GENERAL INFORMATION

PETUS description of tool in use	
Name of the case	Management of wind-farm developments in Wallonia (landscape and use of land)
Name of the tool	•Framework of Guidelines for Wind Energy development •EiEolienne planning-map. **In addition to the above tools, the following processes assist with the decision making process:** •Unique license •Eolienne Cell •Landscape officers (maybe to come)
Country	Belgium
City / region Total area (km2) Population Density (people/km2)	Wallonian Region 16.844,3 km2 3.371.992 (July 2003) 200,2
Tool user's profile a. Organisation name (municipality, NGO, national or regional department, company, etc.) b. Field of activity c. Detailed contact/feedback (project website, e-mail, address, tel., fax)	**a. & b.** The main end-users are Regional ministries and Ministerial departmental staff. These tools are dedicated to help the assessment of the project in terms of delivery rather than the license to build. These tools are also expected to help the inception of wind farm projects and thus to be used by developers, and every stakeholder associated with the project. **c. WALLONIAN GOVERNMENT DEPARTMENTS** **Ministry of Land-planning, Housing and Cultural Heritage** (Ministère de la Région wallonne – DGATLP) Rue des Brigades d'Irlande, 1 - B-5100 Jambes (Namur) Tél: +32 (0)81 33.21.11 http://mrw.wallonie.be/dgatlp/ ● M. BALTHAZAR ● Tél: +32 (0)81 33.25.20 **Ministry of Technologies, Research and Energy** (Ministère de la Région wallonne – DGTRE) Avenue du Prince de Liège,7 - B-5100 Jambes (Namur) Tél: +32 (0)81 33 56 47 Fax: +32 (0)81 33 55 11 http://mrw.wallonie.be/dgtre/ http://energie.wallonie.be ● Serge SWITTEN ● s.switten@mrw.wallonie.be **Ministry of Natural Resources and Environment** (Ministère de la Région wallonne – DGRNE) Avenue du Prince de Liège,15 - B-5100 Jambes (Namur) Tél: +32 (0)81 33 50 50 Fax: +32 (0)81 33 51 22 http://mrw.wallonie.be/dgrne/ ● Alain BOZET ● Tél: +32 081/33.61.08 ● A.Bozet@mrw.wallonie.be **MINISTER ANTOINE (Housing, Transport and Territorial Development)** **DEPARTMENTAL STAFF** http://www.andre-antoine.be/ rue d'Harscamp, 22 –B-5000 Namur Tél: +32 (0)81 25.38.11 Fax: +32 (0)8125.39.99 ● Fabienne THONET ● Tél: +32 (0)81 253 912 ● fabienne.thonet@gov.wallonie.be
Reviewer, date	Veronica Cremasco, February 2005

Short description of the case

abstract up to 300 words

Energy consumption in the Wallonian Region is particularly high (5.7 boe/inhab/year in Wallonia compared to 3.8 boe/hab in Europe). In order to achieve the regional requirements of the Kyoto Protocol (a reduction of emissions of 7.5% between 2008- respect to data registered in 1990), the Wallonian Government intends to produce 4% of its*

energy requirements from wind farms. Very quickly, many projects pointed out: wind-farms were expected to produce 200MW by 2010 when 300MW should already been reached at the end of 2005. In order to control this fast development, and particularly to manage impacts on landscapes and use of land, Regional Authorities have worked to produce tools. This is particularly important for Wallonia, a small region incorporating many urban areas. Therefore a coherent strategy has to be set up and tools are needed to assess impacts of every wind-farm project.

The first idea of a general planning-map which takes into account, for example, electricity networks and wind studies covering the whole regional territory has been rejected due to other countries experiences. Also, a planning-map considering landscapes at a regional scale has been judged not efficient. The definition of zones for wind-farm developments is still under debate in Belgium (and in other European countries). Until now, the tool used, but not legally obligatory, is the EIEolienne map that defines exclusion zones where wind-farm could not be developed within the territory. The main difference with the 2 previous tool-map considered is that the focus is on constraints, Indicators are aggregated to appreciate where wind-farms projects are excluded or restricted. A second tool in use is a Framework of Guidelines for Wind Energy development that establish domain rules and good practices that should respect the settlement of a wind-farm project.

