



Interreg III B



Alpine Windharvest

**WP 11 Economic, legal, administrative and political framework conditions,
regional development and cost structures**

Summary report

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Abstract

The purpose of this work package was to describe, analyse and compare the frameworks of public policies which affect wind power development in the Alpine regions studied by the present project, and to make recommendations about the design of such frameworks to public authorities at different levels. These frameworks include

- the economic framework: i.e. the compensation systems for renewable electricity generated, investment incentives and the like, with special attention paid to the aspect of wind power's actual and potential contribution to regional development
- the legal and administrative framework: i.e. the procedures before public authorities which are necessary to obtain the required permits to build and operate a wind power installation
- the political framework: i.e. the main actors in this field of public policy, their positions and influence, the conflicts that characterise this field for the near future, the uncertainties resulting therefrom, with special attention being paid to mediation and similar procedures to facilitate consensus among the different groups

The recommendations to authorities are built on concepts of best practice and on reflections on how to cope with recurrent problems even where no best practices seem to exist.

In addition, the impact on regional development is studied and the cost structure of wind power analysed in order to formulate recommendations to authorities in these areas.

1. Economic framework conditions

1.1 General background: EU policy towards renewable electricity

With regard to systems of compensation, there are, in the five regions/countries concerned, five different systems. Four are based on the principle of the so-called "fixed feed-in tariff", one (Italy) belongs to the category of "quota system with tradable green certificates". In the late 1990s until late 2000, the European Commission, and more particularly DG Energy (which later became DG TREN-Transport and Energy) which was in the process of preparing a directive for renewable electricity, wanted to introduce a system of compensation that would allow for cross-country competition between different generators of renewable electricity. The hope was that this would bring down prices quickly, especially for wind power. Against this background, the Commission submitted drafts for a "harmonisation" directive which would only have allowed "competitive", "market-based" systems, at least after a certain period of transition. At the same time, DG Competition attempted to have fixed feed-in tariffs banned by a decision of the European Court as being incompatible with the EU Treaty's provisions on state aid and cross-border trade. In the case of *PreussenElektra v. Schleswig* in early 2001, the Court rejected these Commission arguments. Strong resistance against this proposal had already led to a new proposal for what became directive 2001/77/EC on electricity from renewable energy sources, a proposal which left the question of systems of compensation open until October 2005 and allowed also fixed feed-in tariffs. At that date at the earliest, the Commission was to propose harmonisation based on a report on experiences so far. It was generally expected in 2001 that the Commission would insist on "market-based" systems, in

the spirit of the electricity directive of 1996. At this time (April 2005) it seems clear that DG Energy will not make a harmonisation proposal in the near future. So far, quota/certificate systems have yet to prove their worth. Until now, they have contributed to significant construction only in Britain and Italy, and in both countries this has led not lower but in fact to higher prices than the much-criticised German feed-in tariff. Quota/certificate systems in Belgium and Sweden had only marginal impact so far.

The main problem that the EU faces in this area currently is that the indicative national targets set by directive 2001/77/EC for 2010 (targets for renewable electricity in each member state) will almost certainly not be achieved. As a result, the Commission is stressing the need to increase support for renewable electricity rather than efforts to drive down that support.

1.2 The systems in the five countries under consideration

Fig. 1: Systems of compensation for renewable electricity

Country	Current system of compensation and date of its introduction	Amount paid per kWh
Austria	Fixed feed-in tariff (2002)	7.8 Eurocent guaranteed for 13 years*
France	Fixed feed-in tariff (2001/02)	8.38 Eurocent for first five years; further 10 years depending on quality of site (defined by number of hours of full load), between 8.38 and 3.05 Eurocent. Annual degression by 3.3% for new installations since 2003**. Applies only to installations up to 12 MW in size and only to the first 1.500 MW nationally. For larger installations and after the 1.500 MW are reached: tenders (appels d'offre)***
Italy	Quota/certificate system (2002)	Total compensation of about 13-16 Eurocent, consisting of a green certificate (about 8-10 cents)**** for eight years plus the market price for power (about 5-6 cents).
Slovenia	Fixed feed-in tariff (2002)	< 1MW: 6.06 (no time guarantee*****) > 1 MW: 5.85 (no time guarantee*****)
Switzerland	Fixed feed-in tariff (2005)	10 Eurocent***** plus voluntary green certificates

* In Austria, there is currently a legal void in this matter. However, the 2001 Eco-electricity law and the decree based on it which fixed the compensation still applies to installations which obtained a permit before the end of 2004 and which go on stream by the end of June 2006. For new installations (after 1 January 2005) however there is no legislation providing a support system.

