

# **REPORT ON ICPE COMPLAINTS FROM THE FRENCH AISNE AREA SUBMITTED BY THE NGO 'SOS DANGER EOLIEN'**

JL REMOUIT – V BERNARDEAU version V2 november 2022

## **EXECUTIVE SUMMARY**

The purpose of this document is to present the results of a health survey on the effects of wind farms carried out by the French association SOS Danger Eolien in the department of Aisne. ICPEs, Installations Classified for the Protection of the Environment, of which wind farms are a part and specifically governed by legislation. A reminder of the framework is specified at the beginning of the note. After developing the ICPE survey in a geographical area around the town of Marle, the association filed 250 complaints with the local Prefecture, which followed up on an examination of the cases by the ARS (Regional Health Agency).

This divided the symptoms into three classes, the wind syndrome which we called neurological, tumors and cancers, endocrinological effects to which we added the cardiac effects observed. The ARS considered that only the wind syndrome was relevant given the number of occurrences. The fact remains that we show that beyond the proportion of patients who, out of fear, do not dare to sign a complaint, beyond the proportion of the population sampled, we conclude that for the most affected villages the proportion of patients exceeds 60% of the population.

## Reminder of the legal framework

ICPEs, Installations Classified for the Protection of the Environment, of which wind farms are part, are specifically regulated by French legislation. They can have impacts (pollution of water, air, soil, etc.) and present dangers (fire, explosion, etc.) on the environment. These are articles of the Environmental Code, the Heritage Code, the Energy Code and in particular, for health impact studies as defined in article R.122-5 II of the Environmental Code. The latter specifies that an analysis of the initial state of the area and environments likely to be affected by the project is required, as is an analysis of the direct and indirect, temporary and permanent effects on the environment, in particular on health.

While the Environmental Code sets the regulatory framework and the objectives to be achieved, the circular of August 9, 2013 offers the methodological tools to meet these regulatory requirements.

*"Thus, in the context of an impact study, the circular of August 9, 2013 recommends that for classified installations subject to authorization (with the exception of classified livestock installations for which the methodology remains that recommended by the circular of October 19, 2006), the process of analysis and environmental management of chronic health risks is based on two complementary tools: the interpretation of the state of the environment (IEM) and the assessment of health risks (ERS).*

*The interpretation of the state of the environment (IEM) is based on measurements in the environment of the site and provides additional information to the health risk assessment (ERS). It makes it possible to assess the compatibility of the state of the environments (air, water, soil) around the installation with the uses observed. The IEM draws up a diagnosis of the situation of the environment of the site at a precise moment; The health risk assessment (ERS) is based on current and future emissions from the installation. It makes it possible to prioritize the various substances emitted by the site, their sources and the routes of exposure, with a view to defining prevention and management strategies specific to each installation.*

*These two tools are part of a broader approach, called an integrated approach to assessing the state of environments and health risks, which is described in the 2013 INERIS guide "Assessment of the state of environments and health risks - integrated approach for the management of emissions of chemical substances by classified installations". This takes place in 4 major steps:*

*Assessment of facility emissions: characterization of emissions and compliance with regulatory requirements and Best Available Techniques;*

*Assessment of issues and exposure pathways: conceptual diagram describing the relationships between pollutant sources, transfer media and vectors and exposed uses and populations;*

*Assessment of the state of the environments: initial state of the environments potentially impacted and degradation attributable to the installation (if existing). This assessment is based on the IEM methodology as described above.*

*Prospective health risk assessment: calculation of the risks attributable to the predicted emissions for the populations around the installation. »*

Source April 2022: <https://www.ecologie.gouv.fr/prevention-et-gestion-des-risques-sanitaires-autour-dune-icpe-soumise-autorisation>

## Forewords

**All the complainants, without exception, state that their symptoms appeared after the commissioning of the wind farms.**

Mrs. Valérie Bernardeau led the collection during the years 2021 and 2022 of more than 250 ICPE complaints and communicated them by registered mail to the Aisne prefecture in batches of 50.

See methodology:

<https://www.energieverite.com/post/modalites-de-reclamation-en-prefecturecontre-les-icpe-les-%C3%A9oliennes>

When they arrived at the ARS of Hauts de France, two services were called in to examine them, the environment service and the health watch service. Subsequently, the association sent the prefecture other complaints in packages of 50 to reach 250 by the end of October 2022. The first 50 were the subject of an article in the Energy and Truth blog under the title "The martyr villages of the Aisne".

<https://www.energieverite.com/post/l-%C3%A9olien-la-sant%C3%A9-et-les-villages-martyrs-de-l-aisne>

A summary meeting with the ARS of Hauts de France (Regional Health Agency) took place on May 26, 2021 at their premises in Laon. We were told that the ARS had only examined the first 100 complaints (lot 1 and lot 2) due to the response times to which it is constrained. These 100 complaints all cover the northern third of the Aisne department, i.e., statistically, 140,000 inhabitants and the villages concerned represent 17,000.