A third "tool" the government is considering is a new post: a landscape officer whose task would be to facilitate the assessment of a project giving expert advice.

All these tools are developed to assess wind-farm projects applying for licenses in respect to their impacts on landscape and the use of land. The final goal being a better management of the spreading of the wind farms or "small infrastructures" on the territory.

** boe: barrels oil equivalent = 6,12 X 10^9 J*

Why was the case chosen? To which PETUS key-problem is this case study related? *This case study relates to two PETUS Energy key issues: The visual impact of energy supply systems and the security of energy supply.*

Sector	Waste	Energy	Water	Transport	Green/blue	Building & Land Use
		X				**X**

Scale of project	Component	Building	Neighbourhood	City	Region
		X (a wind-farm)			**X** (whole region concerned by these developments)

Status of project	Starting up	Ongoing	Finished	Start date	End date (exp.)
		X			

Key words

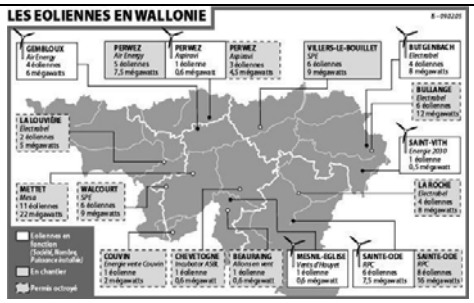
Wind energy, EIA, guidelines, renewable energy, landscapes, impacts, development, planning

Project a. Object (building, city park, wind farm, etc.) b. Type of activity (regeneration, renovation, new development, etc.) c. Type of product (plan, scheme, design project, etc.)	a. Wind farm b. Development c. Project (wind-farms in operation)
Tool a. Character (according to WP3final0704.doc) b. Benchmarks (qualitative or quantitative) c. Availability (paid/ free)	**a.** The main tools used in this case are a planning-map and a framework (guidelines). **b.** The benchmarks used by the tools are qualitative and quantitative. **c.** The tools can be obtained for free, but are only available in French. The "Guidelines for wind energy development " is available from : http://mrw.wallonie.be/dgatlp/dgatlp/Pages/DAU/Pages/Accueil.htm.
Decision-making process a. Stage of the tool implementation (preliminary, midterm, etc.) b. Level (political, technical, etc.)	**a.** The tools are developed to help the final decision stage, particularly in respect of granting (or not) of the license to build. Tools are also expected to be used at the inception stage of the project to help the overall process.

c. Public participation	**b.** Decisions relating to the case study are made at the political and technical level. **c.** The tool encourages public participation and communication.
Other *(optional, if needed)*	

DETAILED INFORMATION

A. Detailed description of project and tool	
1. Description of context (existing strategies, laws, policy, action plans, etc.): EU, national, regional, municipal	In order to reach the **Kyoto protocol** objectives, the Wallonian government planned to produce 4% of its energy needs via wind-farms by 2012. Belgium was one of the first 18 countries that signed the **European Landscape Convention** that has been in force since March 2004. *"While every citizen must certainly play a part in preserving the quality of the landscape, public authorities have a duty to define the general framework for ensuring this quality*" (http://www.coe.int/T/E/Cultural_Co-operation/Environment/Landscape/) Implementing the **EIA directive,** categories of wind-farm projects and respective requirements for the environmental assessment have been defined. The most demanding assessment is required when the project is more than 3Mwatts. Main concerns are landscape, noise and birdlife
2. Description of project a. Background (What caused the initiation of the project?; What was the problem? Who initiated the project?); b. Objectives/aims (sustainability statement – what issues of sustainability were attacked); c. Time interval and stages of project realisation; d. Financing – amount, sources, institutions involved, partnerships, levels. e. Other sectors involved in the particular project/problem (conflicts and/or links)  *First project developed in Wallonia, Saint-Ode*	**a.** The Wallonia Region encourages the production and use of green electricity. In particular, energy providers are required to buy a minimal ratio of the enery and received funding when buying this green energy (this process is called :green certificates) . Many private or public societies became interested in wind-farm settlements, resulting in a recent growth in Wallonia. In 1999, only one wind-farm was operating, in 2004 they were 38. Beside this energy challenge, Regional authorities were confronted by impacts on landscape and use of land. This is more significant as the territory is small and contains many urban areas, as well as there being a lack of experience in this field. **b.** The first objective of wind-farm developments is to produce 4% of Wallonia energy needs via Wind-Farms by 2012. A further important objective for wind farms is the territorial management of the spreading of these "small infrastructures". **c.** The time intervals and stages of project realisation depend on the individual wind-farm development projects. ● The example of Saint-Ode settlement (the first wind-farm project in Wallonia). A private developer had the idea to develop a wind-farm project on a site where the wind speed is 6,7m/s on average December in 1999. The developer first created the Renewable Power Company s.p.r.l., and commissioned an EIA which was completed by May 2001. 14 months later the development consent (unique license:



