing a real breakthrough of renewables in electricity generation, in particular wind.

A certain new dynamic for renewable energy in France shows in the press: More and more positive articles are being written about renewable energies and their future options. A problem that remains vivid also in the near future is the lack of an influential renewables industry offering a significant amount of jobs. As other countries like Germany and Denmark already used the first-mover-advantages which helped renewable facility producers to reserve a big share of the growing renewable energy market and to conserve it, French firms will have difficulties in getting a place in the more and more competitive renewables market.

New developments in the nuclear domain like the extension of the life-span to 40 years will bring up further arguments like overcapacity but also the competitive advantage of the then amortised nuclear power stations.

References

- ADEME/DIREM (Ed) (2002): Bilans énergétiques et gaz à effet de serre des filières de production de biocarburants en France, Paris.
- Agence Française de l'Innovation (ANVAR) (2004): La lettre de l'innovation, 27/2004, available at www.anvar.fr/actulettN27arti2.htm#1.
- Arnold, Rainer (2004): Biokraftstoffproduktion aus nachwachsenden Rohstoffen – Chancen und Perspektiven für Landwirtschaft und Umweltschutz. Lecture held at the Biodiesel Symposium on 24 September at the Interboot 2004 in Friedrichshafen.
- Assemblée Nationale (Ed) (2003a): Rapport d'Information No. 1153 sur la politique de soutien au développement des énergies renouvelables, 21st October 2003, available at www.assemblee-nationale.fr/12/pdf/rap-info/i1153.pdf.
- Assemblée Nationale (Ed) (2003b): Rapport d'Information No. 1237 sur le développement durable, réponse aux enjeux agricoles et environnementaux, 19th November 2004, available at www.assemblee-nationale.fr/12/pdf/rap-info/i1237.pdf.
- Assemblée Nationale (Ed) (2004): Rapport d'Information No. 1622 sur les biocarburants, 26th may 2004, available at www.assemblee-nat.fr/12/pdf/rap-info/i1622.pdf.
- Bockey, Dieter (2004): Aktuelle Entwicklungen bei der Vermarktung von Biodiesel in Deutschland – Umsetzung der Steuervergünstigung für Biokraftstoffe. Presentation at the Biodiesel Symposium on 24 September at the Interboot 2004 in Friedrichshafen.
- Born, Helmut, secretary general of the German Farmer's association (2004): Statement given at the conference „Weg vom Erdöl – hin zu nachwachsenden Rohstoffen“, 13th November 2004 in Berlin.
- Bundesforschungsanstalt für Landwirtschaft (2004): Verwendung von Biodiesel in der Landwirtschaft – Möglichkeiten und bestehender Handlungsbedarf, Braunschweig.
- Bundesregierung (2004): Fortschrittsbericht 2004. Perspektiven für Deutschland. Unsere Strategie für eine Nachhaltige Entwicklung, available at www.bundesregierung.de/Anlage740735/pdf_datei.pdf.
- Chabot, Bernard (2003): Bilan et perspective du développement de l'énergie éolienne en France en 2003, Paris, available at www.suivi-eolien.com/francais/DocsPDF/EOLFR03F.PDF.
- Conseil Economique et Social (Ed) (2004): Les débouchés non alimentaires des produits agricoles: un enjeu pour la France et l'Union Européenne. Rapport présenté au nom de l'agriculture et de l'alimentation par M. Jean-Claude Pasty, available at www.ces.fr/rapport/doclon/04051912.PDF.
- Corbach, Matthias/Brand, Ruth (2004): Akteure der Energiepolitik, in: Reiche, Danyel (Ed): Einführung in die Energiepolitik, in press.
- DGEMP (Direction Générale de l'énergie et des Matières Premières) (2004): Bilan énergétique de la France en 2003, Paris, available at www.industrie.gouv.fr/energie/statisti/pdf/bilan-2003.pdf.
- Deutscher Bundestag (2002): Gesetz zur Änderung des Mineralölsteuergesetzes und anderer Gesetze, Gesetz von 23.07.2002, Bundesgesetzblatt Teil I 2002 Nr. 52, 29.7.2002, S. 2778.
- Energie Plus (2004): Dossier Biocarburants: La France passe à la vitesse supérieure, No 333/2004, no page,
- EurObserv'ER (2004a): Le Baromètre de l'Eolien, in: Systèmes Solaires 159, p. 55-68.
- EurObserv'ER (2004b): Le Baromètre des Biocarburants, in: Systèmes Solaires 161, p. 53-65.
- EurObserv'ER (2004c): Le Baromètre du Biogaz, in: Systèmes Solaires 162, p. 69-78.
- European Commission (2001): Directive 2001/77/EG of the European Parliament and the Council of September 27 2001 on the promotion of electricity produced from renewable electricity sources in the internal electricity market, Official Journal L 283, 27.10.2001, available at <http://europa.eu.int/comm/energy/library/renouvelables-en.pdf>.
- European Union (2003): Directive 2003/30/EC of the European Parliament and of the Council of 8 may 2003 on the promotion of the use of biofuels or other renewable fuels for transport, official journal of the European Union 17.5.2003.
- European Commission (2004): Rapport de la France concernant la Directive 2003/30/CE visant à promouvoir l'utilisation des biocarburants, available at http://europa.eu.int/comm/energy/res/legislation/doc/biofuels/member_states/2003_30_fr_report_fr.pdf.
- Fachagentur Nachwachsende Rohstoffe (2004): Zusammenfassung des 2. Statusseminars des 100-Traktoren-Demonstrationsprojekts des Bundesministeriums für Verbraucherschutz, Ernährung und Landwirtschaft am