** Each individual installation has a rate guarantee for 15 years; the degression applies only to the new installations of a given year.

***In France, an amendment to a law currently under consideration by Parliament would limit the feed-in tariff to installations of 20 MW and more (starting two years after its adoption). This would invert the logic that prevailed up to now. The amendment was passed in the lower house but may not be accepted by the upper house.

**** Currently, the price for certificates is essentially an administered price. This will probably go on for many years. Clearly, this is not the "market-based" system the Commission had in mind; in that system certificates should be traded in a special exchange.

***** The law of 2002 provides for annual adjustments of the tariff in order to maintain its real value. However, in the first two years the tariff was reduced by about 6.3% in terms of Euros though it remained nominally the same in Slovenian currency – and not just for new installations.

*****Financed from a surcharge on high voltage transmission system operators.

Clearly, the most lucrative system for investors is that prevailing in Italy, contrasting with the expectations held in the Commission in the late 1990s. It is true that the high initial price is only paid for eight years, but even the mere market price for electricity is much higher than the “special rate” paid in France once the high initial rate is no longer applicable. Next comes Switzerland, then Austria, followed by France. Slovenia has the lowest rate by far.

This picture is complicated by additional incentives available in some countries. Here the situation is as follows:

- Austria: Subsidies were widespread on the regional (Bundesländer) level until 2002. Part of the purpose of the 2002 law was to put an end to this practice. However, some Länder continue to subsidise (in particular Upper Austria), and exceptionally innovative projects (e.g. in difficult Alpine locations) could be subsidised by the Environment Ministry.
- France: No subsidies in general, but a special regime applies in mountainous areas under the Mountain Law of 1985. This regime is supposed to compensate for the disadvantages of mountainous locations with regard to most economic activities. The advantages resulting from this take many different forms, especially in the area of financing (special interest rates, special financing institutions or arrangements etc.).
- Italy: Subsidies to investment exist at the federal level (Law 488/92) and can cover up to 50% of investment for SME and 35% for larger firms. Subsidies are also granted by some of the regions and/or provinces. In Bozen province/(South Tyrol, all renewable energy forms are subsidised with a standard rate of 30%.
- Slovenia: In theory, no subsidies, though this rule has been breached in individual cases.
- Switzerland: Subsidies can be granted only at the cantonal level, but will –if granted- be matched by the federal government. However, most cantons are very parsimonious these days and in addition tend to concentrate on other renewable energy sources (especially biomass) and on energy efficiency. For structurally weak mountainous areas there is a law on aid to investment (Investitionshilfegesetz für Berggebiete) which has already been used to support wind power investments. Also, there is a system of voluntary green certificates which are marketed by generators for extra income.

This brief summary shows that subsidies are strongest in the country that has already the highest compensation for wind energy, i.e. Italy. It is true that this is also the country with the most difficult situation on the electricity sector (rapid growth of demand, insufficient domestic production, difficulty to increase imports because interconnectors are already working near full capacity).

Fig. 2: Installed wind power capacity by end of year (in MW)

	1999	2000	2001	2002	2003	2004
Austria	42	78	95	139	415	607
France	23	79	85	147	240	390
Italy	211	389	697	785	891	1265
Slovenia						
Switzerland	3	3	5	5	5	8

Source: Data for Austria, France, Italy and Switzerland from *Windpower Monthly*, April issues of 2001, 2003 and 2005.

It is striking that the country with the highest generation of wind power per capita and per unit of territory (i.e. Austria) has achieved this with a rather modest rate of 7.8 Eurocent for 13 years (and in principle without additional subsidies, though there are a few exceptions) when compared with Italy, the country where compensation are highest (13-16 Eurocents for eight years, high market price for electricity even afterwards), and subsidies as well (see fig. 2). Part of the difference is most likely due to the greater security of a fixed feed-in tariff, highly appreciated by banks financing wind power development. (The British example of the Renewables Obligation confirms this hypothesis; it leads currently to a compensation of about 10 cents per kWh and is unlikely to go down in the near future. This is much higher than the German tariff, which was so often criticised for being excessively high). But the picture is more complicated: Italy also had a generous feed-in tariff until a few years ago which did not really promote an exceptional wind power boom. Other aspects, such as administrative difficulties with siting, permits and connection to the grid, are likely to play an important role here.