Production of wind-energy planned in the Wallonian Region

urbanism + environment) was granted.
In February 2003, the wind-farm of 6 turbines began operation.

● The example of Gembloux-Sombreffe settlement
Two developers from the area created the Air Energy company in June 2001
The farm of 4 wind-turbines was inaugurated in October 2003.

! N.B.: These 2 examples are illustrated at the end of this document.

d. The financing of the project depends on the individual wind-farm development projects.

● The example of Saint-Ode settlement
Total investment : 10 millions euros
Wallonian funding: 1,5 millions euros
Green certificates to be sell per year (money the developer will get back from the regional authorities) : 1,26 millions euros (estimation)

●The example of Gembloux-Sombreffe settlement
Total investment : 7,2 millions euros
Green certificates to be sell per year: 1,35 millions euros (estimation)
More than 20 Belgian companies are involved in the project.

e. A wind-farm settlement often involves other sectors through the various aspects of the project development.
➔ Concerning the whole regional territory:
- Landscape impact.
- Public acceptance
- Ground occupation (use of land)
- …

➔ Locally:
Noise pollution, Shadow flicker(*), Reflected light, Birds' migratory areas, Distances from housing, …

More generally, it could be said that **social acceptance**, besides environmental impacts and land-management should be analysed in more depth.

(*) **Shadow flicker :**
Under certain combinations of geographical position and time of day, the sun may pass behind the blades of a wind turbine and cast a shadow. When the blades rotate the shadow flicks on and off. The effect only occurs inside buildings where the flicker appears through a window opening. The seasonal duration of this effect can be calculated from geometry of the machine and the latitude of the site.

Example of the communication brochure published by the Wallonian Region.
This one is about a farm of 4 wind-turbines of 1,5MW each built at Gembloux-Sombreffe. They would provide electricity for 4000 household.

3. Description of tool

a. Character (according to WP3final0704.doc) - calculation tools, process tools, assessment methods, generic tools, simulation tools, guidelines, framework tools, schemes, indicators and monitoring, checklists, case-specific tools;
b. Availability of the tool (web-based / paper, paid / free, etc.)
c. Based on existing tool or newly elaborated;
d. Adaptation of the tool to the local context (are there local experts involved in tool's development?)
e. Other tools implemented to support the project development

a. Tools have been developed to better manage the integration of wind-farm developments through Wallonia.

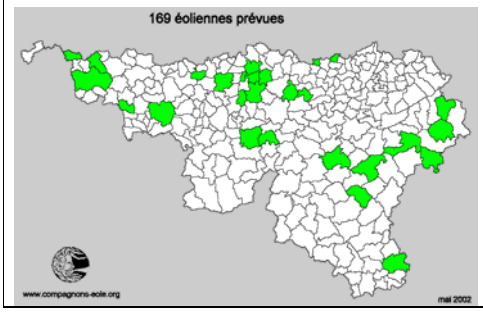
● **Framework of Guidelines for Wind Energy developments.**
The Framework is a guideline of adapted technical definitions and solutions for projects. It sets up rules and good practices to be respected in a wind-farm project. The annexes also contain recommendations for developing the EIA.