21. Juni 2004, available at http://fnr-server.de/100schlepper/neu/100Traktoren-Zusammenfassung_2STS.pdf.

Fischer, Jürgen (2004): Maßnahmen und Konzepte zur Qualitätssicherung von Biodiesel – Das AGQM-Konzept. Presentation at the Biodiesel Symposium on 24 September at the Interboot 2004 in Friedrichshafen.

Gärtner, Sven O./Reinhardt, Guido A.: Erweiterung der Ökobilanz für RME. Gutachten des Institut für Energie- und Umweltforschung Heidelberg GmbH (ifeu), Heidelberg 2003, available at: www.ifeu.de/englisch/agri/download/rme-2003.pdf.

Kaltschmitt, Martin/Reinhard, Guido (1997): Nachwachsende Energieträger: Grundlagen, Verfahren, ökologische Bilanzierung, Braunschweig/Wiesbaden.

Lehmann, Klaus-Peter (2003): Strategic options for the wind energy market, in: Renewable Energy World3/04, p. 38-49.

Lepelletier, Serge: Speech held at the colloquium „De l'Or noir à l'Or vert, l'avenir industriel des bioproduits“ in Paris, 10 November 2004, available at www1.environnement.gouv.fr/article.php?id_article=3126.

Ministre de l'économie et du développement durable/Ministre de l'équipement, des transports, du logement, du tourisme et de la mer/Ministre déléguée à l'industrie (2003): Circulaire aux préfets de région et de département concernant la promotion de l'énergie éolienne terrestre, available at www.industrie.gouv.fr/energie/renou/circ_eol_10_09_03.pdf

Ministère de l'économie, des finances et de l'industrie (2002): Programmation pluriannuelle des investissements de production électrique, Rapport au Parlement du 29 janvier 2002, available at www.industrie.gouv.fr/energie/electric/pdf/ppi_2002.pdf.

Ministère de l'économie, des finances et de l'industrie (2003): Arrêté du 7 mars 2003 relatif à la programmation pluriannuelle des investissements de production d'électricité, Journal Officiel du 18 mars 2003, p. 4692-4695.

Mission Interministérielle de l'Effet de Serre (MIES) (2002): Plan National de Lutte contre le Changement Climatique (PNLCC), available at www.effet-de-serre.gouv.fr/fr/actions/PNLCC.pdf.

Mission Interministérielle de l'Effet de Serre (MIES) (2004): Plan Climat, available at www.effet-de-serre.gouv.fr/fr/actions/BAT-PLANCLIMAT04.pdf.