Directive 2001/77/EC laid down indicative targets for electricity from renewable sources for each member state. In meeting these targets, wind power – being one of the cheapest options – will play a key role. Switzerland has also defined a target of its own for wind power (see fig. 3).

Fig. 3: Targets for member states under directive 2001/77/EC as supplemented in 2004 for accession states and for Switzerland (Source: European Commission 2004: for Switzerland: Horbaty 2004; see full report)

	Share in 1997	Target for 2010 in %
Austria	70%	78%
France	15%	21%
Italy	16%	25%
Slovenia	29.9%	33.6%
Switzerland	2.1 MW in 97*	50-100 MW of wind power

* Beatrice Langraf/Thiemo Kellner (2000) *Windenergie in Europa: Was bringen Gesetze und Fördermaßnahmen*, Interwind/Bundesamt für Energie, Zürich 2000, p.25.

1.3 Recommendations to authorities:

1.3.1 If the purpose of the support system is to promote rapid growth of wind power at least cost, then – on the basis of current experience – a feed-in tariff is more appropriate than a system based on quotas and tradable green certificates. This is illustrated by the quota /TGC systems in Britain, Belgium and Italy. The reason for their higher cost (when compared to the French or German systems) is the greater insecurity resulting from the uncertain evolution of certificate prices, which in turn leads to a desire for greater profitability and to higher finance costs on the part of banks or private investors.

1.3.2 Any support system should remain in existence for at least 10 years so that a larger number of stakeholders (builders, investors, banks, project developers etc.) become familiar

with the finance mechanism. This leads to the entry of new entrepreneurs, more competition and – in the long term – lower costs.

2. Legal, administrative and political framework

The countries and regions under consideration all have very complex procedures for dealing with applications for wind power installations. These procedures are strongly influenced by national traditions in the area of administrative law and practice. The procedures are described in detail and for each country in the full report, along with their likely duration (between two and five/six years).

2.1 The new opposition to wind power

There is one striking change that concerns all the countries. During the last few years, wind power has lost its “innocence”. In the past, it was criticised mostly by established electric utilities as being of little use and difficult to integrate. While this criticism still exists (and its carrier may be at the root of other criticisms as well), new opponents have been added. It is particularly striking to see that some landscape and nature protection organisations are now among the critics of wind power. Some of the criticism appears as ideological in the sense that some wind power opponents are not referring to deleterious effects in a particular setting but treat wind power generally as a hazard to health (noise, ice, infra-sound...), the landscape, the environment and even the economy, often invoking unverified claims that fuel anxieties.

Under the impact of this criticism, the public has become more hesitant to accept wind power deployment in its immediate neighbourhood, even if on an abstract level positive opinions prevail by a large margin in each country. The criticism – and the fear that wind turbines might come to dominate Alpine landscapes in large numbers – has played a particularly strong role in Alpine and other mountainous areas because of the particular importance attached there to the “landscape”, especially with regard to tourism. In Austria, very few new permits have been granted for Alpine locations, and no permits at all were issued so far in Salzburg and Tyrol (in Vorarlberg there were no applications). In France, there are some installations in mountainous areas but not in the Alps properly speaking; the controversy has clearly intensified there (a national organisation, “Vents de colère” or “winds of anger”, is behind much of the opposition”). In Italy, or rather in South Tyrol/Bozen province, there is only one turbine functioning, with a temporary permit; the provincial government is still striving to define a general approach to wind power (by contrast, many wind power installations exist in the Apennine, but in a very different socio-economic milieu: poor local communities, little tourism, a declining agriculture as chief source of income – here the revenues offered by wind power were highly estimated). In Slovenia, a series of large projects by a regional utility – all of them for a rather small area, five mountains in the Karst – have led to strong resistance. In Switzerland, the Landscape Foundation – a privileged organisation under Swiss Law – is opposing all projects with wind turbines larger than 660kW, which means that for the moment there is practically no new construction.

Administrative and even legislative authorities are thus caught in a difficult situation. Administrative authorities in most of the countries/regions concerned are asking for more

detailed guidelines, especially on the matter of landscape protection; current regulations are widely seen as unsatisfactory. There is the danger of a legitimacy deficit. But legislative authorities are also confronted with a similar problem as on many issues, there is simply insufficient experience with wind turbines and their impact on Alpine landscapes and environments. The question then arises of how the authorities should deal with such a problem.