● **EiEolienne map**
It is a map that defines zones of the Region where wind-farm developments are excluded or restricted
To define landscape constraints, 4 scales of landscapes (Landscape territory; Large common rural landscape; landscapes unities and local zone) and 2 qualities (heritage value and landscapes' objectives) have been definied. Landscapes' Indicators have been aggregated with other indicators to set up a map that will support the assessment of the location a wind-farm project.

b. Tools are available on electronic and paper formats for free.

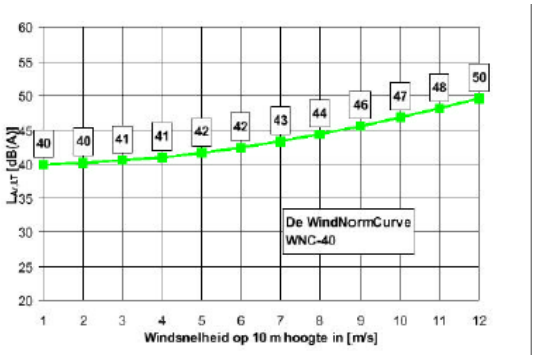
c. The **Framework for Wind-Farm' developments** was developed by the relevant Ministries' departments. Benchmark data and goals were inspired by considerations of other European countries that are leaders in wind-farm

	development, German and Dutch benchmarks are given. Concerning the **EiEolienne…** The first idea of a general planning-map (taking into account, for example, electricity networks and wind studies) covering the whole regional territory, indicating the zones where projects could be developed has finally been rejected as other countries' experiences showed the results were not relevant enough with regard to the time and money consumed for studies. A planning-map considering landscapes through Wallonia was also judged not pertinent at the regional scale as landscapes are so varied and numerous. The definition of zones for wind-farm developments is still under debate in Belgium (and in other European countries). Until now, the tool in use (even if it is not a legal obligatory procedure) is the EIEolienne map. It defines zones in the territory where wind-farms locations are excluded or restricted. The main difference is that the focus is on constraints. **d.** Developers of the tools are aware of the local Wallonian context and contact local experts. **e**. Other tools have been developed. They do not assist with the assessment of the project but they support the development of wind-farms through the region. • Unique license. An administrative simplification has been in force since July 2002. Today, developers only need to apply for one unique license instead of 2 as previously. The license to build (urbanism) and the environment license (EIA) has been gathered together and simplified. This simplification does not only concern wind-farm projects but all the projects that require these 2 licenses to obtain a development consent. Other modifications are still awaited to complete the administrative reform. • "Eolienne Cell" A Wind-farm committee has been formed to think about the management of wind-farm developments. This committee includes a representative from each of the 3 Ministers concerned (Town Planning, Energy and Agriculture) and a representative from each 3 Ministries' departments concerned (DGATL, DGRNE and DGTRE: see tool users' profile for the whole description) • (**Landscape Officers:** (a potential new tool from the Government) The government is intending to create a new function of landscape experts. Landscape Officers are expected to give competent advice to help the assessment of the project in respect to its impact on landscape.)
B. Tool implementation	
1. Argumentation for choosing the tool a. What were the reasons for the implementation of the tool? (voluntary or requested by what local, national, etc regulation) b. Who took the initiative for choosing /elaboration the tool?	**a.** New green projects could not wait so long for a new homogeneous procedure so Regional authorities assessing every wind-farm project individually, in a form of emergency procedure. As the Region hadn't any experience in this field, the first steps were difficult: social conflicts, technical problems, etc.