There is nothing scientific about the sampling method: the investigators came to the villagers' houses, at times that are not necessarily favorable. If they opened, we asked if people were sick from the wind turbines, and if so if they wanted to file a complaint. In the latter case, at least half of the patients did not want to testify for fear.

The most affected villages exceeded 60% of patients.

Lot 5 is missing due to the fact that the lawyer has not returned the file to date.

The ARS has therefore divided the 100 patients into three groups of diseases or symptoms, that of cancerous pathologies, that of non-cancerous pathologies (such as the thyroid or eczema) and that of the so-called wind syndrome. The first two were excluded from the conclusions because of their non-representativeness, while the third, the wind syndrome (which we have classified in the neurological signs in the tables), appears to be significant. Consequently, they told us that they were going to recommend, in their note which must be validated and signed by the CEO, the launch of an epidemiological study.

An article about lot 1 appeared on the Energie et Vérité blog in 2021:

<https://www.energieverite.com/post/l-%C3%A9olien-la-sant%C3%A9-et-les-villages-martyrs-de-l-aisne>

In reality, this epidemiological study (RIBEolh) has already started within the framework of the CIBELIUS research project. It only concerns auditory effects and should be released in 2025.

## Sampling statistics

In order to understand the interest of these claims, we will assess the proportion of the population involved.

The sampling was done within a radius of 25 km around Marle, i.e. 1962 km<sup>2</sup>. This represents 26% of the area of the Aisne department, 7,362 km<sup>2</sup>, which had 530,000 inhabitants in 2019.

## **Claims ICPE results posted to prefectural authorities**

### **Classification of declarations**

Patients' declarations of symptom(s) were classified into neurological, ie all direct auditory effects linked to the ear, into tumoral and cancerous effects, then finally into endocrine effects. Cardiac issues have been grouped separately.

The explanations and hypotheses on the causes of the symptoms are developed in the following.

### **Value of statistics**

The sum of the inhabitants of the villages mentioned, forms a set of 19,000 people for the four lots taken into account, i.e. 200 cases. But the whole population was not questioned, the investigators concentrated on the villages flooded with wind turbines on the understanding that certain areas are deprived of them.

Among the homes that have opened their doors, the proportion of homes with sick people is between 20 and 60%, many of them not knowing that their health problems come from the wind turbines. Among them, only 50% agreed to sign a complaint, the others, held by fear, refused it, which brings to 400 the patients listed.

Thus, in certain villages, the investigators were able to speak of entire streets of patients more or less seriously affected, such as in Montcornet or Dizy-le-Gros or Thiernu.

Consequently, if we calculate the ratio of 400 registered patients for 19,000 inhabitants, we obtain a ratio of 2% of patients. But, as previously indicated, not all of the territory was surveyed in its entirety. The surveyed part does not exceed 5%.

Thus, we obtain at least 20% of the population suffering the effects of wind turbines, some effects such as acoustic effects being reversible, others being irreversible such as the group of tumours/cancers or the cardiac group, others finally, such as endocrine effects, straddling, depending on the case, between reversibility and irreversibility.

**But for some villages surrounded by approximately hundred wind turbines (15 parks) rates of 60% of patients should be suspected on the basis of the sampling rate.**

In the summary table presented below, it will be noted that the sum of the symptoms for a batch is not 50. This is due to the fact that a patient presents several simultaneous affections, statistically approximately three.

## SUMMARY TABLE SORTED BY SYMPTOM

Symptoms	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Total
<b>Neurology</b>						519
Ear pain		1				1
Tinnitus	21	23	20	24		88
Migraines	26	22	31	28		107
Nauséa	7	6	4	5		22
Dizziness	17	15	16	15		63
Insomnia	35	36	33	27		131
Otitis		2				2
Visual disturbance	2	2	1	4		9
Oxydative stress		1				1
Nervousness/Irritability	9	7	4	3		23
Palpitations		2				2
Unbearable disturbance	13	7	12	7		39
Hearing impairment	4	2				6
Vomiting	1	1		1		3
Hyper acousmia		1				1
Stroboscopic effects	1	1		1		3
Windfarm flash	6	2		1		9
Psoriasis	2					2
Bloody ears	1					1
Breathing disorder	2		1			3
Ear pain	2			1		3
Muscle pain	2					2
Itching	1		1	1		3
Limb tremor			1			1
<b>Cardiology</b>						42
Tachycardia	6	8	5	7		26
Heart arrhythmia	1		1			2