2.2 Recommendations to authorities

1. Recognise the special character of the situation
2. Design regulations that will allow the gathering of experience by careful experimentation. Experience can only be had by taking some initiatives. But these initiatives should be carefully defined.
3. Maximise the legitimacy of administrative procedures and decisions by special precautions (transparency, participation, search for local consensus).
4. Encourage voluntary agreements between windpower operators and local communities and/or nature protection, environmental and other appropriate organisations
5. Maximise the contribution of wind power to local and regional sustainable development

Ad 1: Recognise the special character of the situation

The special character of the situation results not just from the intensity of the controversy, but also from the fact that there is not enough experience available concerning the impact of wind power in Alpine environments. This is all the more true as some of the impacts under consideration are subjective in nature (e.g. questions of impact on the landscape, visual impact etc). While in some cases “objective” experience can be gathered in due course (impact on nature, e.g. birds, or impacts on tourism), experience with regard to subjective elements is even more difficult to gain. On the other hand, wind power may be able to make an important contribution to the local economy, energy and greenhouse gas situations, so that it should not be subjected to an indefinite moratorium. Experience can only be collected if some wind farms are operating, as we cannot know about their effects otherwise. Impacts on landscape, on nature etc. vary with settings.

Ad 2: Gather experience by promoting experimentation

Given the lack of precise knowledge, it would be difficult to define valid regulation in general terms. It seems more appropriate to proceed in a stepwise fashion. This could be done e.g. by permitting only a limited number of relatively small wind farms (about 1-10 turbines) in any given landscape unit (such as a valley, or area from which a wind farm can be seen) and by making it clear that any such decision will not set a precedent until more experience has been gathered. A time interval should be set during which no further permits will be considered. If things work well (i.e. if the impacts feared by critics can be limited or do not come about at all), such wind farms might be given, at a later point in time, a permit to expand. This should deal with the fear that the Alps as a whole will – in big stretches – be “devastated” by wind power development. On a broader level, a province, district or local community might define a general upper limit for wind power development on its territory that may not be surpassed during a certain period.

Ad 3: Maximise the legitimacy of administrative procedures and decisions (transparency, participation, search for local consensus)

Transparency: Given the suspicions and anxieties generated by some wind power opponents, it is important to minimise these phenomena by appropriate precautions and to

inform the population as much as is practicable. All reports, opinions, applications, decisions etc. should be made available via internet and also to those who do not have access to the internet. Sufficient time should be given so that learning processes are supported.

Participation: In current conflicts concerning wind power, the discussion often remains at the abstract level and can thus remain “ideological”, i.e. detached from the specific local conditions and interests. At this level it is difficult to find a satisfactory solution. It is probably helpful to involve the local population in some form; this will on the one hand “bring the matter down to earth”, i.e. make the interests and situations of the various participants clearer and help to legitimise a decision. It might emerge e.g. that opponents – this seems to be the case in some areas in France – are new country dwellers who bought a home or secondary residence and want to keep the landscape as a “holiday landscape” ideally untainted by economic activities. Traditional country dwellers such as farmers on the other hand might be interested in diversifying their economic activities. A clear and open confrontation of these interests is likely to “de-ideologise” the debate and probably more helpful than abstract argument.

Search for consensus: Related to the above, efforts to promote consensus through different models are likely to be helpful. In the strongest case this would be done by a professional mediation procedure in which all the parties to the controversy (if there is controversy) agree to such procedure and to accept the conclusion it will arrive at as a basis for the administrative proceedings that will be resumed after the mediation is completed (see special report on mediation for wind power projects). Other models can be imagined: thus a local consensus conference in which a panel of the local population, over a sufficient period, acquires familiarity with wind power and its likely impacts and makes a recommendation based on this experience. Here again, this will allow to gauge the nature of the opposition and the interests governing the conflict.

Ad 4: Encourage voluntary agreements between windpower operators and local communities and/or nature protection, environmental and other appropriate organisations in order to develop rules of fair conduct in permit procedures.

Such rules can later be incorporated into legislation. The model for such agreements is the agreement between Legambiente and the Italian Windpower Association ANEV.