c. What were the criteria for choosing the tool? d. Was there knowledge of other tools and were they considered?	Regional authorities* needed more efficient tool(s) to assess the impacts of wind-farm projects and the granting or not of the license to build. To really promote sustainable projects and help the overall decision-making process, these tools are also expected to provide developers with assistance in the inception of wind-farm projects. The demand was clearly also from public and private developers who were looking forward to a new procedure: for faster decisions, global policy for the whole region, rules clarified, and so on… * Mainly 3 ministers (Town Planning, Energy and Agriculture) and 3 ministries' departments (DGATLP, DGRNE and DGTRE: see tool users' profile for the whole description) are concerned. **b**. The 3 Ministers (Town Planning, Energy and Agriculture) and 3 Ministries' departments (DGATLP, DGRNE and DGTRE: see tool users' profile for the whole description) concerned chose the tools. **c.** Tools discussed here have been developed to assist the environmental impact assessment and the final decision to grant the license. But, as said above other options have been considered and some are still under debate, as in many other countries. For instance, first, a map looking at all the possibilities for location was considered; afterwards a map analysing the different landscape zones and finally it is a map considering constraints that are in force. This last solution is nevertheless still under debate. The optimum process is perhaps not yet found. **d.** Many different sources of knowledge have been used, whether for technical local aspects (noise, shade, stroboscopic effects, etc.) or for management regional aspects (use of land, town-planning, landscapes, etc). For the first aspects, international standards and benchmarks have been taken into account (examples are given at point C. 2. of this case). For the second aspects, different strategies have been discussed as well as the proper features of the Region.
2. Barriers for the tool implementation What were the main problems in the tool implementation? (Regulation, information available, public awareness, lack of clear SD definitions and benchmarks, communication etc.)  	The **ElEolienne map** is difficult to establish, as restricted areas have to be defined. These studies have to go into detail, considering projects at every location, and as a result are consuming in terms of time and money. The best scale for this analysis is perhaps the local one, because municipalities are involved in the decision-making process, and directly concerned by the economic and social outcomes of wind-farms developments on their territory. Nevertheless, the necessity still remains to coordinate these tools at the regional and national upper scales. The **technical framework** is adaptable. The text format (versus a geographical map) allows very interconnected problems as well as general notions to be dealt with easily. Nevertheless, this framework does not really help the assessment of practical situations, as the interpretation of some aspects remains uncertain. One of the problems remains in the definition of landscape quality. Some

Deleted:

Wallonian municipalities where Wind-farms settlements are planned	research studies try to quantify these aspects but until now they are considered inconclusive. Public awareness and acceptance by the public are also decisive factors.
C. Influence of the tool on the decision-making process	
1. Description of the decision-making process/ procedures a. Stages b. Levels (political, technical, etc.) c. Sources of information used during the dmp; d. Who are the decision-makers? e. Who made the final decision for the project implementation? Was it political or technical decision?	**a.** The stages involved in developing a wind farm are: ● When a developer has a project, possibilities for wind-farm developments are investigated. The EIEolienne, when it is used, could provide the developer with an awareness of specificities of the different regional areas. The "Frameworks for wind-farm developments" tool could be used as guidelines to develop the project. ● The project progresses to the design stage. ● Developer applies for a license. The 2 tools : EIEolienne and the Framework would be used (not legally obligatory) to support the decision and argumentation. Soon, a Landscape Officer should give expert advice on the project. **b.** The decision making process occurs at the political and technical levels. **c.** The 2 main tools, ElEoliennes and the Framework, are expected to be sources of information used during the decision making process. Other research projects, municipality studies, etc. could also be used. **d.** All the stakeholders that interact within the project: developers, authorities, residents, etc. are the decision makers. **e.** The final decision to grant the license or not is made by the Regional or Municipal authorities.
2. Tool in decision-making process a. At what stage was the tool implemented? By whom? (experts, politicians, etc.) b. How did the tool output influence the process (added or skipped levels/stages in the existing decision-making process, etc.)? c. Quantitative goals or benchmarks defined? (If YES, which – and what were they compared to?) d. Was the tool used to support argumentations?	**a.** Authorities use the developed tools to assess the impacts of wind-farm projects (EIA) and support the granting or not of a license to build. To really promote sustainable projects and to help the overall decision-making process, these tools are also expected to provide developers with assistance in the inception of wind-farm projects. **b.** Influences expected as a result of using the tool are the clarification of rules in force for all the stakeholders that interact within the project including developers, authorities, designers, residents, etc : • Shorten the decision-making process • Give local authorities a clear basis to deal with the different actors involved (developer, population, energy provider, etc) • Avoid conflicts with population • Give the developer references to help the design The top general objective is to ensure the quality of the landscapes, and the quality of life while developing green energy infrastructures.