Hypertension	2	1	1	3		6
Heart troubles	1	2	3			6
Heart stens bypasses		2		1		3
Tension		2				2
Heart attack		1				1
Blood circulation	4	3	1	2		10
Stroke	1	2				3
<b>Cancers et Tumeurs</b>						<b>44</b>
Eczema	2	4	2	1		9
Giant eczema	2	4				6
Undetermined cancers	2	3	6	2		13
Lymphoma		3				3
Prostate cancer		1				1
Pleura cancer		1				1
Mélanoma		1				1
Alzheimer		1				1
Brain tumor		1				1
Meningeal carcinoma	1					1
Bile duct cancer	1					1
Kidney cancer			1	1		2
Thyroid cancer			1			1
Stomach cancer			1			1
Uterine cancer			1			1
Rectocolitis				1		1
<b>Endocrinology</b>						<b>32</b>
Crohn disease		1				1
Stomach/Intestines (pain)	2	3	1			6
(Poly)Arthritis	7	7		2		16
Algolistrophy		1				1
Thyroid (dysregulation)	4	2	1			7
Epilepsy		1				1
<b>Divers</b>						<b>2</b>
Lung tear	2					2

**Symptom Chart Reading Note:**

It should be understood that a complaint is generally made by a single person. However, in some rare cases, each family member was counted separately. Finally, the same person may experience several effects and present several symptoms. It may therefore happen that the total of claims is not the total of persons.

## CHART OF PATIENTS SORTED BY VILLAGE

Village	Code postal	Pop 2019	Patients lot 1	Patients lot 2	Patients lot 3	Patients lot 4	Patients lot 5	Tot
Agnicourt et Seych.	02340	182	1	2				3
Attilly	02490	354				1		1
Autremencourt	02250	173	9		1			10
Beaurevoir	02210	1433				2		2
Berlancourt	02250	88			1			1
Chaurse	02340	544		2				2
Chatillon les Sons	02270	84	2		2			4
Cuirieux	02350	156			3			3
Dizy le Gros	02340	730	4	8		3		15
Ebouleau	02350	195			1			1
Erlon	02250	287	6			2		8
Fontaine les Vervins	02140	932		1				1
Gizy	02350	664		1				1
Grandlup et Fay	02350	287		1				1
Housset	02250	160	1					1
Iron	02510	225		1				1
Jeancourt	02490	264				4		4
La Neuville Bosmont	02250	187	1					1
Lappion	02150	268				1		1
La Ville aux Bois...	02340	198		2				2
Le Hérie la Viéville	02120	209			2	8		10
Lemé	02140	420	1	7	4	1		13
Le Thuel	02340	158			3			3
Machecourt	02350	121			6	3		9
Macquigny	02450	366		1				1
Marcy sous Marle	02250	201		2	5			7
Marle	02250	2235	3	4	4	9		20
Mazinghien	59360	305				1		1
Monceau le Neuf...	02270	324			2	1		3
Monceau sur Oise	02120	127				1		1
Montcornet	02340	1324	4					4

Mont d' Origny	02390	831		2	1			3
Montigny sous Marle	02250	67	3					3
Neuville lès Dorengts	02450	377		1				1
Origny Ste Benoit	02390	1670			1			1
Pierrepont	02600	347			3			3
Puisieux et Clanlieu	02120	311	4	1	3			8
Ribemont	02240	1937		5				5
Sains-Richaumont	02120	1057	2		5			7
Sons et Rochère	02270	221	5					5
Tavaux et Pons...	02250	552	1	1				2
Thiernu	02250	114	1	2		8		11
Toulis et Attencourt	02250	121			1			1
Vadencourt	02120	529				3		3
Vigneux-Hocquet	02340	272		1				1
Villers le Sec	02240	252		3				3
Villers les Guises	02120	162				1		1
Voulpaix	02140	356				1		1
Voyenne	02250	312	2					2

### Sorting of the most impacted villages (disease declared >5%)

Village	Patients	Inhabitants 2019	%
Thiernu	11	114	10
Machecourt	9	121	7
Autremencourt	10	173	6
Chatillon les Sons	4	84	5
La Hérie La Viéville	10	209	5

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We see significant differences in the impact of wind farms on the health status of villages between them. It is due primarily to variations in the sampling rate (random opening of homes during the surveys), to variations in exposure to the number of neighboring or even distant parks (infrasound), to exposure to prevailing winds and the geological nature of the underlying terrain. However, we can rely on the most affected villages to assess the dangers of these exposures and the resulting health risks.