Ad 5: Maximise the contribution of wind power to local and regional sustainable development

Wind power development is regarded by its adversaries as a profiteering operation that will produce damages on the local level and possibly beyond. It is important to allow for the possibility that a local community may want to use this energy on its own for the purpose of sustainable local development while making a contribution to regional sustainable development as well.

Sustainable development contains three elements: ecological, economic and social. Wind power has as its strongest positive aspect the production of electricity with minimal contribution to greenhouse gases and other pollutants; this needs to be balanced against potential impacts on nature. Wind power is capable of producing economic wealth and thus of making a contribution to the local economy (tax revenues, land rents, jobs, tourist attraction etc.); this needs to be balanced against potential economic damages (e.g. the feared impact on tourism). Wind power can make a positive contribution to social cohesion but can also create

conflict, e.g. if the advantages are concentrated on an outsider (the wind farm operator) and disadvantages accrue to the local population.

To make sure that the local population receives a fair deal, local communities could be encouraged to take the initiative in developing a wind farm along the lines they consider optimal and not limit themselves to reacting to applicants' requests for permits. Such a pro-active role is more likely to produce the desired results for the community, even if the task of construction is left to the developer. Successful examples of this can be found in France (see the full report). A developer is not likely to integrate as many local concerns, if only by the lack of appropriate information. On the other hand, a developer may be quite willing to integrate such concerns if they are clearly defined.

To improve the responsiveness of wind power developers to the concerns of nature and landscape protection plus the economic concerns of the local population, regional authorities could encourage the development of a voluntary code of behaviour for wind power developers and of a model contract that is to govern their relations with other interested parties (local population, local land owners, nature and landscape protection organisations etc.). (Something of this kind was done in Italy at the national level, see the full report).

Economic interests of the local population can also be taken into account by encouraging wind power co-operatives or other legal forms that allow a financial participation of local residents and/or of local communities (governmental units) as a whole.

It is conceivable that a wind power developer can be asked to make a contribution to local communities to compensate for the modification of the landscape (depending especially on the visual impact on a wind farm). It is probably helpful if such a compensation goes to a special fund and not into the general budget of a local community as this might lead to problematic motivations (experienced e.g. in some Apennine communities, where this practice gained an ill reputation). If a local government takes a pro-active role in the development of a wind farm (see the first item under this heading), it would also be plausible if it were to use such income for other infrastructures such as water supply and the like.

3. Regional development

This issue was already raised above. In addition, the following recommendations are formulated:

3.1 Limit payments to land owners and to local communities

In practice, these payments have increased regularly and represent a considerable cost factor already in Alpine regions. The reason for this is the scarcity of appropriate locations in Alpine territory. It is recommended to stimulate/promote a voluntary agreement between wind farm operators and organisations which are able to represent the groups named above (land owners, communities). This should avoid an upward spiral of such costs by stabilising expectations.

3.2 Integrate wind power into concepts for soft tourism

There is considerable public interest in renewable energy installations. This interest can be used not only economically (by drawing additional tourism); it can also play a role in the evaluation of wind power (as beautiful or ugly). For this reason it is recommended to make sure wind power is included into soft tourism, not only as a destination for excursions, bike

tours, hikes etc., but also by supporting the setting up of educational material (posters etc.) on the turbine site.

4. Cost structure

Alpine wind conditions are characterised by the frequency of very complex terrain and high wind speeds (though the wind blows for relatively shorter periods of time than in flat areas, where wind conditions are more even). This imposes additional demands on the resilience of the turbine material. Not all technologies are equally appropriate for Alpine locations. Since wind turbines take up locations that are no longer available to other operators, and since such locations are scarce in the Alpine regions, it is recommended to set particular incentives

4.1 set incentives to favour the following technologies

- turbines equipped with particularly strong generators that are better able to resist alpine wind conditions (winds are likely to be stronger and more multidirectional than in flat terrain)
- adjustable rotor blades (pitch control)
- variable rotor speed or two-speed gearbox
- appropriate de-icing technology

Incentives can take the form of tax breaks or of technical standards for equipment that have to be respected in construction if the installation is to obtain subsidies, a special feed-in tariff rate or tradable certificates.

4.2. further recommendations

are contained in the subchapters on economic framework conditions (stability of support systems to reach a larger number of stakeholders by reducing transaction costs, create more competition and thus reduce costs; higher efficiency of feed-in tariffs) and on regional development (voluntary agreements to stabilise payments to land owners and local communities and avoid an upward spiral).