	c. The tools gather **quantitative** benchmarks, usually compared with other countries references. For instance, a curve from the Netherlands' legislation gives thresholds of noise to be a respected function of the speed of wind. *(Framework of Guidelines for wind energy development, p14)*  *De WindNormCurve WNC-40 from the Dutch legislation specifies the maximal noise of a wind-turbine regarding the wind speed at 10m of height* German references are given to consider the thresholds of stroboscopic effects. Considering visual impacts, landscape issues as well as public participation, the "Framework" mostly gives **qualitative** considerations and guidelines. For instance, concerning visual impact, 2 tools are promoted: the photomontage and the definition of zones of visibility of the project (software calculate it regard to the topography). Concerning landscape issues the qualitative recommendations try to promote the enhancement of the main features of the landscapes. The idea is not to camouflage the wind-farms but to use them to structure the landscape. The Framework of guidelines for wind energy development " encourages municipalities to involve the population in the project from the beginning" (see here above point 3) **d.** The tools, due to their objective nature, support argumentations.
3. Transparency of decision-making process a. How was the information of the dmp disseminated? - directly (decision makers – public) or indirectly (decision makers - NGO, PR company, etc. - public); sources of dissemination used (mass media, internet, brochure, etc.) b. How was the public involved? c. Was there a public discussion over the project and at what stage of the project development?	**a.** Part of the information on the decision making process is directly disseminated. In Wallonia, a public enquiry is mandatory for every wind-farm project. Nevertheless, some information is also indirectly disseminated to the public: different experts' advice is available, and sometimes put on a web site, etc. **b.** In Wallonia, a public enquiry is mandatory for every wind-farm project, after the project is designed and before the license to build is delivered. Moreover, "The Framework of guidelines for wind energy development " encourages municipalities to involve the population in the project, and to develop the notion of public good. References to other countries are made as some wind farm developments involve the owners of grounds located within a certain radius, to avoid frustration by

 *Inauguration of the first Wind-farms project in Wallonia, April 2003, Saint-Ode,*	adjacent landowners. **c.** Public enquiries are mandatory after a project is designed and before the license to build is granted. This stage does not really encourage public involvement within the project. Public participation does depend on local initiatives.
D. Expert assessment/analysis/comment of the tool effectiveness	
1. Assessment by tool users a. Were there measurable improvements as a result of the tool implementation? If YES, what? If no: why not? b. Were there any spun-off's or unintended consequences? c. General view on the tool? Lessons learned? d. Potentials for further use of the tool? e. Will the actors recommend it or use it in other cases - why / why not?	**a.** There are two expected results: ● The main purpose of this case is better territorial management improving efficient land-use and quality of landscapes, however these improvements have not been measured. ● The second objective is the enhancement of the decision making process. While limiting social conflicts, extra-expenditure (studies on inappropriate projects, etc), extra-time on decisions, it promotes initiatives. This kind of progress is not measured. **b.** A usual criticism is that these tools don't enable objective decisions particularly with regard to landscape impacts, but this consequence is not really unexpected. This is a complex problem not solved in many European countries. The last "tool" that could be developed consists of creating a new public function of "landscape officer". This officer, a sort of landscape referee, is expected to provide comprehensive advice that synthesises the different parameters. The Landscape Officer will filter the large amount of information that is available. The shortcomings of this solution have already been identified by municipalities in Wallonia and the inconclusive example of the "guides enquêteurs" (enquiries guides, facilitators that should help the EIA procedure) in France, is mentioned. **c.** Tools are not well known by end-users. The existence of many other external studies, analyses used as sources of references etc. cause confusion. **d.** / **e.** Stakeholders would recommend the use of these tools mainly because they are at least a common source of information. Many stakeholders are well aware of many other experiences in other countries but remain convinced