The SOS Danger Éolien association considers that 50% of declared patients did not want to sign an ICPE claim (some who had signed went back to have their declaration canceled). It considers that the sampling rate for this survey for small villages (the visit rate, ie the doorbell ringing, then the door opening rate) does not exceed one for three homes. This gives us for a village of 100 homes (i.e. statistically 240 inhabitants) 33 open doors and 80 inhabitants questioned. On the basis of 10% of patients declared in the most affected village (here it is Thiernu) we can deduce the rate of patients of the population more or less seriously affected likely to affirm that their symptoms have declared themselves AFTER the arrival of the wind turbines. Thus, on the basis of 11 patients who lodged a complaint in Thiernu, we would have 22 identified patients and taking into account the sampling, 66 potential patients for 114 inhabitants, or 58% of the population.

This figure of a capacity to affect health at 60% of the population is not far from the intuition felt by the investigators of SOS Danger Éolien who estimate that this percentage can, in certain "favorable" villages because very exposed, exceed 70%.

How is it that other alerts could not have seen the light of day yet?

For questions relating to everyday life, many do not think they are sick, do not consult and consider that it will pass. The neighbors do not talk about it among themselves out of discretion and an objective omerta reigns in these villages having adopted one or more wind farms where the pros and cons of wind power find themselves face to face in a mutually risky situation from all points of view.

## Comments

The health effects of wind turbines are due to the permanence of the exposure: in a household where the wife does not work, she is usually more affected than her husband who is often spared. We have a block of neurological symptoms whose ear is at the origin and therefore the audible and inaudible acoustics: it is tinnitus, migraines, vertigo and insomnia which are linked. They depend on the direction of the wind relative to the original wind farms and its power. The other effects are diverse and often overlooked. Fatigue, resulting from insomnia, weakens the health of patients and makes them sensitive to other aggressions: far infrasound, electromagnetic and electrostatic effects as well as stray currents. Their combined effects can make them electrosensitive.

The other effects come from these factors, some explanations of which are given. They are modulated by the favorable effects of certain geological terrains: these are wet conductive terrains of the clayey-sandy type. But they can be found in other terrains (karstic, see granite) if they are likely in watercourses or in faults to collect displaced clayey-sandy elements: they are also conductors.

We can also create the table of impact of wind turbines on health according to their concentration around a village starting from 0 impact without wind turbines to 100 with 70%. We will take the wind farms located within a radius of 6 km around the village, i.e. the distance between two villages.

See :

<https://www.energieverite.com/post/clusters-et-regroupements-de-centrales-eoliennes>

## HEALTH IMPACT TABLE OF WIND TURBINES ON A POPULATION

Windturbine nb	Concentration /km2	Sick %	
0	0	0	
10	0,09	7	
20	0,18	14	
30	0,27	21	
40	0,35	28	
50	0,44	35	
60	0,53	42	
70	0,62	49	
80	0,71	56	
90	0,80	63	
100	0,88	70	

## ORIGINS OF SYMPTOMS ATTRIBUTABLE TO WIND TURBINES

### IE : Assessment of the state of environments and health risks

A quick reminder of the sources of pollution.

**All the complainants, without exception, state that their symptoms appeared after the commissioning of the wind farms.**

The origins are all known:

### **Audible sounds 20 hz to 20 khz**

Depending on their potency, they cause discomfort, insomnia, fatigue, loss of balance from damage to the middle and inner ear with the appearance of blood, then damage to ancillary organs such as sight, with possibly irreversible effects.

Average power in a fractional octave is not the only cause, peak power (like the grinding of a turbine gear) is much more aggressive than average power.

## **Infrasounds**

see: <https://www.energieverite.com/post/les-effets-des-infrasons-produits-par-les-eoliennes>

The infrasound produced by wind turbines is transmitted 30% by the atmosphere in the form of acoustic vibration and 70% by the ground in the form of seismic vibration.

The waves have two components P for compression (P for pressure) with a vibration in the direction of displacement and S for shear (S for Shape) with a vibration in the direction perpendicular to the direction of displacement.

The infrasounds are distributed in the spectrum below 20 hz up to 0.1 hz and form peaks at certain points exceeding 120 dB below 1 hz.

The compression waves vibrate the cavities, cranial box, lungs, uterus, bladder...

Shear waves attack the membranes.

These infrasounds are produced by the vibration of the mast (tuning fork) or the blades.

## **The stray currents**

The interconnection of the earth of the wind turbines by copper layers makes it possible to equalize their respective neutrals. This provision of the earth interconnection is prohibited for the interconnection of the buildings of an industrial site due to the risk of fire and disturbances in the electrical communication networks.

Thus, the ground potentials of each wind turbine being different, their interconnection causes balancing currents which escape from the assembly through the less electrically resistant area of the ground. Hence the appearance of stray currents approaching a dwelling creates a 50 Hz field polluting the atmosphere of the house with acoustic waves.

## **Various**

We will not forget the sources of pollution from wind turbines in the air (bisphenol) or in the groundwater (oil leaks and other fire-fighting and heat-carrying liquids).