Müller, Robert (2004): Restriktionen und Erfolgsbedingungen biogener Kraftstoffe – Polen, Frankreich und die Bundesrepublik Deutschland im Vergleich. Unveröffentlichte Magisterarbeit.

Naturschutzbund (NABU) (2004): NABU: Synthetische Biokraftstoffe als Alternative zum Erdöl voranbringen, press release of the NABU press service, 3.11.2004.

Piro, Patrick (2003a): Les Renouvelables, Placements de Choix, in: Systèmes Solaires 156, p. 8-10.

Piro, Patrick (2003b): Agriculture: „Cultivons les énergies renouvelables“, in: Systèmes Solaires 156, p. 14-17.

Piro, Patrick (2003c): Le vent: un rendement à l'hectare imbattable, in: Systèmes Solaires 156, p. 18-19.

Raffarin, Jean-Pierre (2004): Biocarburants: discours du Premier ministre à Venette le 7 septembre 2004, available at www.premier-ministre.gouv.fr/acteurs/discours_9/biocarburants_discours_premier_ministre_51125.html.

Reiche, Danyel (2004): Rahmenbedingungn für Erneuerbare Energien in Deutschland, Frankfurt am Main.

Réseau Action Climat France (RACF): Spécial Plan Climat, Infos de Serre 24/2004.

Schmitz, Norbert (Ed) (2003): Bioethanol in Deutschland, Münster, available at www.ktbl.de/aktuell/ktbl_tage_2004/Schmitz.pdf.

Syndiact national des producteurs d'alcool agricole (SNPAA) (2004a): Quelques reflexions sur le bioethanol, not published.

Syndicat national des producteurs d'alcool agricole (SNPAA) (2004b): Information sur l'Alcool Ethylique, not published.

Systèmes Solaires (2004): L'éolien en six questions et réponses, Systèmes Solaires 159/2004, p. 22-25.

The Boston Consulting Group (2004): Donner un nouveau souffle à l'éolien. développement de l'éolien terrestre en France, available at www.enr.fr/DL/colloque/Eolien_terrestre.pdf.

Timm, Gerhard, Bundesgeschäftsführer BUND (2004): Statement given at the conference „Weg vom Erdöl – hin zu nachwachsenden Rohstoffen“, 13 November 2004 in Berlin.

Vent de Colère (2004): Réplique à l'étude du Boston Consulting Group intitulé „Donner un nouveau souffle

à l' éolien“, available at www.ventdecolere.org/archives/doc_reference/BCG.pdf.

Vorholz, Fritz (2004): Revolution im Tank, in: Die Zeit 29/2004, available at www.zeit.de.

Wüst, Christian (2004): Gemüse im Tank, in: Der Spiegel 40/2004, p. 196-200.

Ziesing, Hans-Joachim/Wittke, Franz (2004): Stagnierender Primärenergieverbrauch in Deutschland, in: DIW Wochenbericht No 39, S. 75-89.

Websites

Agence Française de l'Innovation (ANVAR), www.anvar.fr

Deutscher Bauernverband, www.bauernverband.de

Enercon, www.enercon.de

Fachagentur Nachwachsende Rohstoffe, www.fnr.de

Freie Demokratische Partei, www.fdp.de

France Energie Eolienne, www.fee.asso.fr

Ministere de l'écologie et du développement durable, www1.environnement.gouv.fr

Réseau Sortir du Nucléaire, www.sortirdunucleaire.org

Stromtipp, www.stromtipp.de

Vent de Colère, www.ventdecolere.org

Vereinigte Werkstätten für Pflanzenöltechnologie, www.pflanzenoel-motor.de

Union zur Förderung der Öl- und Proteinpflanzen, www.ufop.de

Windkraftgegner, www.windkraftgegner.de

Interviews

d'Anselme, Alain, Syndicat national des producteurs d'alcool agricole (SNPAA), Interview on July, 15th 2004.

Gourdon, Jean Marc, Ministère de l'agriculture, Interview on July 8th 2004 in Paris.

Gauthier, Raphaëlle, Réseau Action Climat France, Interview on July 11th 2004 in Paris.