	that the right practical assessment tool does not exist (yet!).
2. Reviewer's assessment of the tool (usefulness, sustainability relevance, who are the actors excluded? etc.) Suggestions and needs for further development of the tool	● The double approach that promotes the use, first of general planning map and afterwards of technical guidelines, is a step towards the continuity of sustainable concerns from strategic level to technical details. The format of the tools depends on the objectives. For a global management of the territory, a planning-map covering the whole region is developed. For a closer approach, technical guidelines are provided in a text format. Text enables explicit complex links between various ideas; allows expression of very precise details, as well as conceptual ideas. This approach could help with similar problems concerning the spreading of small built infrastructures through a whole territory to provide necessary resources. The concerns are totally different to a large project that would provide energy for a whole region. ● Another lesson learnt is the difficulty of setting up criteria to determine what kind of environmental impact assessment is required for what kind of development. It is the purpose of the screening and scoping stages of the **EIA**. Concerning wind-farms, European countries mainly systemise the process, providing thresholds of categories. For instance, in Wallonia, 3 categories are made, depending on the power of the turbine developed. The most demanding **EIA** must be done when the wind-farm exceeds 3MW. In contrast, in France, criteria are based on the height of the turbine. It could be interesting to gather and compare these different European benchmarks, as well as understand the reasons why they have been set up as such.
E. Additional information on the case study available	
Websites	**LAWS and REPORTS (international)** •*European Landscape Convention CETS No. : 176:* http://www.coe.int/t/e/Cultural_Co-operation/Environment/Landscape/State_of_signatures_and_ratifications/default.asp • *European EIA directive* *http://europa.eu.int/comm/environment/eia/home.htm* •*Aarhus Convention* *http://europa.eu.int/comm/environment/aarhus/* •*Kyoto Protocol* •*Wind Power & Policy in Europe* *http://www.ewea.org/02policy/windineurope.htm* **LAWS and REPORTS (national)** •*The Framework for Wind-Farm's developments in the Wallonian Region:* http://mrw.wallonie.be/dgatlp/dgatlp/Pages/DAU/Pages/Accueil.htm •Environment license and Unique License http://www.permisenvironnement.be/ **Wallonian Sites** •"*Energy Site" of the Wallonian Region:* http://energie.wallonie.be/xml/index.html

	• "*Environment Site" of the Wallonian Region* http://environnement.wallonie.be/ **Some other European guidelines references** • BELGIUM, *Guide for EIA of wind-farms* http://environnement.wallonie.be/guides_incidences/pdf/Parc%20%C3%A9olien.pdf • FRANCE, *Guide for EIA of wind-farms* http://www.ecologie.gouv.fr/article.php3?id_article=3534 • U.K., *Best Practice Guidelines for Wind Energy Development* http://www.bwea.com/ref/bpg.html • IRELAND *Best Practice Guidelines for Wind Energy Development* http://www.iwea.com/publications/bestpractice.pdf • EUROPEAN *Best Practice Guidelines for Wind Energy Development* http://www.windfarm.fsnet.co.uk/downloads/bgp.pdf
References *concerning the case but also the key words or problem* (papers, articles, reports, laws, etc.)	**See web-sites….** **ARTICLES** ● R. Bavay, "L'écologie contre l'Environnement" (Ecology versus Environment), Etudes Foncières n°102, mars-avril 2003, France ●"Dossier Eolien" (Wind-farm files, Special edition), Les cahiers de l'Urbanisme n°52, décembre 2004, Belgium http://mrw.wallonie.be/dgatlp/dgatlp/Pages/DGATLP/PagesDG/CahUrbNum/CahUrb52.htm (summaries in different languages!!) ● "La Wallonie pourrait doubler ses objectifs éoliens". (Walloniawould double its production of wind-energy) http://www.regions.be/Rubriques/Wallonie/page_559O_300231.shtml
Other sources (Interviews, conferences, discussions, etc.)	Many interviews
Contact details for further information	*Veronica Cremasco- Research Engineer.* *LEMA-ULg* *University of Liège Faculty of Applied Sciences* *1,chemin des chevreuils (B52/3)* *B-4000 Liège Belgium* *tél : +32 4 366 93 67 fax : +32 4 366 95 62* *http://www.lema.ulg.ac.be* *http://www.petus.eu.com/*